

**Report of the
twenty-fifth session of the
Asia and Pacific
Plant Protection Commission**

**27 to 31 August 2007
Beijing, China**



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FOREWORD

The twenty-fifth session of the FAO Asia and Pacific Plant Protection Commission (APPPC) was convened in Beijing from 27 to 31 August 2007 to review the activities of the Commission carried out during the past two years and the overall plant protection situation at national and regional levels. The Commission discussed and adopted two Regional Standards for Phytosanitary Measures (RSPMs) and identified the work programme of the APPPC for 2008–2009. This document presents the final report of the Session.

In the last biennium, the FAO Regional Office for Asia and the Pacific and its intergovernmental technical body – APPPC – developed two new Regional Standards for Phytosanitary Measures. For the first time the APPPC formulated a strategy and business plan which were adopted by the Session. The plans include a position statement, mission statement and five strategic directions. The business plan stipulates areas of work and projects which could be funded by governments or other organizations.

In addition, development of pest risk analysis for South American leaf blight (SALB) for rubber formed the basis for development of a standard on measures for protection from SALB in the region. The standard to be developed will facilitate the endorsement of the second set of amendments (1999) of the Asia and Pacific Plant Protection Agreement.

Further progress made by the APPPC was evidenced by development of country profiles of plant protection for information exchange among APPPC member countries. The profiles provide a valuable information source to assist member countries in formulating policies, recognizing dangerous pest trends or gaps in the execution of plant protection functions, and promoting transparency and harmonization of procedures.

The Session noted that integrated pest management (IPM) is considered to be a crucial component related to concerns of pesticide abuse under the International Code of Conduct and that IPM will not succeed without the reform of pesticide policies consistent with IPM principles. The FAO Council's decision to authorize a strategic plan to ban highly toxic pesticides could be viewed as the initiation of a much larger plan to handle environmental issues.

It is expected that the activities planned for the next two years and the actions taken on the recommendations will further enhance cooperation and the capacity of member countries in dealing with various aspects of plant protection, with firm commitments and concrete actions by all governments of the member countries.



He Changchui
Assistant Director-General and
FAO Regional Representative for
Asia and the Pacific

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REPORT OF THE TWENTY-FIFTH SESSION OF THE ASIA AND PACIFIC PLANT PROTECTION COMMISSION

27 to 31 August 2007
Beijing, China

1. Opening of the session and organizational matters

1.1 Attendance

The twenty-fifth session of the Asia and Pacific Plant Protection Commission (APPPC) was held in Beijing, China from 27 to 31 August 2007. Forty-four (44) delegates from 18 member countries of the Commission, namely, Australia, Cambodia, China, Democratic People's Republic of Korea, Fiji, India, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Sri Lanka, Thailand and Viet Nam attended the meeting. Two delegates from Japan and 4 USDA representatives from APHIS attended as observers. There were 15 observers from China. There were also representatives from the CAB International (CABI), International Rubber Research and Development Board (IRRDB) and the Pesticide Action Network (PAN). The list of participants is attached as Annex I.

1.2 Introductory remarks by the Chairperson, Organizing Committee of 25th session of APPPC, Dr Xia Jingyuan, Director-General, National Agricultural Technology Extension and Service Centre, Ministry of Agriculture, the People's Republic of China

The Chairperson of the Organizing Committee opened his speech by extending his warmest welcome to the delegates of the 25th session in Beijing, China. He then introduced the distinguished guests, H.E. Mr Wei Chaoan, Vice Minister of Agriculture, People's Republic of China, Dr Peter Kenmore, Chief of Plant Production Service (AGPP) FAO Rome, concurrently Secretary to International Plant Protection Convention (IPPC) and Executive Secretary of the Rotterdam Convention, Mr Wang Fujia, Deputy Director of General Office of Agriculture, People's Republic of China, Ms Victoria Sekitoleko, FAO Representative in China, Mr Udorn, Chairperson of the 24th session of APPPC, Mr Wang Shoucong, Deputy Director-General of Department of Crop Production, the Ministry of Agriculture of the P.R. China and Mr Piao Yongfan, Plant Protection Officer, FAO Regional Office for Asia and the Pacific (RAP), and concurrently Secretary to the Asian and Pacific Plant Protection Commission. He also mentioned the officials and experts from the 18 member countries, along with the guests from FAO, CABI, representatives of ministries and commissions concerned, i.e. General Administration of Quality Supervision, Inspection and Quarantine, the State Forestry Administration, the Ministry of Foreign Affairs, delegates of plant protection departments of related provinces, Autonomous Regions and Municipalities directly under the Central Government Administration, Special Administration Region of Macao and friends from media representatives of China.

Dr Xia stressed that plant protection played an important role in the social and economic aspects in China. Three key areas of interest associated with membership of the Plant Protection Agreement for the Asia and Pacific Region were plant quarantine, integrated management of pesticides and management of harmful organisms. This five day Conference will present an opportunity to further the understanding of the progress and development of plant protection work of the APPPC member countries over the past two years.

In conclusion, Dr Xia, on behalf of the Organizing Committee, thanked the FAO RAP for their support, along with the Secretariat of APPPC for their valuable guidance, and all of the members of the Organizing Committee for their hard work. He ended his speech with sincere wishes to the delegates for a pleasant stay in Beijing, China.

1.3 Opening remarks by the Chairperson of the 24th session of APPPC, Mr Udorn Unahawutti (Thailand)

The outgoing Chairperson of the 24th session of the APPPC, Mr Udorn Unahawutti from Thailand expressed profound appreciation and thanks to the Government of the People's Republic of China and FAO, Bangkok

for co-hosting the Commission session. At the same time, he recorded his thanks to the Executive Secretary of the APPPC for the excellent arrangements made for the meeting.

Mr Udorn reported that over the past two years, the APPPC had achieved considerable progress with its objectives of regional cooperation in IPM, Pesticides Management and Plant Quarantine. Some of the more important activities included:

- The development of two regional phytosanitary standards, namely *Guidelines for the Application of Emergency Actions and the Establishment of Emergency Measures*, and *Guidelines for Pest Risk Analysis on Scale Insects Associated with Commodities for Human Consumption*, were both submitted for acceptance in this Session.
- Coordination of the regional workshops on Draft ISPMs in 2005, 2006 and 2007.

He also took the opportunity to thank the Republic of Korea for the provision of financial support, and the hosting of the Regional Technical Consultation on Draft ISPMs in 2006 and 2007.

Regarding the issue of South American Leaf Blight (SALB), FAO had approved the technical cooperation project for APPPC to organize workshops on the preparation of pest risk analysis for SALB. Two such workshops were successfully held in Kuala Lumpur, Malaysia. This led to the approval for additional funding for a study mission to Brazil from 28 August to 25 November 2005, and collaboration with PRA experts in New Zealand in March 2007. The final PRA report was completed after the workshop on the review of the PRA held in Bangkok from 18 to 19 July 2007, and this was submitted to this Session for deliberation and acceptance.

On the subject of regional pesticides management and IPM activities, technical assistance was provided by Sri Lanka, Thailand and Pakistan for the development of a national implementation plan for the Rotterdam Convention. This involved three regional experts from the FAO expert panel on pesticide management who contributed to the development of the global harmonization of pesticide management.

Regional vegetable IPM programmes continued to make remarkable achievements with the extensive collaboration with participating countries. Technical backstopping services were provided to several countries to deal with emerging pest issues, such as the brown plant hopper and the coconut beetle.

In conclusion, Mr Udorn thanked the Vice Chair countries and the Chairs of the three Standing Committees for their support and dedication to the APPPC. He hoped that this meeting of the delegates would be meaningful and fruitful, and the conclusions and recommendations would prove to be beneficial to all the countries in this region.

1.4 Welcome address by Ms Victoria Sekitoleko, FAO representative in China

The FAO representative in China, Ms Victoria Sekitoleko, on behalf of the Director-General of the FAO of the United Nations, welcomed the delegates to Beijing for the biennial session of the FAO Asia and Pacific Plant Protection Commission (APPPC). She expressed her gratitude to the Government of China for hosting this 25th session of the Commission, and thanked the session organizing committee.

Ms Sekitoleko then highlighted some of the activities of the APPPC, focusing on the phytosanitary issues, especially phytosanitary measures needed to protect plant resources from those introduced. She mentioned that two regional standards, namely the Drafts RSPM No. 5 and No. 6, developed over the last two years, would be discussed later in the meeting. Also of importance was the work by the Secretary of the Commission in setting up of a regional information system for the APPPC in line with the International Phytosanitary Portal (IPP).

There was an expression of concern over a significant number of problems pertaining to the proper management of hazardous pesticides in the region, despite the progress made to improve pesticide management in line with the “International Code of Conduct”. Further efforts would be made by the FAO in the forging

of partnerships and capacity building for the effective implementation and enforcement of this Code of Conduct.

The disquieting features in the plant protection systems of individual countries were then mentioned. Recommendations for the further strengthening of organizational structures would be necessary. It was also expected that a number of recommendations would be made with special priority by this Session of the Commission, within the overall context of achieving sustainable agriculture. Delegates were requested to convey to their respective national authorities, the importance of pursuing the deposition of the instrument of acceptance of the amended version of the Agreement as soon as possible. Ms Sekitoleko concluded her speech by wishing the delegates a successful meeting.

1.5 Welcome address by Dr Peter Kenmore, Chief of Plant Protection Service, AGPP, FAO HQ

In his welcome address, Dr Kenmore congratulated members of the 25th session of the APPPC on their working together for more than 50 years. He noted that over the past two years, there were intensified efforts on the development of standards, the development of a PRA for SALB and participation for the development of phytosanitary measures. While the present positive trend was encouraging, there was much to be done, including the need to persuade the remaining countries who have yet to ratify the 1983 Revisions to the APPPC to do so.

Dr Kenmore described the progress made in terms of pesticide risk reduction, particularly regarding two outstanding events. Firstly, there was the instruction from the FAO Council to promote the banning of highly hazardous pesticides, and secondly, that China had agreed to be the host of the CODEX Committee. In his capacity as Co-Chairperson of the Rotterdam Convention, he announced that at present, 16 member countries of APPPC were now parties to the Convention, including China, the largest producer of pesticides. He also praised Thailand for the initiative on the notification of endosulfan. He hoped that member countries would benefit from Rotterdam Convention event of this Session with discussions to reduce highly hazardous pesticides.

Regarding IPM, Dr Kenmore noted that Asia was the world's model for IPM work and this had been extended successfully to other continents. Over the years, IPM had led to some instances of national policy reform. One prominent example was undertaken by India, with the imposition of an excise tax on the manufacture of pesticides. This subsequently led to a 35 percent reduction of pesticide usage, and a steady increase in crop production. He asked other countries to consider models such as this.

In conclusion, he hoped that delegates would implement the outcomes of the meetings of the Standing Committees and plenary session, with the hope of the generation of strong decisions and development of good models. He looked forward to adopting the ideas from this Session for general improvement of agriculture in Asia and the rest of the world.

1.6 Inaugural address by Mr Wei Chaoan, Vice Minister, Ministry of Agriculture, People's Republic of China

The Vice Minister of the Ministry of Agriculture, People's Republic of China warmly welcomed the delegates to China. On behalf of the Chinese Government, he also thanked the FAO for the support in the organization of the meeting.

Mr Wei then gave a brief outline on the status of agriculture in China, noting the role of China as the leading producer of many major commodities. China had also made great progress, from being a deficit producer to a surplus producer of agricultural produce. The present emphasis was on involvement in plant protection at the regional level, which was viewed as critical to increasing crop production and farmers' incomes.

The Vice Minister believed that the overall increase in the problems relating to pest management were the result of global warming, changes in the agriculture system and the increased volume of agriculture trade. To overcome these challenges, infrastructure for the monitoring and control of pests has been enhanced. A

new plant protection system is already established, with a plant protection agency operating at national and township level, providing both generalized and specialized services. There is also an emergency response mechanism in place to handle endemic and quarantine pests. This system has been effective in reducing incidental and harmful impact of pests, and has contained the spread of quarantine pests. China was proud to announce increases of agriculture production over the past three years, and was expecting a fourth consecutive increase this year with due credit to improved crop protection.

China continued her commitment to areas of plant protection such as the involvement in the organization of activities related ISPMs and RSPMs. These activities had helped develop the pest free area concept for the apple moth and fruit fly, and had enhanced the work on PRA.

In conclusion, Mr Wei promised full assistance to the delegates, and wished them a complete success of the meeting.

1.7 Election of the Chairperson and Vice-chairpersons of the 25th session, the Drafting Committee and the adoption of the provisional agenda and timetable

1.7.1 Election of the Chairperson and Vice-chairperson of the 25th session

China was elected Chairperson of the 25th session of the APPPC.

The countries elected as Vice-chairpersons were:

India, Malaysia, New Zealand and Thailand

1.7.2 Election of the Drafting Committee

New Zealand was elected Chairperson of the Drafting Committee.

The other members were:

China, Malaysia, Philippines and Sri Lanka

1.8 Adoption of the provisional agenda and timetable

The draft agenda and timetable were unanimously adopted.

2. Secretariat report on actions taken on the recommendations of the twenty-fourth session of the Commission

Mr Piao Yongfan, Executive Secretary of the APPPC, reported on the activities of the Secretariat and working groups since the 24th session of the Commission.

2.1 Status of Plant Protection Agreement for Asia and the Pacific

The Plant Protection Agreement for Asia and the Pacific was revised and adopted by the 13th session of APPPC in 1983 to include financial obligations (Articles II, III, IV and XIV). Although the amendments of the Agreement have been approved by the 84th session of the FAO Council in November 1983, it will not come into force until it has been accepted by two-thirds of the contracting parties.

In order to accelerate the acceptance of the revised Agreement (1983), a letter was sent by the Secretariat, signed by the Assistant Director-General and FAO Regional Representative for Asia and the Pacific to several countries that had not yet accepted the revised Agreement on March 2006. These countries were invited to reconsider their acceptance and to forward the Instrument of Acceptance to the Director-General of the FAO. As a result, five countries deposited Instruments of Acceptance of the Agreement revised in 1983 in the last year. To date 15 countries (Australia, Bangladesh, Cambodia, China, DPRK, Fiji, India, Indonesia, Republic of Korea, Lao PDR, Malaysia, New Zealand, Pakistan, Sri Lanka and Viet Nam) had accepted the amendment relating to the financing of the activities of the Commission, which was adopted in 1983.

In order to discuss membership situations of UK and Portugal, consultation letters were sent to both countries on October 2006. Replies from both countries expressed the desire to withdraw from the APPPC. However it may take time to follow legal procedures concerned. (Recently Portugal sent the letter to the DG of FAO for their withdrawal, to be effective after one year).

In addition, since the 24th session of APPPC (August 2005) China, Fiji, Myanmar, Nepal and Tonga (until January 2007) have become the members of IPPC. Now all members of APPPC are contracting parties of IPPC.

The revised Plant Protection Agreement for the Asia and Pacific region was approved by the FAO Council in 1999 and the certified true copies of its first set were transmitted to all APPPC members on 19 June 2000. Until now, only Lao PDR, Philippines and Viet Nam have sent their Instruments of Acceptance to FAO Legal Office in 2005 and 2006. The Secretary then drew the delegates' attention for the consideration of the acceptance of the revised Agreement as soon as possible.

2.2 Strategic plan and business plan of APPPC

At the 24th session of the APPPC, the future development of the APPPC was discussed by participants. The main restraint to the development of activities among Commission members was identified as the lack of financial resources. It was proposed by some members that a special group on strategic planning be constituted. This was established by the Commission with the broad objective of developing strategic and business plans to examine the financial situation and propose sources and modalities of resource and finance mobilization.

As a follow-up the previous group meeting during the 24th session, the special group meeting on strategic planning under the Standing Committee on Plant Quarantine of the APPPC was held in Bangkok, Thailand, from 7 to 10 February 2006. The meeting was attended by 13 participants from 9 countries – Australia, Bangladesh, China, India, Malaysia, New Zealand, Sri Lanka, Thailand, and Viet Nam. The specific purpose of the workshop was to discuss the future activities of the APPPC and to prepare a strategic plan, a business plan and proposals relating to financial mechanisms for future development.

As a result, the strategic plan and business plan of APPPC for 2008-2009, as well as a tentative work programme of the APPPC were drafted for submission to the 25th session of APPPC after consultation with member countries. The report and the plans were sent to member countries for their review and comments on 23rd February 2006. Papua New Guinea, Malaysia and Philippines have sent their comments. Details are in the Agenda item 4.2.

2.3 Information exchange among APPPC members

2.3.1 Development of country profiles for the exchange of plant protection information among APPPC members

To strengthen APPPC's role for information exchange among its member countries, the Secretariat had initiated a systematic analysis of the 2005 country reports presented at the 24th session of APPPC. The aim was to improve its information exchange services and to explore multiple information channels.

In order to develop a standard format for essential information describing the organization and state of development of different plant protection functions in the APPPC member countries, a "Workshop on pilot consultation on development of profiles for the exchange of plant protection information among APPPC members for phytosanitary measures" was held at the Grand China Princess hotel, Bangkok, Thailand, from 12 to 13 December 2006. This initiative was expected to strengthen APPPC's role for the collection, collation and dissemination of crucial plant protection information, and would allow a more systematic assessment of the state of plant protection in the region. Meanwhile, it was expected that an organized and structured information exchange in the form of country profiles would help member countries in formulating policies, recognize dangerous trends or gaps in the execution of plant protection functions, and promote transparency and harmonization of procedures. Furthermore, plant protection profiles may reduce the need for frequent

questionnaires and would assist in the writing of reports, including required reporting to regional and international organizations.

2.3.2 Capacity building on use of International Phytosanitary Portal (IPP) for exchanging information of phytosanitary measures

The 3rd Information exchange IPP training workshop for the Asia region was held in Kuala Lumpur, Malaysia during 14 to 17 November 2006 with the support of IPPC Secretariat and the Crop Protection and Plant Quarantine Division, Department of Agriculture under the Ministry of Agriculture, Malaysia. The meeting discussed the enhancing of the phytosanitary information exchange capacity building for the Asian region. The workshop was attended by nominated officials who were responsible for entering the relevant information in the IPP. Participating NPPO officers received training in national information exchange obligations under the IPP, retrieval and dissemination of relevant official phytosanitary information, and entry of official information on behalf of their respective National Plant Protection Organization (NPPO) into the IPP. Valuable recommendations for further improvements of the IPP training workshops were made.

2.4 Pest Risk Analysis (PRA) for South American Leaf Blight of *Hevea* rubber

An FAO Technical Cooperation Programme (TCP) “Pest risk analysis for South American Leaf Blight of rubber” was approved on July 2001. FAO approved a Phase II of the project on January 2004 and sent the SALB expert, Dr Chee Kheng Hoy, to Brazil to work with rubber research organizations and regulatory counterparts to conduct studies on critical areas identified in previous workshops of the project. This study filled information gaps that were deemed vital to the finalizing of the PRA.

Before the end of the project a third regional workshop was held between 10 to 14 April 2006, and the PRA for SALB was revised, taking into account the results of the investigative mission in Brazil, with the identification of measures that were technically justified. The workshop agreed that the previous PRAs raised two significant points. Firstly, the draft adopted a very conservative approach, where excessive risk was placed on all possible, including very unlikely events. Secondly, contamination was focused on non-host materials entering the country. The participants agreed that based on these, there was a need to review the pathway, to achieve a better balance in the evaluation of the PRA. The participants reviewed the pathways and deliberated the revision of various aspects for the preparation of sound and credible PRA for SALB so as to provide an acceptable basis for the development of regional standards for APPPC. It was recommended that the revised PRA be reviewed by participating countries and discussed at the APPPC meeting in 2007, before its adoption and prior to the development of regional standards for SALB.

In addition to the project activities, a mission trip to New Zealand from 5 to 24 March 2007 by Dr Chee was supported by FAO to examine the draft PRA for SALB with consultation with New Zealand PRA specialists. Further information and technical justification and amendment of the assertions made in the analysis were made. Subsequently a “Regional workshop on PRA for SALB” was facilitated by the APPPC Standing Committee on Quarantine from 18 to 19 July 2007, for further review of the PRA for rubber and necessary modifications. The workshop was attended by officials dealing with SALB on behalf of the rubber growing countries of the APPPC to discuss and examine the PRA. They were supplemented by expert PRA officials from non-rubber growing countries to provide objective views on the draft PRA. The PRA would be submitted to 25th session of the APPPC. The outcome of the meeting (PRA for SALB) was sent to all members of the APPPC after the workshop, for their comments and consideration. Details are in the Agenda item 4.3.

2.5 Progress in Integrated Pest Management (IPM) in Asia and the Pacific region

2.5.1 Coconut beetle

A new alien invasive pest commonly known as coconut leaf beetle, *Brontispa longissima*, has recently affected coconut production in many places in Asia and the Pacific and is considered likely to spread to other areas.

FAO has assisted the affected countries in developing and implementing appropriate control strategies. It has launched a number of projects in several countries for developing a national IPM strategy and promoting biological control of the coconut leaf beetle.

Over the past three years, FAO has contributed over US\$700 000 in TCP assistance and over US\$100 000 in Regular Programme and Trust Funds to support national IPM strategy design, early warning, and rapid response for invasive pests in Viet Nam, Maldives, Nauru, Thailand, Cambodia and Lao PDR. The implementation of the IPM programmes with FAO support has not only helped control the invasive pest, but also enhanced regional cooperation among various countries and has built capacity in emergency actions to combat invasive pests. Several countries such as Thailand, China and Philippines have developed national strategies and action plans. Bilateral and multilateral cooperation for the management of the beetle have occurred through experts' cross visits and exchange of biocontrol experiences and materials.

The "Consultative Meeting on IPM of the Coconut Leaf Beetle, *Brontispa longissima*" was jointly organized by the Asian and Pacific Coconut Community (APCC) and the APPPC in Bangkok in February 2007. Participants from six countries, namely China, Indonesia, Malaysia, Philippines, Thailand and Viet Nam as well as several experts from international organizations participated in the meeting. The various lessons, ideas, suggestions and experiences in IPM and biological control of *Brontispa* with national efforts or FAO projects, were shared. Priority areas to be strengthened and the need for specific technical assistance based on specific situations in each country were identified, for developing a potential regional project.

It is hoped that the above regional and national initiatives may promote active technical cooperation at bilateral and multilateral levels between and among countries in the network, and strengthen sustainable development strategies towards the control of *Brontispa longissima* by IPM.

Despite the efforts already made by the affected countries, FAO and APPPC, much more work need to be completed in order to achieve a sustainable IPM programme.

Clearly, in order to address the pest outbreaks effectively, the affected countries should be fully committed to IPM/biocontrol. In addition, a national policy, programme support and an action plan should be put in place. There is also a need to prioritize their various activities and inputs contributed by the government agencies and NGOs.

The third annual meeting of the CFC/DIFD/APPC/FAO project on coconut integrated pest management was held from 2 to 5 of May 2007 in Kochi, India. It was attended by 16 delegates from India, Indonesia, Malaysia, Sri Lanka, Tanzania, Thailand, as well as representatives from APCC and FAO. The meeting aimed to develop and promote adaptable, cost-efficient IPM strategies against the Rhinoceros beetle and the coconut mite. Four implementing and five collaborating institutions in nine countries conducted research, field trials and outreach programmes according to the project's implementation schedule.

2.5.2 Brown Plant Hopper (BPH)

Several activities have been conducted for dealing with the BPH issue such as workshops on BPH management in Viet Nam and China in 2006, and cross field visits by researchers and extension staff to Thailand, Viet Nam, Cambodia and China. The field survey, information exchange and IPM practice were strengthened in these countries for coping with BPH outbreaks, while the traditionally considered cause-migration pattern was challenged by abuse and overuse of insecticides. This was identified as a main reason of the outbreaks in early 1980s and was gradually resumed in 2000s.

FAO provided technical support to Viet Nam to address the BPH and associated virus problems that were present in the Mekong Delta since last year, under a Technical Cooperation Programme Facility (TCPF) project that is managed by the FAO representative office in Hanoi. The TCPF project is focusing attention on monitoring and surveillance of BPH; supporting community level activities to better manage BPH and virus diseases; supporting knowledge generation to better address the issue; and strengthening the policy framework for short and long term solutions to the problem. Although there might be debate on various strategies and

methodologies, BPH outbreaks are very likely to continue until an appropriate balance with predators of BPH has been re-established.

2.5.3 Role of IPM in GAP

A great deal of effort has been put into, and much progress made since the 24th session of APPPC. It was observed that IPM has successfully been incorporated into country-GAP programmes. Examples include the implementation of IPM programmes in Thailand and IPM within the System of Rice Intensification (SRI) programme in Viet Nam.

Significant progress was made by Thailand in the role of IPM-FFS in GAP initiatives, with shared responsibility between the DOA and DOAE GAP programme in the country, which is a main means of training for GAP farmers. The IPM-FFS was successfully incorporated into current national GAP and non-formal education programmes with a pilot project in 10 provinces with cooperation from the Ministry of Education. This was an additional incentive mechanism for motivating farmers to join the FFS for farmers to improve their knowledge and enhance the capacity for decision making with the requirements of keeping records of field activities and inputs in the procedure of the GAP. The IPM programme has trained many farmers through FFS. Empowered by the IPM training, some of them played important roles by involving the GAP, high quality vegetable production, safety food production, etc., in their activities. This consolidated and promoted the sustainable development of IPM.

2.5.4 Regional IPM programme

In addition to the regional vegetable IPM programme, the Swedish project (GCP/RAS/229/SWE) “Towards a Non-toxic Environment” has been approved. The immediate objective of the programme is to increase the capacity of FAO IPM field programmes, particularly in the Greater Mekong subregion, to educate larger numbers of farmers in areas prone to heavy pesticide abuse. The intent is to create or strengthen local groups and networks of smallholder IPM farmers for continued action in support of ecologically-based agriculture and to institutionalize mechanisms for generating sustainable solutions to technical production and protection problems. Details in Agenda No. 7.

2.6 Implementation of the Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticide in International Trade and the International Code of Conduct on Distribution and Use of Pesticides

As of March 2007, there were 14 parties out of the total 24 member countries of APPPC. Since the 24th session of APPPC, four countries (Pakistan, Philippines, Sri Lanka and Viet Nam) had accepted the Convention. A number of regional and national activities on technical assistance had been carried out by the Rotterdam Convention Secretariat in cooperation with APPPC and the FAO regional office. A national consultation on the ratification and implementation of the Rotterdam Convention was undertaken in Viet Nam on May 2006, and as a result, Viet Nam ratified the Convention in March 2007. The APPPC Secretariat had closely cooperated with the PIC Secretariat in the provision of technical assistance to Thailand and Pakistan, for developing national action plans for the implementation of the PIC in 2007, focusing on improving import responses and export notifications. Details are in the report of Pesticide Standing Committee (Agenda item 9 and side event of the Convention).

The Executive Secretary of APPPC made a presentation on the International Code of Conduct on the Distribution and Use of Pesticides (Code of Conduct), PIC, POPs and Basel Convention at the 28th regional conference for Asia and the Pacific in May 2006, which was attended by senior officials and ministers from Asia and the Pacific. In addition to the introduction of the main context and importance of the conventions, the need for the strengthening of harmonization of various conventions with national legislations, close collaboration among various ministries and coordination at national and regional level was also stressed.

The regional workshop on Implementation, Monitoring and Observance of the Code of Conduct on Distribution and Use of Pesticides, organized by APPPC in 2005, made additional suggestions to further improve the

questionnaire (initiated by FAO) which were reported to the first meeting of FAO expert panel for pesticide management in 2005. During the second session of the Panel, held from 7 to 10 November 2006 in Rome, the Panel suggested activities under the Strategic Approach to International Chemicals Management (SAICM), and the role that the Code of Conduct could play in the achievement of SAICM's objectives. The Council of FAO hundred and thirty-first session (Rome, 20 to 25 November 2006) endorsed SAICM and recognized the FAO's role in the implementation of SAICM to the extent possible within existing resources. The Council recognized that the successful implementation of SAICM depended on coordinated interdisciplinary cooperation at national, regional and UN level, and stressed the need for the agriculture sector to be fully involved in the SAICM process. The FAO had prepared a document comparing the two, based on the working paper discussed during the meeting, for circulation at the SAICM Asia-Pacific regional meeting which was held from 21 to 23 May 2007 in Bangkok, Thailand.

Pesticide abuse and overuse is still rampant in Southeast Asia. Intensive use of extremely and highly hazardous products by small-scale farmers is causing a high incidence of poisoning to farmers. Additionally, it has caused contamination of the environment and has negative implications for agricultural production and trade. Although most countries now have pesticide regulations, enforcement generally remains weak. There are many opportunities to further improve pest and pesticide management.

2.7 Progress in the implementation of plant quarantine in Asia and Pacific region

To date, 29 International Standards for Phytosanitary Measures (ISPMs) have been adopted by the Commission on Phytosanitary Measures (CPM). The implementation of ISPMs in APPPC members varied in status. For example, more than 13 countries have applied ISPM No. 1 and No. 11 (PRA); and the ISPM No. 15 had been being partially implemented in more than 12 countries. About five countries had established the pest-free production sites/places (ISPM No. 10) and more than four countries were in process. Meanwhile, APPPC member countries have been actively involved in development of ISPMs during the past two years. APPPC organized the 6th, 7th and 8th regional workshops on review of draft ISPMs in 2005, 2006 and 2007. Seventeen draft ISPMs had been reviewed by participants from the region and substantive revisions and suggestions were made to the draft standards that can be used by individual countries in the preparation of their comments to be submitted to the Standards Committee via the IPPC Secretariat. APPPC also assisted participating countries to consolidated comments with the findings of the regional meetings. The Korean Government had kindly provided financial support and facilities to the regional review meetings in 2006 and 2007.

During the 24th session of APPPC, held in Bangkok, Thailand, from 5 to 9 September 2005, guidelines on emergency action and emergency measures, and guidelines on risk associated scale insects were identified, as priorities for the development of the regional standard for phytosanitary measures.

Australia and China prepared two initial draft specifications for the standards, which were identified and prepared by early February 2006, followed by review and discussions among the members of the APPPC Standard Committee from February until March by e-mail communications. The results and minor revisions based on comments and feedback were distributed to all APPPC member countries on 27 March 2006 for their review and comments.

The APPPC Standard Committee meeting on the review of Draft RSPM No. 5 and No. 6 was conducted from 21 to 24 November 2006 in Bangkok, Thailand. The Draft RSPM No. 5 (*Guidelines for the Application of Emergency Actions and the Establishment of Emergency Measures*) and No. 6 (*Guidelines for Pest Risk Analysis on Scale Insects Associated with Commodities for Human Consumption*) were reviewed and approved after substantial amendments by the Standard Committee. The Drafts were sent to APPPC member countries on 21 December 2006 as hard copies and emails for country consultation. At the same time the Drafts were put on the webpage of the APPPC in the IPP/IPPC on 21 December 2006 for information exchange among APPPC member countries through the internet. After further revision and consolidation based on country feedback, it was submitted to this Session of APPPC for review and adoption.

During the workshop on Phytosanitary Capacity Evaluation (PCE) held in Malaysia in 2005, participants were advised to establish their national teams to complete the PCE results. The teams should indicate very clearly the priority areas for which they need technical assistance. The participants were requested to submit the country PCE reports to focal point (Malaysia) by the third quarter 2005, to put together the information to enable a draft project for this region, followed by submission to FAO for seeking technical assistance. As a result of the follow-up efforts after two regional training workshops on PCE in 2004 and 2005, an FAO regional project (GCP/RAS/226/JPN) “Cooperation of Improvement of Phytosanitary Capacity in Asia Countries through Capacity Building” was approved in 2006 with the support of Japan. It is expected that the Phytosanitary Capacity Evaluation (PCE) will be completed with PCE tools in several Asian countries, which may lead to development of a project proposal and/or strategic plans in these countries based on priorities identified in the PCE, as well as strengthening the information exchange using IPP among these countries.

These were part of the overall programme of FAO to promote capacity building in plant health and coordinate implementation of phytosanitary measures as applied to international and regional trade.

Before ending the report, the Executive Secretary expressed his appreciation to countries which provided great support and various assistance including financial, technical and in kind, as well as facilities to APPPC activities during the past two years. He also thanked Dr Peter Kenmore, Chief of Plant Protection Service, FAO and IPPC Secretary, Executive Secretary of PIC, FAO Rome for his strong support and backstopping to the APPPC. Special thanks were delivered to Australia, China, Malaysia, New Zealand, Republic of Korea and Thailand for their extensive inputs to APPPC. These countries had either hosted several training activities and meeting sessions or provided financial support and technical assistance to the development of regional and international standards for phytosanitary measures over the past two years. The Executive Secretary hoped that all these inputs and assistance be continued and strengthened in the next biennial period.

2.8 Discussion on the Executive Secretary’s report

2.8.1 Countries yet to ratify the 1983 Amendments to APPPC

The session raised the question as to why some member countries were yet to ratify the 1983 Amendments, and the reasons for the reluctance. The Executive Secretary replied that there was an implication of financial commitments that these countries were not prepared to meet. However, the response had been encouraging over the past few years, and APPPC had almost reached the two-thirds required for adoption.

The Executive Secretary’s report was endorsed by the Session.

3. Country, regional and international organization reports

3.1 Australia

Australia has recently reformed its import risk analyses (IRA) process to increase transparency and timeliness, enhance consultation with stakeholders and increase the level of scientific scrutiny. The reforms will not compromise Australia’s conservative approach to quarantine or change their science based risk analysis.

Timeframes for the completion of IRAs have been imposed through regulations, improving timeliness and predictability for stakeholders. The regulations provide for a standard or expanded IRA process, depending on the complexity of the science and nature of the biosecurity risks. A standard IRA will be completed within 24 months and an expanded IRA within 30 months. The new process has the flexibility for timeframes to be suspended in certain circumstances, such as when Biosecurity Australia is waiting for scientific information considered essential to complete the IRA. The role of the Eminent Scientists Group (ESG) has been strengthened. The ESG’s role will now include assessing conflicting scientific views provided to it and reviewing the conclusions of draft final IRA reports to ensure they are scientifically-based on the material presented.

A high level Department of Agriculture, Fisheries and Forestry group has been established to prioritize import proposals, thus assisting Biosecurity Australia to develop its work programme. The group will also monitor the progress of IRAs undertaken by Biosecurity Australia. Biosecurity Australia has completed the IRA for New Zealand apples under the previous IRA process and will also finalize the Philippines banana IRA under the old IRA process. The Chief Executive of Biosecurity Australia will announce the transition arrangements for other IRAs currently underway closer to the commencement of the new process.

Australia continues to be active in standard setting, both internationally and through the APPPC, with Australia involved in the draft ISPM on Sampling of Consignments and the Technical Panels on Phytosanitary Treatments and Fruit Flies; also the production of the draft RSPM on Scales.

Australia continues to detect and respond to incursions of emergency plant pests. The approach rate of timber borer pests remains high and will be the subject of a pathway risk analysis to review existing approaches to phytosanitary management. Long running eradication programmes include 6 invasive weed species, citrus canker, red imported fire ant and *Wassmania* fire ant in Queensland, European House Borer in Western Australia. Grapevine leaf rust has been eradicated from the Northern Territory following a four year programme. Australian industries continue to develop industry specific biosecurity plans to significantly reduce the risk and spread of pest incursions.

A Cooperative Research Centre of National Plant Biosecurity has been established to coordinate and undertake national plant biosecurity research.

The Australian Quarantine and Inspection Service (AQIS) was restructured on 1 January 2007. It has a new Executive Director, Stephen Hunter, and plant quarantine and plant exports are now handled in different branches in different divisions.

From 1 July 2007, new corporate governance structures came into effect at the Australian Pesticides and Veterinary Medicines Authority (APVMA) following reforms implemented by the Australian Government. Key reforms include conferring responsibility for governance of the APVMA on the Chief Executive Officer and establishing a new Advisory Board. The Advisory Board will include experts in the chemical industry, primary production, consumer interests, public health, the environment and occupational health and safety. These reforms only relate to the governance of the APVMA and do not change the regulatory scheme that is administered by the APVMA.

Australia submitted its national implementation plan to the Stockholm Convention Secretariat in August 2006 setting out how Australia will implement its obligations under the Convention. Australia has eliminated the use of the POP chemical mirex and is in the process of withdrawing its exemption. Australia is in the process of adopting the best available techniques (BAT) and provisional guidance on best environmental practices (BEP).

The Department of the Environment and Water Resources (DEW) administers the Designated National Authority (DNA) obligations for industrial chemicals in cooperation with the Australian regulator for industrial chemicals, the National Industrial Chemicals Notification and Assessment Scheme (NICNAS). The Department of Agriculture, Fisheries and Forestry administers DNA obligations for pesticides.

The Australian Biosecurity System for Primary Production and the Environment (AusBIOSEC) has been established as a whole-of-government project to improve Australia's biosecurity status. Its aim is to improve outcomes from Australia's biosecurity system for primary production and the environment, through greater national coordination on biosecurity policy, regulation, funding and delivery across jurisdictions and sectors. The scope of AusBIOSEC is along the entire biosecurity continuum from pre-border, border to post-border management of biosecurity risk.

3.2 Cambodia

In Cambodia three ministries are involved in plant protection, namely the Ministry of Agriculture, Forestry and Fisheries (MAFF), Ministry of Environment (MoE) and Ministry of Commerce (MoC). However, MAFF

is the main ministry responsible for plant protection and phytosanitary measures, IPM activity, pesticide registration and regulation, training, research and extension activities. The MoE is responsible for activities relating to the Stockholm Convention and the MoC is responsible for issue related to WTO-SPS.

Many government and ministerial regulations had been developed for the management of border check points, the management of plant quarantine activities and phytosanitary inspection. Progress was mainly made in the establishment of the national phytosanitary database and staff capacity building on pest surveillance, pest list and SPS for ASEAN and the placement of plant and animal quarantine staff at the international airport. Constraints to plant quarantine include the absence of plant quarantine check points at river-ports, seaports and border areas. Awareness on phytosanitary inspections was still low and the plant quarantine infrastructure remain much below ISPM standards. The key challenge was to develop a strategy to include plant and animal quarantine staff in the team of inspectors at entry points.

The Sub-decree No. 15 on the phytosanitary inspection gave PQA the responsibility to conduct pest surveillance and eradicate new exotic pests. The golden apple snail and coconut beetles are considered invasive species to Cambodia. A lot of effort had been made to control and eradicate these pests. Staff of the plant protection office were trained on pest surveillance and biological control to enable the production of bio-agents such as *Asecodes* to control coconut beetle and *Cotesia* to control DBM. Outbreaks of BPH affected more than 20 000 ha of rice. This problem was dealt with through the regional vegetable IPM programme and “community level BPH and associated virus management”. A key constraint was the high risk from new invasive species owing to the absence of plant quarantine check points at all entry points.

Pesticide regulations issued included the Sub-decree No. 69 on standards and management of agricultural materials and many other relevant documents. A pesticide registration scheme was established and the Department of Agricultural Legislation is responsible for pesticide registration, licensing of importers and retailers of pesticides, and enforcement of regulations, with technical advice from the Department of Agronomy and Agricultural Land Improvement, serving as focal point for the Rotterdam Convention. Current pesticide issues were broadly recognized, especially their implications for production, health, the environment and trade. However, many other constraints remained unresolved, such as insufficient enforcement of regulations, uncontrolled importation, and broad availability of undesirable pesticides, misuse and over-use, limited data on health and environmental effects and high pesticide residues in food.

The IPM programme was established in 1993 and now operates in 15 major agriculture production provinces, including the Phnom Penh municipality, with the aim of promoting food security and safety. The main tasks were to reduce the dependence of farmers on agricultural chemicals, to develop the capacity of agriculture trainers and extension workers to educate farmers on agriculture technologies by developing skills in environmentally friendly crop management. The programme had trained more than 600 district trainers, 2 000 farmer facilitators and 100 000 farmers. IPM training had led to an increase in yield, sustainable and cost-effective production, reduction of ecology disruption and environmental contamination, reduction of public health and toxic residues in food, and improvement of the livelihood of farmers, biodiversity and marketability of produce.

3.3 China

In the last two years (2005-2007), China had completed the legislative approval procedures to join the IPPC, and had successfully organized the 39th International Conference of Codex Committee on Pesticide Residues (CCPR). Chinese experts were involved in the establishment of some international and regional ISPM and RSPM standards and protocols. The Ministry of Agriculture has re-formulated the national plant protection policies towards “public plant protection” and “green plant protection”. The policy on “public plant protection” requires that the Government be responsible for the provision of public services relating to plant protection. The policy on “green plant protection” requires that plant protection strategies, technologies, standards and protocols be sustainable and environment friendly.

The Chinese Government has made great efforts to fulfill the requirements of the IPPC and the SPS agreement during the past two years. All new phytosanitary measures were set up based on PRA guidelines. Some

pest-free areas were set up in accordance with the requirements of the relevant ISPMs. The quarantine pest list had been updated. Two alien invasive pests, i.e., the red imported fire ant and the cucumber green mottle mosaic virus, were discovered and emergency quarantine eradication programmes were undertaken. Integrated measures were strengthened for the plant quarantine pests. Crop pests of national importance, particularly migratory locusts, rice borers, rice plant hoppers and rodent were successfully managed and controlled. Using an ecology approach such as improving biodiversity in its over-summer places to reduce inoculum, the national programme on the management of wheat stripe rust was implemented. Demonstrations of “green protection technologies” such as light-trapping, pheromone mating-disruption and biological control were carried out on a large scale, and these activities attained impressive economic, environmental and social benefits.

Five types of highly toxic organophosphate pesticides have been banned since 1st January, 2007. National programmes have been developed and were being implemented in major crops. In addition, local government authorities have put in place their own regulations for the replacement of highly toxic pesticides. In the mean time, great effort had been made to develop bio-pesticides for the replacement of highly toxic chemical pesticides. With the support of FAO in the past two years, IPM farmer education programmes and field demonstrations of IPM technologies made great contributions to the reduction of pesticide applications. Significant economic, social and ecological benefits have also resulted from those IPM programmes.

In the development of bilateral cooperation, China has signed Bilateral Plant Quarantine Cooperation Agreements with several countries. There is also continued cooperation with Kazakhstan on the control of migratory locusts along the borders. IPM experts from China had initiated exchange programmes with Viet Nam and Thailand, to explore the possibilities of cooperation on the management of rice plant hoppers.

3.4 The Democratic People’s Republic of Korea

During the past two years, the DPRK paid serious attention to phytosanitary issues, resulting in the modification of legislations related to the plant protection. Steady efforts were made to introduce advanced pest management methods which were environmentally friendly to protect and increase plant resources to achieve a high yield and safe crop production.

The Central Plant Protection (CPP), the State Plant Protection Organization, compiled relevant regulations and rules in line with international conventions on pesticide control. They also enforced quarantine posts along the borders and sought cooperation from farms to abide strictly the rules on plant protection.

The CPP also made arrangements for the surveillance and control of pests to be done in a scientific manner within the principles of integrated pest management. A detailed plant quarantine pest list was compiled.

The Ministry of Agriculture increased investments to encourage the production and use of bio-pesticide in the place of higher costing, residually toxic chemical pesticides.

In the future, the DPRK plans to give more education to cooperative farmers in order to further increase their management of plant protection, and to expand the exchange and collaboration with the APPPC and other countries, thus contributing to the promotion of plant protection for the production of high yielding and safe crops.

3.5 Fiji Islands

Fiji relies on agriculture to sustain economic and social development and growth. For some time, Fiji has recognized the importance of opening up her doors to trade with Asia in addition to neighbouring Pacific neighbours such as New Zealand and Australia.

Fiji had reformed the quarantine and inspection services by conducting:

- review of the legislation,
- review of service fees and charges, and
- review of the organization structure and infrastructure

Technical assistance from the Secretariat of the Pacific Community, New Zealand and the People's Republic of China had led to the following activities:

- completed review of the legislation, for promulgation into law in December 2007
- review of service fees to be completed in September 2007, and
- review of the organization structure and infrastructure to be completed in October 2007

The reform of quarantine was expected to be in place by January 2008. By strengthening quarantine services, safe trade with Asia, Pacific neighbour countries and the rest of the world was the target in the very near future.

3.6 India

The headquarters of the Directorate of Plant Protection Quarantine and Storage is located at Faridabad, Haryana. This office is headed by the Plant Protection Adviser to the Government of India and is responsible for the implementation of all plant protection activities in the country.

The major activities are exclusion of exotic pests, surveillance and eradication of the ingress of desert locust, regulation of the availability of quality chemical and biopesticides, encouragement of integrated pest management practices in plant protection, development of human resource capabilities, plant protection technologies and monitoring of pesticide residue in fruits and vegetables.

Being the National Plant Protection Organization, the office is responsible for the effective implementation of the phytosanitary certification programme. More than 160 plant protection specialists from all over the country had been trained and authorized to issue phytosanitary certificates in accordance with the requirements of the importing countries. During the year 2006 a total of 137 470 phytosanitary certificates were issued.

The pest risk analyses for more than 500 commodities were carried out and notification was done on more than 700 regulated pests. A number of quarantine pests had been intercepted in imported consignments and notification was sent to the exporting countries.

There were season-long training and farmer field school programmes organized. Seventy-seven (77) IPM packages regarding practices on major agriculture/horticulture crops were also developed.

A total of 318 biocontrol laboratories are in operation to produce biopesticides. National level programme on the monitoring of pesticide and surveillance on fruit flies were initiated during the year 2006. Bilateral agreements with USA, Japan and China were initiated to facilitate the export of fruits, especially mango.

India is signatory to FAO code of conduct on the distribution and use of pesticides and is now implementing its provisions. The Insecticide Act 1968 regulates the import, manufacture, sale, transport, distribution and use of pesticides with a view to prevent risks to human beings and animals.

3.7 Indonesia

The Ministry of Agriculture in Indonesia comprises several Directorate Generals (DGs) which are responsible for their own areas of interest. The three DGs are the DG of Food Crops, DG of Horticultural Crops, and DG of Estate Crops. Each DG has their own Directorate of Plant Protection. The Directorates (Directorate of Horticultural Crops Protection, Directorate of Food Crops Protection, and Directorate of Estate Crops Protection) all are the members of National Plant Protection Organization (NPPO) with the agency for agricultural quarantine as the NPPO focal point.

The Indonesian Agency for Agricultural Quarantine (IAAQ) of the Ministry of Agriculture which is in charge of the management of plant and animal quarantine had not had any changes of organization since 2005.

The number of plant quarantine officers authorized to inspect/certify plants or plant products to be exported/imported is around 350 throughout the country as against the needed 2000 plant quarantine inspectors.

Indonesia has a list of regulated pest prepared by experts from NPPO, universities, and research agencies. The list is subject to review every two years. Pest risk assessment is conducted prior to importation of plant propagating materials.

Capacity building is still needed to produce qualified plant quarantine officers in Indonesia. Surveillance of pests is mainly conducted by the Directorate of Crops (Food, Horticulture, and Estate), while the plant quarantine office conducts the monitoring of pest distribution or the possibilities of establishment of new pests in the country. Integrated Pest Management (IPM) programmes were launched in the 1990s with funding either from the Government, donor countries or international banks in Indonesia. The Government programme included training farmers on good agricultural practices.

Registration of pesticides goes through the Centre for Investment and Permit, Ministry of Agriculture, and monitoring of pesticides is conducted by the relevant DG. On the other hand, the Committee of Pesticides handles the reports relating to the applications for pesticides.

3.8 Lao People's Democratic Republic

Agriculture is one of the most important economic sectors of Lao PDR. In the past the Department of Agriculture managed both the import and export aspects of agriculture commodities. Thus, the Department of Agriculture issued permits concerning agricultural inputs such as planting material, fertilizer, pesticide and others.

In collaboration with Oxfam-CAA, the Department of Agriculture organized an in-country training course on plant quarantine in 2007, which was attended by 16 plant quarantine staff from seven provinces. Another training course in 2007 was funded by JICA and the Government, participated by 12 plant quarantine staff from five provinces. In addition, four senior officials attended the training courses conducted by the ASEAN-ROK training programme on plant quarantine. Two other people attended courses in Japan, and another two people in China.

At present, Lao PDR has nine officially established entry/exit plant quarantine border posts in the country, with 27 plant quarantine inspectors.

In July 2005, the Lao Government transferred the IPM programme from the National Agriculture and Forestry Service (NAFES) to the Department of Agriculture (DOA), Ministry of Agriculture and Forestry.

Since 2005, IPM activities in Lao PDR have been focused on increasing the capacity of IPM programmes and policy support, increasing the role of stakeholders, especially farmers in planning and implementation. Two hundred and thirty-four farmer field schools have been conducted involving a total of 5 850 farmers.

At present, there are 26 types of pesticides prohibited, 100 brand names are registered, consisting of 75 products from Viet Nam and 25 from Thailand.

The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and their Disposal is still in the process of ratification.

The Ministry of Agriculture and Forestry has the following policies regarding the implementation of plant protection and plant quarantine:

- priority on human resource development for subject-matter specialists
- establishment of infrastructure and laboratory facilities in plant quarantine stations
- improvement of technical methods on quarantine inspection and phytosanitary certification
- improvement on plant quarantine laws and regulations

3.9 Malaysia

The Malaysian NPPO underwent a major restructure in 2005 which saw a significant increase in the number of executive posts. Both the NPPO (for crop protection and plant quarantine) and Designated National

Authority (DNA) for pesticide management were restructured to meet international obligations as well as to safeguard the country's interest in the agriculture sector.

The pest management activities in Malaysia have been successful in monitoring pest infestation especially in rice fields.

The Malaysian NPPO (Crop Protection and Plant Quarantine Division of DOA) has taken steps to comply with international standards by reviewing its legislation, rules and procedures. This has included the promulgation of a new Plant Quarantine Act, amendment of the current plant quarantine regulations, development of electronic application and issuance of permits, introduction of a new phytosanitary format and the establishment of certification schemes.

The implementation of ISPMs has been carried out in stages, depending on the requirement in trade, staff capacity, and capability. The implementation of some ISPMs has been delayed due to their degree of complexity. Through active involvement of the NPPO in several international forums this will be remedied soon.

The Pesticides Board as the DNA of Malaysia has stepped up its activities considerably since 2005 due to the increase in the number of posts, especially in residue analysis and enforcement. The rules and regulations pertaining to pesticide registration and use have been tightened to ensure that registered pesticides are used as recommended.

Malaysia is also actively pursuing the safe use of pesticides under the GAP Certification Scheme (SALM) and the promoting Organic Certification Scheme (SOM) to reduce pesticide use.

The DNA has also been active in the participation and implementation of international agreements and conventions such the Rotterdam Convention, Basel Convention, and Stockholm Convention.

3.10 Myanmar

Much of the economy of Myanmar depends on the agriculture sector, which generates approximately 43 percent of the total GDP. Myanmar Agriculture Service and Myanmar Industrial Crop Development Enterprise are the two main departments responsible for crop production. Myanmar signed the IPPC in 2006, and designated the Plant Protection Division as the National Plant Protection Organization (NPPO). The contact point for WTO-SPS is the Directorate of Investment and Company Administration (DICA).

Following cooperation projects with AUSAID, NZAID, and ASEAN dialogue partners, technologies relating to insect and disease collection, duration, preservation, diagnostics, and identification methods became widely available. There were also marked improvements on SPS awareness, Pest Risk Analysis (PRA), plant quarantine methods, and the development of a pest list database. A pest museum was constructed with upgraded internet access.

The Plant Quarantine Law was reviewed by FAO experts in 2006. In the same year, a national mango pest survey was conducted. A pest risk assessments team was also formed and is expected to begin PRA work by the end of 2007.

Pest outbreaks occurred in rice, pulses, cotton, maize, tomato, potato, onion, and durian and were mainly controlled using chemicals.

In addition to agriculture extension staff employed throughout the country, farmer's field schools (FFSs) have also been established. Priority has been given to rice, pulses and vegetable farmers.

The Pesticide Law is under review. Old pesticide formulations such as EC, WP, GR, and SL are still widely used in Myanmar. However, no pesticides specified under the Rotterdam Convention and Stockholm Convention has been registered in Myanmar.

Pesticide consumption has increased in the fiscal years 2005-2006 and 2006-2007 due to the increased cultivation of pulses and cotton. Insecticides had the biggest share followed by fungicides and herbicides. Pesticide residue analysis was done on commodities both for export and local consumption. At present, there are three neem pesticide formulations being promoted for vegetables and food legumes.

Myanmar like many developing countries faces many challenges brought about by the changes in international trading.

3.11 Nepal

The plant protection service of Nepal is organized within the Department of Agriculture (DOA) under the Ministry of Agriculture and Cooperatives (MoAC). The Plant Protection Directorate in the department is the national focal point. The directorate operates through a network of five regional plant protection laboratories, a national plant quarantine programme with a network of 15 plant quarantine check posts located at border points between India and China (five regional plant quarantine offices, eight checkpoints and two sub-checkpoints) and a pesticide registration and management office. In addition, each district agricultural development office (Nepal has 75 districts) has a plant protection officer responsible for general crop protection services to farmers, implementation of the Pesticide Act, and linking plant quarantine functions (specially post-entry quarantine) to farmers.

Integrated Pest Management (IPM) is the central strategy to crop protection. Nepal ratified the IPPC on May 8, 2006, and it became a member of APPPC in 1965. It is also a signatory to all major international conventions related to plant protection and environmental protection. Nepal became a member of WTO in 2004 and is committed to fulfil its obligations, particularly those related to the SPS Agreement.

To comply with principles of harmonization and equivalence, the Plant Protection Act 1972 was recently amended by Parliament in 2007. Plant protection and quarantine laboratories have been equipped to meet the standards set by IPPC to obtain accreditation.

The IPM programme is the largest programme component of plant protection. By 2006, the programme had been expanded to 60 districts out of 75. One hundred and ninety-nine IPM officer facilitators have been prepared in DOA, Nepal Agricultural Research Council (NARC) and NGOs. Similarly, 44 field technicians had also been given season-long IPM training to become field level facilitators to promote farmer field schools. In addition, farmers have also been trained to act as facilitators. The concept of FFS introduced for rice has been expanded to vegetables, potato, and recently, to tea and coffee.

In compliance with WTO requirements, actions have been taken in the delineation of endangered areas, areas of low pest prevalence, and pest-free areas. Quarantine pests have been identified. To establish a scientific basis for zoning activities, pest surveillance and monitoring have been strengthened.

The Pesticide Registration and Management Office (PRMO) is the nodal agency to implement pesticide regulations of 1993. This is enforced through pesticide inspectors and designated plant protection officers based in districts. Pesticide reseller licensing, import licensing, quality control, training on safe use of pesticides, and disposal of obsolete pesticides are the key functions carried out by this office. A stock of 74.165 mt of obsolete pesticides belonging to organophosphates, organochlorine, and organomercurial groups, and methyl bromide are awaiting disposal. To date, 291 commercial formulations and 61 generic products have been registered. In 2003, pesticides equivalent to the value of NRs. 123 million (US\$20 million) had been imported.

The Government of Nepal is currently receiving financial assistance primarily from Royal Norwegian Government (for IPM) and FAO TCP (for plant quarantine, recently phased out). The World Bank is planning to assist in the strengthening of SPS services in the context of WTO.

3.12 New Zealand

Since the last Session of the Asia and Pacific Plant Protection Organization, New Zealand has continued to develop and refine its biosecurity system.

In December 2006, the Director-General of the Ministry of Agriculture and Forestry (MAF) announced that MAF's two biosecurity businesses – Biosecurity New Zealand (BNZ) and MAF Quarantine Service (MQS) would be structurally integrated. The new integrated organization commenced operations on the 1st of July 2007, and is now known as MAF Biosecurity New Zealand (MAF BNZ).

The objectives of creating a single, integrated organization were to have biosecurity policy development, risk assessment, standard setting, and implementation functions better connected and working to a common vision and strategy, with clearer accountabilities, better defined roles and responsibilities, and with stronger business support capability.

Sixty-seven new organisms associated with plants had been recorded as new to New Zealand by MAF BNZ in the period June 2005 to June 2007. MAF BNZ has officially responded to the presence of a number of these organisms.

New Zealand continues to develop and review import health standards based on pest risk assessment in accordance with the international standards for phytosanitary measures. Since the 24th session of the APPPC, import health standards have been developed for a range of plants and plant products.

In the last two years New Zealand has established an approvals framework for pesticides under the HSNO Act, developed a substance reassessment programme, and has implemented a compliance structure to support the approvals framework.

Integrated pest management continues to be an integral component of orchard management programmes in New Zealand.

New Zealand continues to be active in the development, implementation and promotion of international and regional standards.

3.13 Pakistan

The total geographical area of Pakistan is approximately 80 000 sq km and agriculture land is about 22 million ha. Total GDP is US\$148 billion. Per capita income defined as GNP at market price is US\$925. Population undernourishment is about 23 percent. The economy of Pakistan is largely based on agriculture. It contributes about 25 percent to the national economy, provides employment for over 44 percent of the labour force and is the main source of income in rural areas, which accounts for 70 percent of total population.

Plant quarantine work is carried out by the Plant Quarantine Division in the Department of Plant Protection, which has legal authority and management responsibility. In accordance with Article IV of the International Plant Protection Convention, 1997. The head office is at Karachi and the quarantine stations are located at the seaports, airports, dry ports and land border points. The working of the plant quarantine division, actions and decisions are made in accordance to Pakistan Plant Quarantine Act, 1976 and Pakistan Plant Quarantine Rules, 1967.

Provincial and Federal Agriculture Department staff do general surveillance and specific survey of field crops, forests, plantations and orchards. Provincial Governments compile pest survey reports on a weekly and fortnightly basis during the crop seasons, and provide advice to farmers for rational use of pesticides for controlling of pests.

The Agricultural Pesticides Ordinance (APO) was promulgated in 1971 to regulate the import, manufacture, formulation, sale, distribution, use and advertisement of pesticides. Agricultural Pesticides Rules were enacted. Pesticides are registered under the trade name (Form-1) after efficacy evaluation trials of two crop seasons

by at least two research agencies including Provincial and Federal. Products to be approved under this scheme are first standardized by Provincial Government with final approval granted by the Federal Government on advice of Agricultural Pesticides Technical Advisory Committee (APTAC). It normally takes three years to get a product approved under Form-1 scheme.

Pesticides were largely used for general plant protection. Usage had grown from about 915 tonnes in 1981 to 43 577 tonnes in 2006. Usage was mainly in cotton, paddy, sugarcane, fruits and vegetables. Cotton alone accounted for about 70 percent of the total consumption of active ingredient of pesticides and this had resulted in the phenomenal rise in cotton production in the country.

The Government has initiated a project for Good Agricultural Practices (GAP) for the certification of orchards from where exports would be made to different countries. The Federal Government, with the coordination of provincial agriculture departments has devised different strategies for pest management of cotton, wheat and rice. IPM projects have been implemented for cotton in the Punjab and Sindh provinces. A record production of 13 million bales of cotton was obtained in 2006-2007. With the introduction of IPM programmes, the pesticides market has shrunk from US\$173 million in 2005 to US\$98 million in 2006.

3.14 The Philippines

The plant protection function in the Philippines is largely under the auspices of the Bureau of Plant Industry (BPI). Two divisions under BPI are undertaking plant protection and plant quarantine. The BPI-Plant Quarantine Service has direct technical supervision over regional and provincial quarantine stations nationwide while the Crop Protection Division maintains a collaborative arrangement with the Regional Field Units of the Department of Agriculture.

BPI, as the NPPO, is the primary implementor of the SPS Agreement relating to plant health and pesticide residues. Another agency, the Fertilizer and Pesticide Authority (FPA) is involved in the implementation of the international pesticide convention.

BPI is currently completing various programmes and institutional strengthening to focus on public image, efficiency and technical excellence to cope up with the challenges of economic globalization.

The Plant Quarantine Laws of the Philippines remain unchanged since enactment in 1978. Various rules and regulations have also been issued. The Philippines presently complies to the IPPC and ISPMs. The IPPC portal is often used to upload new information and regulations.

To date there are two pest-free areas in the country and there is an ongoing national survey to establish the Philippines (except Palawan Islands) as mango pulp and seed weevil free area.

The discovery of the Hispine beetle (*Brontispa longissima* Gestro) in coconut in 2005 led to the issuance of BPI Special Quarantine Order No. 3, series of 2005 to regulate the movement of coconut and other palm plants and products. Despite the issuance of the regulation, the BPI has encountered difficulty in controlling the pest. Philippines also reported the on-going establishment of a national fruit fly surveillance system.

The present national policy is for the use of Integrated Pest Management (IPM). However, implementation is decentralized to the different local government units with the Department of Agriculture (including BPI) providing the direction. The IPM strategy is now coupled with massive training on Good Agricultural Practices (GAP) to address the concern on food safety and environmental protection.

The Philippines pesticide registration system has been designed to ensure proper pesticide use through proper labeling with the end objective of protecting the applicator, public and the environment. As of December 2006, there were 227 active ingredients in 1 090 formulations registered for agriculture and household use. At present, pesticide residue monitoring is done both for local and international market. There are initiatives to strengthen further this area in anticipation of the increase in the volume of commodities that need pesticide residue testing. In summary, pest management and pesticide management are directly complementary to achieve the end objective of controlling pests while protecting human and environment.

The Philippines has recognized that implementation of Good Agricultural Practices (GAP) with an emphasis on Integrated Pest Management (IPM) as the only sustainable way of protecting crops, human health, and environment. Various strategies have been undertaken including the use of GM (e.g. BT corn to reduce pesticide use) crops which passed through very stringent regulations prior to approval. GAP is now also the main strategy to ensure that Philippine products meet SPS requirements of importing countries.

Being an archipelago with 7 107 islands, the Philippines has a huge task of protecting its borders from regulated pests that might be carried by the increasing volume of international trade. These are challenges the Philippines will take.

3.15 Republic of Korea

The Ministry of Agriculture and Forestry (MAF) of the Republic of Korea actively encouraged farmers to use the Integrated Pest Management (IPM) and Integrated Nutrient Management (INM) in accordance to the Environment-friendly Agriculture Promotion Act revised in 2001, to promote the sustainable environment-friendly agriculture at the government level, and devoted efforts to the development and distribution of microbial pesticides and biocontrol agents. The Republic of Korea, considering the rapid increase of domestic as well as international concerns over the environment protection and food safety, intends to steadily pursue sustainable environment-friendly agriculture. Control techniques using natural enemies for greenhouse pests have been developed and are being increasingly used for various crops.

The Rural Development Administration is monitoring the occurrence of key pests across the country by operating 149 rice monitoring stations and 1 403 observatory posts for rice and major vegetables. The Standards for the Registration Test Method of Bio-Pesticide and the Registration Application Document Act was reviewed in April 2005, and encouraged the development and registration of low-toxic, non-residual, environment-friendly bio-pesticides such as natural extracts and pheromones.

The National Plant Quarantine Service (NPQS) of Republic of Korea has continuously improved the regulations and practices to develop an international standard-harmonized and transparent plant quarantine system.

Recently the NPQS of Republic of Korea is preparing for the implementation of LMO border control measures, which is expected to start next year. The NPQS had established the one-stop civil application settlement system which enabled importers to request the inspection of imported plant and plant products and to be allowed to know the result of the inspection (through internet). This saves personnel resources and time.

To cope with increasing quarantine inspections, the number of plant quarantine officers has increased yearly. In response to import requests from various countries, NPQS has conducted PRAs on commodity related pest and posted new import requirements for various commodities. Seventy-two new quarantine pests were identified in 2006, resulting in 1 935 quarantine pests in total. The WTO-SPS were notified of these changes in legal procedures. The NPQS of Republic of Korea hosted international cooperation programmes such as 'ASEAN plant quarantine expert training programme' and 'IPPC regional workshop on ISPM drafts' in APPPC region.

3.16 Sri Lanka

In Sri Lanka, plant protection is the responsibility of the state and assigned to the Department of Agriculture even though other government agencies are involved. The establishment of the NPPO and its coordination with NPQS, PPS, and ROP along with relevant research institutions under the Department of Agriculture and outside DOA has enabled effective implementation of obligations under IPPC and SPS/WTO.

The regulations of the PP Act No. 35 of 1999 were to be gazetted after receiving comments from World Trade Organization. A new building was constructed and occupied in 2007. A computerized system linking NPPO, NPQS and entry points was installed for the facilitation of imports and exports.

With the future development of the crop zoning for regional crop specialization, establishment of pest-free areas would be considered. A preliminary survey revealed that the fungus *Fusarium subglutinans* and false codling moth *Cryptophlebia leucotreta* were not present in major pineapple cultivation areas.

In 2006, eight export consignments were rejected out of 46 340 consignments for which phytosanitary certificates had been issued. In 2006, seven quarantine pests were intercepted out of 2 320 import inspections.

The list of regulated pests has been reviewed and is finalized; 164 weed species had been included in the final draft of the regulations made under the Plant Protection Act No. 35 of 1999.

ISPM 15 will be fully implemented by January 2008. The logo LK (Registration No.) (Treatment) (Debarked) IPPC format has been issued to six fumigators.

A contact point to serve as a link to the international phytosanitary portal has been established.

An action plan for national weed management has been formulated where 15 weeds of national significance were identified. Priority areas at institutional level include rice and rice-based cropping systems, OFC under upland situation and management of specific weed problems. There was an urgent need to increase the staff of PPS, particularly, research officers for entomology and pathology and also to extend the facilities to cater for the control of pest outbreaks, invasive species management, and pest surveillance.

Despite serious constraints in resources such as funds and trained staff for the progress of programmes, PPS has continuously involved plant protection of all major crops. Biological control programmes have gained considerable momentum in the management of several pests e.g. *Salvinia* and water hyacinth.

Except for laws and regulations on pesticide control and Plant Protection Act, there are no formalized rules or regulations for sustainable and environment friendly pest management in place in the country.

Changing the pest management practices of growers to environmentally friendly pest management practices is difficult and time consuming. Where IPM programmes have been implemented for rice, success has been tremendous. A concerted effort and a programme accepted by DOA would certainly help to reach a wider farming population. Suitable methodology would have to be developed to suit the different situations in training farmers.

Reduction of pesticide application by 80 percent among IPM practicing rice farmers and increase of yield by 20-25 percent was a major impact of past or ongoing international cooperation projects in IPM. The projects demonstrated that the IPM concept could be made realistic and practical at farmer level.

IPM was tested on chili, a crop that received most pesticide applications for the control of chili leaf curl. Farmers who followed IPM were able to save on pesticide costs and enjoyed increased yield from the crop compared to crops sprayed with insecticide. The difference was very significant.

The farmer group approach was found to be the best for the beneficial management of the ecosystem.

Attention is needed to ensure the adequacy of extension personnel and facilities for educating farmers in sustainable and environment-friendly pest management.

Focus on the management of the harmful effects of pesticides with special reference to health hazards due to occupational exposure and residues in treated crops have been intensified. Sri Lanka has launched a national organic agriculture production and certification programme with a view to reduce dependence on pesticides and to improve farmer income. The target was to replace the major class II pesticides with less hazardous types. All class II domestic insecticides were deregistered last year. All conventions related to pesticides were ratified and implemented in Sri Lanka and the Control of Pesticides Act and its regulations were in full compliance with the International Code of Conduct on the Distribution and Use of Pesticides. The organizational structure of the enforcement agency was revised to provide more autonomy for efficient coordination with other enforcement agencies.

With respect to bio- and botanical pesticides, there was no significant development during the period of reports, and an impact on the market has yet to be seen. There was no change in the list of banned/prohibited pesticides and there have been no corporation projects in pesticide management.

There was serious deficiency in properly trained personnel in some areas related to implementation and enforcement of pesticide regulations, including pesticide residue analysis.

3.17 Thailand

The vision of the Ministry of Agriculture and Cooperatives (MOAC) in a 10-year-period (year 2000-2009) was to “develop quality of life of farmers, support an adequate food production and safe consumption, and be a world leader of food export under the continual environmental and natural resources management.” Overall mission statement of the MOAC during year 2003-2006 was: “to increase the production efficiency, enhance the value add from production process, increase a competitive competency level, and strengthen the root economics.”

The Integrated Pest Management project (IPM) has been executed by MOAC. The overall objective of the project was to promote “Good Agricultural Practices (GAP) in order to improve the environment and safety of the farmer and consumer from hazardous uses of agro-chemicals.”

The Food Safety Programme set by MOAC started from B.E. 2547(2004). It has been implemented on fruit crops and vegetables. Under the project, GAP and IPM were the main approach. The Department of Agriculture (DOA) has taken responsibility for inspection and registration, and the Department of Agricultural Extension (DOAE), organizing the training programmes for farmers where pesticide is being used intensively.

The objectives of the DOA are to study, research and develop a good breed of economic plants, and to transfer that technology to target groups, including public and private sectors, as well as farmers. The Department provided the analyses, testing and inspection services, and giving the recommendation on the utilization of soil and water, fertilizers, plants, agricultural materials, including the recommendation of high quality agricultural goods for export.

The missions of the DOAE were to increase farmers’ competency on production, to transform value-added agricultural goods, to determine measures and approaches on agriculture promotion, quality control of goods and products, including the technological transfer on agriculture to farmers for increased income and stability in production and entrepreneurship.

In 2007, weedy rice was the most serious weed in paddy field in the western region (Kanjnaburi province) and in the eastern region (Nakornnayok and Prajinburi province). The infested area was 800 000 acres covering 21 provinces. The recommended control measure was the application of chemicals.

The MOAC signed three Ministerial Notifications on 26 April 2007:

- Specification of Plant Pests as Prohibited Articles
- Specification of Plants and Carriers from Certain Sources as Prohibited Articles, and
- Specification of Plants from Certain Sources as Restricted Articles

In addition, three Ministerial Notifications were published in the Royal Gazette on 1 June 2007 and entered into force 60 days after the dated on their proclamation in the Royal Gazette (31 July 2007).

As a member of the World Trade Organization (WTO), Thailand was committed to observe the agreements and obligations. In this respect, the mandate of the National Bureau of Agricultural Commodity and Food Standards (ACFS) was also to strengthen the rules and regulations on agricultural and food products in both the domestic as well as in the international markets. While emphasis was placed on ensuring quality standards of export products, the protection of Thai consumers was equally important mandate of the ACFS.

3.18 Viet Nam

Viet Nam became a full member of the WTO in 10 January 2007, and is committed to implementing the SPS Agreement. Viet Nam also ratified the Rotterdam Convention in May 2007.

During 2006-2007, Brown Plant Hopper-BPH (*Nilaparvata lugens*) and rice ragged stunt virus (RSV)/rice grassy stunt virus (GSV) caused serious damage in rice field. More than 500 000 ha were infested by BPH and about 170 000 ha infested by RSV/GSV. The coconut beetle weevil (*Brontispa sp.*) was successfully controlled using imported natural enemies. Viet Nam would like to seek assistance from donor agencies to evaluate the natural enemies (parasites) in the future.

The IPM programme in rice was supported by DANIDA, IPM on vegetable was assisted by FAO/IPM regional. These programmes have been completed. The national IPM and other projects/programme related to IPM assisted by a number of other donors were still ongoing. The main emphasis was “farmer participatory approach”.

The national campaign on “food safety” emphasized the growing of “safe vegetables” and this GAP programme is still being carried out.

The plant quarantine system was further strengthened and received more support from the Government and international resources. The new/revised “Plant Quarantine Decree” in line with IPPC, WTO-SPS was approved by the Government on 5 January 2007. Until now, 11 ISPMs were adopted as national standards. The national plant protection and quarantine database and strategic plan 2007-2010 was approved by the Ministry and are being implemented.

The pesticide regulation/decisions are being revised and amended, and the pesticide management and education programme is now being implemented. As of March 2007, 696 a.i. with 1 930 trade names had been registered for use, 16 a.i. including 29 trade names of pesticides were restricted and 29 a.i. were banned.

Ongoing projects/programmes related to plant protection and quarantine are:

- Phytosanitary capacity building project for CLMV countries second phase, assisted by NZAID 2007-2009
- Improvement of plant quarantine treatment against fruit flies on fresh fruits 2005-2007, assisted by JICA
- IPM on citrus for mountain area assisted by AUSAID, Australia
- Viet Nam national CFC and Halon phase-out project 2007-2014 assisted by WB

During 2006-2007, a number of trainings/workshops were organized:

- National Consultation in Ratification of Rotterdam Convention, Hanoi, May 2006, supported by RC Secretariat
- APEC Regional Workshop on Food Safety, Hanoi, October 2006 under APEC Secretariat
- ASEAN-APHIS/USDA Workshop on Irradiation in HCMC, 9 to 10 July 2007 and
- National PQ workshop in Hanoi, 12 July 2007 under APHIS support

3.19 Regional and international organization reports: Japan (Observer)

Japan has continued to improve its plant protection system in accordance with the WTO-SPS Agreement and relevant international standards on phytosanitary measures since the last session of the APPPC. The Ministry of Agriculture, Forestry and Fisheries (MAFF) is mainly responsible for plant protection and for the implementation of the action to control and prevent the spread and introduction of pests of plants. Plant Protection Station (PPS), MAFF is responsible for the issuance of phytosanitary certificates and for the import/export inspections. The PPS of Japan consisted of 77 offices including 859 plant quarantine officers.

Based on the result of PRA for wood packaging material, Japan had amended its import plant quarantine regulation which was published on 6 October 2006 and entered into force on 1 April 2007. With a view to harmonize Japan's regulation with the international standards, the definition of wood packaging material and measures for it in the regulation has been revised in line with ISPM No. 15.

Japan had carried out two international cooperation projects on fruit fly related programmes. Japan had been working to enhance the phytosanitary capacity using PCE tools in Asian countries, and has placed an officer in Rome since 2007 for that purpose.

In Japan, adequate staff were designated for surveillance and management of pest outbreaks. In 2005, the guidelines on IPM practice were published. Furthermore, the specific guidelines using IPM for rice, cabbage and citrus to facilitate the implementation of IPM were provided to individual farmers.

Agricultural chemicals manufactured, imported and distributed in Japan were registered by the MAFF under Agricultural Chemicals Regulation Law.

The risk assessment and risk management of the products were conducted in terms of product quality, human health, and environmental effects by the Food Agricultural Material Inspection Centre (FAMIC) (reorganized in April 1, 2007; former name was Agricultural Chemicals Inspection Station), Food Safety Commission (FSC), Ministry of Health, Labour and Welfare (MHLW), Ministry of the Environment (MOE) and MAFF.

3.20 Discussions on country reports

3.20.1 Plant quarantine checkpoints along Cambodia border

Clarification was sought from Cambodia regarding the lack of plant quarantine checkpoints at border posts. The delegate replied that there are checkpoints, but the administration had decided that there is no urgency for the placement of plant quarantine officers at border posts. At present, there is only one plant quarantine officer on duty at the international airport. As such, implementation of plant quarantine has severe restrictions. Dr Kenmore took this opportunity to express his views in relation to transborder trade, and the blocking of trade, where regulations imposed should not be based on faster trade, but on safer trade.

3.20.2 New concept of plant protection in China

The Session sought clarification on the new concept of plant protection in China. The delegate replied that the new concept referred to the commitment of the Government in the area of crop protection. In this sense, the new emphasis is on development of biological control, safer use of chemicals, and food safety.

3.20.3 Plant quarantine administration in India

A question was raised concerning the role of the Central and State Governments in plant quarantine issues in India. The delegate replied that policy matters and reporting of activities are done by headquarters. Regulation of export is the responsibility of both the Central and State Governments.

3.20.4 Use of modern biotech knowledge in the Philippines

The representative from the Philippines clarified that the use of modern biotech knowledge refers to the cultivation of GMO crops.

3.20.5 Weedy rice in Thailand

Thailand clarified that weedy rice is a form of wild rice which can grow very fast and compete with the crop.

3.20.6 Regional cooperation to regulate pesticide usage

The Session agreed that some countries such as Viet Nam, Cambodia and Lao PDR can work together to regulate pesticide abuse by studying ways to prevent transborder supply. The Session suggested that FAO put forward some assistance to coordinate a programme to address this problem.

4. Discussion on the approval of two Regional Standards for Phytosanitary Measures

Dr John Hedley, Chairperson of the Standing Committee on Plant Quarantine, presented two RSPMs for adoption.

4.1 Report on development of RSPM No. 5 *Guidelines for the Application of Emergency Actions and the Establishment of Emergency Measures* and RSPM No. 6 *Guidelines for Pest Risk Analysis on Scale Insects Associated with Commodities for Human Consumption*

The topics for RSPM No. 5 and No. 6 were proposed at the 24th session of the APPPC. Australia and China drafted the specifications for the two standards which were reviewed by the APPPC Standards Committee. Australian and Chinese officials then prepared two draft standards for the APPPC Standards Committee in November, 2006. The Standards Committee consisted of experts from Australia, Bangladesh, China, Indonesia, Republic of Korea, Malaysia, New Zealand, Pakistan and Thailand.

The APPPC Standard Committee meeting on review of Draft RSPM No. 5 and No. 6 was conducted from 21 to 24 November 2006 in Bangkok, Thailand.

The standard on guidelines on emergency actions and emergency measures has been developed to help clarify the use of such actions and measures. Based on the IPPC and its standards, emergency situations are identified and the types of emergency action and emergency measures noted.

The nature of a standard on scales was earlier discussed by the Standards Committee. It was decided to provide guidance on risk assessment or scales generally. If necessary, aspects of the biology of scales and lists of specific scale insects of regional concern could be presented in appendices to the standard at a later date.

The Draft RSPMs No. 5 and No. 6 were revised and approved by the Standards Committee and sent to APPPC member countries in December 2006 (and made available on the webpage of APPPC on the International Phytosanitary Portal) for country consultation. After further revision and consolidations based on country feedback the drafts are submitted to this 25th session of APPPC for review and adoption.

4.2 Discussions

4.2.1 *Specific period for implementation of emergency measures*

To a question concerning the time limit expected for the implementation of emergency measures, the speaker clarified that the idea for such a situation was a reasonable time frame, dependant on the capacity of the country involved.

4.2.2 *Adoption of APPPC RSPM No. 5 *Guidelines for the Application of Emergency Actions and the Establishment of Emergency Measures* and RSPM No. 6 *Guidelines for Pest Risk Analysis on Scale Insects Associated With Commodities for Human Consumption**

After the discussions, the Session adopted both the RSPMs with minor amendments. The full text of RSPM No. 5 and RSPM No. 6 is in Annexes II and III respectively.

5. Discussion on special group on strategic planning

5.1 Background

The main restraint to the development of plant protection activities among Commission members was seen to be the lack of financial resources. After extensive discussions of the situation, it was proposed by some members that a special group on strategic planning be constituted. This was established by the Commission with the broad objective of developing strategic and business plans to examine the financial situation and propose sources and modalities of resource and finance mobilization. The considerations of the future activities of the Commission would be based on the functions of the Commission as laid out in Article IV of the revised Plant Protection Agreement for the Asia and Pacific region as accepted by the twenty-first session of the APPPC (1999). The future activity of the APPPC, the preparation of strategic and business plans, and the preparation of proposals relating to financial mechanisms was discussed.

5.2 Options for funding

The report noted that two types of funding would be required – core funding for the basic functioning of the APPPC and additional funding for plant protection projects and other work the Commission thought desirable. Essentially, funding could be provided by mandatory funding and/or by voluntary funding. The mandatory funding system would be based on the 1983 amendments to the Asia and Pacific Plant Protection Agreement – as yet not in force. Acceptance from a further six APPPC members is required for the amendments to come into force (This has now decreased to two). It was suggested that the Commission consider a programme to try to obtain the required acceptances so this funding system could become active. The areas of funding included in the “voluntary funding” area included – member contributions to an APPPC Trust fund (i.e. not linked to specific activities) and the funding of specific projects or identified activities by member countries, aid organizations, the private sector or stakeholders. A trust fund would be of considerable assistance to the Commission as it could be used for providing emergency assistance or topping up the regular programme if there was a shortage at some time.

5.3 Possible APPPC activities

Development of regional standards could be continued, including the development of implementation strategies for both international and regional standards, and the urgent completion of the SALB standard. The Commission should consider improving the mechanism for selecting the subjects for regional standards. Within the area of information management, listing of experts within the region would be of use to members. Further work could be done on PRA, including the monitoring of the trends in pest detections or pest movements, and on pest recording. Other activities may include the listing of approved phytosanitary treatments used in the region for pest/product problems in different countries; the determination of a climate-pest damage model to provide advisory information; capacity building for the implementation of phytosanitary treatments; emergency assistance; sustainable implementation of IPM and GAP; and the harmonization of pesticides management including pesticides residues in crops.

5.4 The strategic plan

The plan includes a Position Statement, Mission Statement and five Strategic Directions. This includes plant protection measures, information management, capacity development, International Agreements, and administration. Goals and objectives were proposed within these strategies and directions.

5.5 The business plan

The business plan discussed the needs of the APPPC members, the APPPC and its current situation and the current work programme. A draft future work programme, with estimated funding requirements was also presented.

In discussing options for funding, it was noted that the resources of the APPPC have been limited to those provided by FAO and funds provided for specific programmes by some countries. At present, the funds support one biennial session for the Commission and three working group meetings per biennium. This level of activity is insufficient for the adequate functioning of the Commission.

The plan stipulates areas of works and projects which could be funded by governments or other sponsored organizations. The activities described are based on the requirements of member countries in the area of plant protection identity. An observer commented that additional funding may come from other bodies such as the International Rubber Research and Development Board (IRRDB) and Association of Natural Rubber Producing Countries (ANRPC) for contribution to common areas of interest such as information dissemination, capacity building, and the development of emergency procedures. The proposed biennium expenditure of the APPPC for the year 2008-2009 is US\$428 000. Details of the business plan is in Annex IV.

5.6 Adoption of the strategic and business plan for APPPC

After the discussions and several minor alterations to the draft, the Session accepted the strategic and business plan for APPPC.

6. Development of a pest risk analysis for South American Leaf Blight of rubber for APPPC rubber growing countries

The report presented to the Commission:

Amendments to the Plant Protection Agreement for the Asia and Pacific region were adopted at the 21st session of APPPC in 1999 to update and align the Agreement with the International Plant Protection Convention (IPPC, 1997) and the WTO Agreement on the Application of Sanitary and Phytosanitary Measures. Also, at this Session rubber growing countries of the APPPC requested that Article IV and Appendix B of the Agreement as currently in force relating to SALB be retained until a pest risk analysis (PRA) on SALB has been completed and an appropriate regional standard agreed to by the APPPC. The PRA on SALB as in Annex V.

6.1 Adoption of the PRA report on SALB

After some discussion, the Session adopted the pest risk analysis on South American Leaf Blight (SALB) as basis for the development of a standard on measures for protection of the region from SALB.

7. Progress report on APPPC information exchange

The progress report on APPPC information exchange was presented by the Executive Secretary.

7.1 Information Exchange among APPPC members

To strengthen APPPC's role for information exchange among its member countries, the Secretariat has initiated a systematic analysis of the 2005 country reports with the aim of improving its information exchange services, and exploring multiple information channels. It was felt that a common format for key plant protection information ("Plant Protection Profiles") would be more suitable to inform other member countries.

In order to develop a standard format for essential information describing the organization and state of development of the different plant protection functions in the APPPC member countries, the "Workshop on pilot consultation on development of profiles for the exchange of plant protection information among APPPC members for phytosanitary measures" was held at Bangkok, Thailand, from 12-13 December 2006.

Following the regional consultations, the draft Plant Protection Profiles were revised and sent to the participating countries for review and completion. The revised drafts were also sent to a number of non-participating countries which submitted a 2005 country report. The updated Plant Protection Profiles that were returned to the APPPC Secretariat were edited for consistency.

It is expected that the new format would be used for the preparation of the 2007 APPPC country reports, whereby the delegates would only highlight important developments while referring to details in the Plant Protection Profiles. In addition, the Profiles should also facilitate the preparation of other international and national reports.

The “3rd information exchange IPP training workshop for the Asia region” was held in Kuala Lumpur, Malaysia during 14 to 17 November 2006 with support of IPPC Secretariat and the Crop Protection and Plant Quarantine Division, Department of Agriculture under the Ministry of Agriculture, Malaysia for enhancing the phytosanitary information exchange capacity building for the Asian region.

As part of its efforts to promote information exchange among member countries, the Commission has produced several publications, hard copies of which are already distributed to the member countries and are downloadable from the website (<http://www.fao.org/world/regional/rap/>) and IPP. These publications include:

- Proceedings of Asia Regional Workshop on the Implementation, Monitoring and Observance of the International Code of Conduct on the Distribution and Use of Pesticides (RAP Publication – 2005/29)
- Regional Standards for Phytosanitary Measures (RSPM No. 3): Requirements for the Establishment and Maintenance of Pest Free Areas for Tephritid Fruit Flies (RAP Publication – 2005/26)
- Regional Standards for Phytosanitary Measures (RSPM No. 4): Guidelines for the Confirmation of Non-host Status of Fruit and Vegetables to Tephritid Fruit Flies (RAP Publication – 2005/27)
- Report of the Twenty-fourth session of the Asia and Pacific Plant Protection Commission (APPPC) (RAP Publication – 2005/25).
- Plant Protection Profiles from Asia-Pacific countries (RAP Publication – 2007/08)

In addition, through the International Phytosanitary Portal, the Commission has made available information about RSPMs and other relevant reports.

8. Overview of the International Plant Protection Convention’s (IPPC) activities including CPM-2

The overview of the IPPC activities was presented by Dr Peter Kenmore. He announced the adoption of three new ISPMs and the Glossary. On matters relating to the Business Plan, he expressed concern over the increasingly difficulty to secure sufficient funding. At present, some activities have to be run from trust funds obtained through Bilateral and Multilateral Agreement donor’s funds. He was confident, that with proper priority and some innovation, most shortfalls could be overcome.

An independent evaluation of the IPPC was carried out during the past two years at the request of the CPM, involving surveys, interviews and visits to 28 countries. Some strong recommendations were made, including some echoing the Business Plan. As a result, it was reassuring to note that the IPPC was moving in the right direction. There was also emphasis on biodiversity, and technical assistance. Among the more positive recommendations was the requirement to increase staff, especially the need to have a full time Secretary to run the IPPC programmes. A Preliminary Issues and Recommendation Paper on the evaluation was presented to CPM-2. The CPM raised concerns about technical assistance, and called an extraordinary meeting of the SPTA. This met in Rome, and its report on FAO-relevant recommendations would be tabled at the next meeting of the FAO Programme Committee (3 to 7 September 2007).

On the focus group on Standard Setting, Dr Kenmore reported that they had recommended that the Procedural Manual in IPPC be improved to increase transparency and to enable clear references to the proper authorities.

All information relating to the activities of the IPPC may be found in its internet portal (<https://www.ippc.int/IPP/En/default.jsp>)

8.1 Discussions

To a question regarding the establishment of trust funds, the speaker replied that multilateral trust funds had been established for more than six years. The major donors were New Zealand, the European Union, Canada and USA. Some countries contributed in kind, like the Republic of Korea which funded 2 ISPM workshops. He suggested a model of specific funding of a single programme to be put forward by the CPM.

In reply to a request for evaluation reports for individual countries, the speaker suggested that the next CPM meeting be used to discuss about the dissemination of evaluation reports of the individual countries involved in the survey by the evaluation team.

9. Report of the APPPC Standing Committee on Plant Quarantine 2005-2007

The following activity areas were noted by Dr John Hedley, the Chairperson of the Standing Committee.

9.1 Regional workshops on Draft ISPMs in 2005, 2006 and 2007

The regional workshop on Draft ISPMs held in Bangkok in 2005 considered the following standards:

- Diagnostic protocols for regulated pests
- Guidelines for consignments in transit
- Principles for the protection of plant health (revision of ISPM No. 1)
- Requirements for the establishment and maintenance of pest-free areas for tephritid fruit flies
- Requirements for the submission of phytosanitary treatments
- Proposed revision to Methyl Bromide (MB) Fumigation Schedule of Annex I of ISPM No. 15.

In 2006, the regional workshop was held in the Republic of Korea supported by the Korean Government. The following standards were discussed:

- Debarked and bark-free wood
- Establishment of areas of low pest prevalence for fruit flies (Tephritidae)
- Recognition of pest-free areas and areas of low pest prevalence
- Revision of ISPM No. 2 (Pest risk analysis)
- Phytosanitary treatments for regulated pests
- Amendments to ISPM No. 5. Glossary of phytosanitary terms

The following year the regional workshop on Draft ISPMs, also funded by Republic of Korea and held in Gwacheon City, considered these draft standards:

- Amendments to ISPM No. 5, Glossary of phytosanitary terms
- Debarked and bark-free wood (supplement to ISPM No. 5)
- Establishment of areas of low pest prevalence for fruit flies (Tephritidae)
- Classification of commodities into phytosanitary risk categories
- Sampling of consignments
- Developing a strategy to reduce or replace the use of methyl bromide

The report of each meeting, with the comments made during the meeting was entered into the draft ISPM comment templates, were provided to the participants of the meeting. APPPC member countries could then use these comments in their comments submitted to the IPPS Secretariat.

9.2 The development of the APPPC strategic plan and the business plan

The 24th session of the APPPC set up a special group to develop strategic and business plans for the APPPC. The group was also to discuss the future activity of the APPPC and prepare proposals relating to financial mechanisms. The strategic plan, business plan, options for funding and proposals for programmes for the Commission have been noted and discussed earlier in the meeting.

9.3 The development of further regional standards on Phytosanitary Measures

Drafts of two new regional standards were prepared by scientists from China and Australia. The drafts went through country consultation and examination by the APPPC Standards Committee. The two amended drafts that were presented to the Commission members were: *Guidelines for the Establishment and Application of Emergency Actions and Emergency Measures*, and *Guidelines for Pest Risk Analysis on Scale Insects associated with Commodities for Human Consumption*.

9.4 The Review of the PRA on SALB by the Standards Committee

A third regional workshop on the PRA for SALB was held in Malaysia in April, 2006. The meeting recommended the PRA be presented to the next Session of the APPPC. Subsequent examination of the PRA by other regional experts recommended the strengthening of the PRA with more information and added technical justification of the recommendations. The SALB expert, Dr Chee Kheng Hoy, visited MAF, New Zealand, funded by FAO, and these additions to the PRA were made. It is hoped that the PRA will offer sufficient guidance in the preparation of a Standard, with detailed annexes, on the protection of rubber in the region from SALB. This subject was discussed in detail earlier in the meeting.

9.5 Membership of the APPPC

One of the options discussed in the Strategic Planning meeting was the bringing into force of the 1983 amendments to the Plant Protection Agreement for the Asia and Pacific region and thus having recourse to the mandatory funding clause. This required a further six members to accept the amendments. This number can be decreased with the reduction of the number of APPPC members. As Portugal and the United Kingdom no longer have territories in Asia (Macau and Hong Kong), they should no longer be members of the APPPC. Both countries have been asked to withdraw from the Commission. Portugal has done this and its withdrawal will take effect next year. The United Kingdom is still considering the situation.

Dr Hedley also noted the need for collaboration between APPPC members on the development of regional viewpoints on strategic issues. The membership of the future CPM Bureau was also discussed.

10. Progress report on Integrated Pest Management in the Asia and Pacific region

A progress report on Integrated Pest Management in the Asia and Pacific region was made by Mr Jan Ketelaar, CTA, FAO Asia.

Mr Ketelaar reported that, given the renewed attention and current prominent driving forces for reduction of pesticides related to food safety, international trade facilitation and enduring environmental and health concerns, the need for strong Integrated Pest Management programmes and policy support in the Asia and Pacific region is greater than ever. An update on progress made with, challenges faced in and future directions for implementation of IPM programmes in the Asia and Pacific region was provided. The programme for presentations and discussions to be held during the APPPC IPM Standing Committee meeting was also set. It was proposed that discussions at the IPM Standing Committee meeting would have an initial focus on currently reported outbreaks of rice Brown Plant Hoppers and management strategies employed in several parts of the Greater Mekong Sub-region. Broader pest and pesticide management issues would be elaborated on, including commercial pressures for the use of pesticides, advertisements in violation of the Code of Conduct, cross-border distribution and use of pesticides, progress in phasing out WHO Class I pesticides and trade barriers posed by excessive levels of pesticide residues on fresh produce intended for export markets.

Lessons learnt from presentations and discussions during the IPM Standing Committee meeting were expected to strengthen policy support for pesticide risk reduction and implementation of robust IPM programmes in the Asia and Pacific region.

Two other papers were presented:

- *A Preliminary Analysis on the Impacts of Vegetable IPM-FFS on Farmer's Knowledge, Perception and Pesticide Use* was presented by Dr Yang Puyun, National Agro-technical Extension and Service Centre, Ministry of Agriculture, People's Republic of China
- *Private Sector Views, Experiences and Challenges for the Development of Thai Exports of Fresh Fruit and Vegetables* by Soonthorn Sritawee, Chief Operating Officer, River Kwai International Food Company

10.1 Usefulness of information collected concerning pesticide usage

The Session noted that there was a need to develop linkages to effectively utilize information collected at the farmers' level to be put to the global level. This would then enable a two-pronged approach to combat issues relating to highly hazardous pesticides.

10.2 Status of botanical pesticides

There was a suggestion to give more attention to the use of botanical pesticides, which was often overshadowed by the promotion of biological control agents. A workshop to study this potential may be beneficial.

10.3 Good Agriculture Practice (GAP) module

The Session was informed that some GAP modules on vegetable production being developed at the ASEAN level could be expanded to the global level, as these modules had incorporated extensive consideration in the limitation of pesticide usage.

11. Global progress of implementation of the international Code of Conduct on the distribution and use of pesticides; and the Convention on the Prior Informed Consent (PIC)

Dr Kenmore reported that Integrated Pest Management (IPM) was a crucial component which related to the concern on pesticide abuse under the International Code of Conduct. He then presented several examples where high pest levels and lower crop production were apparently associated with high pesticide usage. He expressed confidence that the FAO Council's decision to authorize the strategic plan to ban highly toxic pesticides could be viewed as the initiation to a much larger plan to handle environmental issues.

11.1 Moderation of the impact of pesticide usage

The Session agreed that more data should be made available before coming to the conclusion on the absolute correlation between pesticide usage and crop production/pest levels. Information on actual volume of use, increased pesticide unit costs should also be taken into account. There was also a suggestion that studies be made to determine or to find suitable pesticides which took into account environmental damage. The Session agreed to a need to address the quantitative aspect, as well as the qualitative aspect of pesticide usage.

11.2 Fumigation

The Session agreed that the use of methyl bromide for fumigation treatment in plant quarantine was a concern. There would be a need to find alternatives. Fumigation treatment involving the recycling of the fumigant may be considered by some of the users.

12. Progress in agricultural pesticide management in the Asia and Pacific region

The report noted that technical interventions in the field of pesticides management undertaken during the reporting period included significant progress made by member countries towards improvement of safety, technical assistance programmes, FAO initiatives for regional cooperation and regional inputs into international pesticide management. Of special mention was that China, one of the leading user and exporter of pesticides, had taken firm measures to reduce its production and use.

The FAO Panel of Experts on Management of Pesticides made much progress in the implementation of the International Code of Conduct on Distribution and Use of Pesticides, including the development and review of Guidelines in support of the implementation of the Code. FAO had also declared its position on GHS and the endorsement of SAICM.

National consultations were held in Viet Nam, Thailand and Viet Nam with a view to develop national strategies for the ratification and implementation of the Rotterdam Convention (RC).

13. Consideration of the report of the 18th technical consultation among Regional Plant Protection Organizations (RPPOs)

The eighteenth technical consultation (TC) among Regional Plant Protection Organizations (RPPOs) was held at FAO headquarters, Rome, on 11-14 September 2006, and was attended by representatives from six of the nine RPPOs recognized by the Commission on Phytosanitary Measures (CPM). The RPPOs represented at the TC were: Asia and Pacific Plant Protection Commission (APPPC), Committee de Sanidad Vegetal del Cono Sur (COSAVE), Caribbean Plant Protection Commission (CPPC), European and Mediterranean Plant Protection Organization (EPPO), North American Plant Protection Organization (NAPPO) and Pacific Plant Protection Organization (PPPO). The 18th Technical Consultation (TC) was attended by the Executive Secretariat.

A range of issues of regional and international importance was discussed. The full report is available on the International Phytosanitary Portal (IPP). Issues in relation to the definition of a public officer able to issue phytosanitary certificates (Article V.2a of the IPPC) was discussed. The TC agreed to develop a document on the criteria required to enable a person to be authorized as a signing official.

Each RPPO presented a review of their year's activities including updates on the regional workshops on Draft ISPMs, development of regional standards, regional workshops, development/harmonization of legislation, working groups, databases, pest lists, structures of the organizations, dispute settlement, technical assistance to other RPPOs, and pest surveys.

The need for national reference laboratories was recognized by some RPPOs but it was also stressed that it should not be an obligation for NPPOs to establish reference laboratories. The TC agreed that it would be useful to have further investigations on national reference laboratories but before initiating any activity on the topic it should liaise with the IPPC Technical Panel on Diagnostic Protocols in order to discuss possible roles and to identify areas where the TC could be of assistance.

The 19th TC will be hosted by NAPPO in Canada on 10-14 September 2007. It is suggest that all members of APPPC are encouraged to attend such meeting and the Executive Secretary may provide information to assist participation.

14. The APPPC work programme for 2008-2009

14.1 Report of the meeting of Standing Committee on Plant Quarantine

Dr John Hedley, Chair of the Standing Committee, presented the report. The meeting firstly discussed items for the plant quarantine work programme for the coming biennium. After some discussion the meeting proposed the following programme:

- The programme would consist of work toward five standards or annexes.
- Highest priority would be the general standard for SALB. India is to draft a specification by November 2007. Malaysia, assisted by Thailand, China and New Zealand is to prepare a draft standard by February 2008. This will be presented to Standards Committee by May 2008.
- Work on SALB Annexes will also be initiated by Malaysia with the same timelines as above if this is possible.
- Work on appendices to the scale standard will be initiated. This will be led by Australia. A draft specification is to be developed by Australia. Australia, China, Republic of Korea and India will prepare a draft standard. Timelines are to be finalized.
- A standard on Land Border Quarantine will be prepared. A draft specification will be developed by China by November 2007. China, Viet Nam, Philippines, Malaysia and Indonesia will prepare a draft standard by February 2008. This will be presented to SC by May 2008.
- A draft standard on Sea Containers will be prepared by New Zealand and Australia. A specification and draft standard will be prepared according to the above timelines.

In discussing other plant quarantine issues, the committee agreed that:

- Sub-regional activities occurring in specific countries would be noted by the Secretariat
- There was a need to raise awareness of activities occurring among APPPC members to avoid programme duplication
- Consideration would be given, where possible, to extending sub-regional activities to other countries in region.

This programme was presented to the plenary session and agreed to.

14.1.1 Collaboration on strategic issues amongst APPPC members

It was proposed that the APPPC begin a programme for collaboration on strategic issues. This would be initiated on a limited basis by establishing a programme for the joint consideration of CPM issues of concern to members.

The recommended key actions are:

- Following the release of Draft ISPMs by the SC in November/December 2007, the Executive Secretary is to request APPPC member countries to identify major concerns with the draft standards
- The Executive Secretary is to distribute responses to all members
- Asia and Pacific CPM Standards Committee members are to be assigned a specific standard(s) and collate country responses on specific standards with the collation distributed to APPPC members
- The Executive Secretary is to send a letter inviting APPPC members to attend a meeting prior to the CPM to discuss and agree upon APPPC positions with regards to draft standards and other issues of concern to member countries
- Australia is to develop an agenda
- New Zealand is to organize meeting room at FAO

This programme would be reviewed. It was proposed that a session on Draft ISPM be included within the 26th session of APPPC.

This initiative was accepted as part of the work programme by the Commission.

14.1.2 The establishment of a working group on procedures for finance, administration and planning

It was proposed to the Session that, with the imminent coming into force of the 1983 amendments to the Plant Protection Agreement for the Asia and Pacific region, a working group be set up to consider procedures for finance, administration and planning matters. It was recommended that:

- A meeting to be organized at the end of April 2008 in Bangkok
- Key participants to consist of the Chair, Vice Chairs, Standing Committee Chairs, Australia and the Republic of Korea
- Meeting to be open to all interested parties with self-funding
- Agenda to be finalized

The Commission agreed to the establishment of the working group.

There were no further discussions and the Session agreed for the recommendations to be included into strategic programme plan.

14.2 Report of the meeting of Standing Committee on Pesticide and Standing Committee on IPM – common issues

The report noted that, in view of similarity between emerging issues, it was decided to hold a combined meeting of both Standing Committees. The combined part focused on issues of common concern.

14.2.1 Phasing out of highly toxic pesticides (HTPs)

The combined meeting shared the concerns of the 131st FAO Council and Committee on Agriculture about Highly Toxic Pesticides (CAG/2007/Inf.14) and supports its call for progressive actions to ban HTPs and recommended the following actions:

- Exchange and compile information on regulatory action on HTPs to prepare a base-line of the current registration status of HTPs in APPPC. For the purpose of this activity the following seven products are included: parathion, methyl-parathion, monocrotophos, methamidophos, phosphamidon, endosulfan, paraquat.
- Exchange (i) further evidence about health and environmental impact of HTPs, and (ii) information on initiatives and experiences regarding the replacement of HTPs with alternative products and IPM approaches that eliminated the need for these products.
- The further development of softer alternatives to pesticides should be actively encouraged. Use of financial instruments to encourage the development and use of soft products and to discourage the use of hazardous products should be considered. The latter could include taxation to reflect environmental and social costs of the use of these products.
- Make more effective use of possibilities offered by the Rotterdam Convention as specified in the report of the Standing Committee on Pesticides. Incidence reporting to the DNA should be copied to the relevant National Authorities and the Secretariat of the Rotterdam Convention.

14.2.2 Advertisement

Concern was expressed about aggressive advertisement of pesticides, particularly in outbreak situations. The number of cases in which advertisements deviate from the relevant provisions in the International Code of Conduct on the Distribution and Use of Pesticides, seems to be increasing. Further, messages in advertisements are often at variance with proven IPM approaches. Governments are urged to review the situation in their countries and to take the necessary actions to ensure that advertisements comply with the relevant provisions of the International Code of Conduct on the Distribution and Use of Pesticides and do not provide advice that is contrary to established and proven IPM practices.

The Committee felt that the resolutions made would enable the further strengthening of pesticide management through the sharing of information, DNAs of Rotterdam Convention and key decision making bodies of national organizations.

14.2.3 Report of the Standing Committee on Pesticides

The participants of the Standing Committee on Pesticides were:

Name	Country/Agency
Ms Khamphoui Louanglath	Lao PDR
Ms Fatimah Md. Anwar	Malaysia
Dr Gamini Manuweera	Sri Lanka
Ms Pornpimon Chareonsong	Thailand
Mr Pham Quang Huy	Viet Nam
Observers	
Ms Jennifer Mourin	Pesticide Action Network (PAN) Asia and the Pacific
Resource Persons	
Mr William Murray	Senior Officer/Rotterdam Convention Secretariat

Dr Gamini Manuweera, Chair of the Standing Committee on Pesticide, presented the report. Noting that there were strong concerns over issues of human health and environmental safety, the following actions were recommended. (See Table 1 for details)

- Progressive banning of highly hazardous pesticides
- Prevention of unethical and excessive promotion of pesticides, particularly during pest outbreaks
- Ratification and effective implementation of the Rotterdam Convention
- Establishment of a network of pesticide regulators in the region for efficient information exchange on effective pesticide management

There were no further discussions and the Session agreed for the recommendations to be included into strategic programme plan.

14.2.4 Report of the Standing Committee on IPM

The participants of the Standing Committee on IPM were:

No.	Name	Country
1	Ngin Chhay	Cambodia (Chair)
2	Yang Puyun	China
3	Jesie S. Binamira	Philippines
4	Ngo Tien Dung	Viet Nam
5	Thongsavanh Taipangnavong	Lao PDR
6	Areepan Upanisakorn	Thailand
7	Marut Jatiket	Field Alliance (Thailand)
8	Keam Makarady	CEDAC (Cambodia)
9	Bong Hoon Lee	Republic of Korea
10	Jennifer Mourin	PAN-AP (Malaysia)

Table 1: Report of the Standing Committee for Pesticides

Topic	Objective	Outcome	Targets for the Next Two Years/ Timeline/Workplan
Identification of Priority Areas			
a) Reduction/prohibition of use of highly hazardous pesticides	<ul style="list-style-type: none"> • Identification of possible pesticides • Current status among the members • Way forward 	<ul style="list-style-type: none"> • Exchange on regulatory action on HTPs (make list of registration status HTPs in APPPC) • Exchange information/experiences regarding alternative products and IPM approaches that eliminate the use of these products • Proactive approaches to encourage development of alternatives • Consider taxation of products with high social costs and incentives for alternatives • Notifications of final regulatory actions on highly hazardous pesticides to the Secretariat of the Rotterdam Convention 	<ul style="list-style-type: none"> • As the first step to take action on the parathion, methyl parathion, monocrotophos, methamidophos, phosphamidon, paraquat and endosulfan • Progress report at the DNA meeting early 2008 • Take up in the COP 4 of RC-Oct 2008
b) SHPF	<ul style="list-style-type: none"> • Improve information database on SHPF • Make better use of field findings on chemical pest control and environmental and health research 	<ul style="list-style-type: none"> • Incident reporting related to Highly Toxic Pesticides formulations to RC • Exchange field findings coming out of IPM programmes and environmental and health research • Make available of information related to SHPF to the DNAs and other national key persons and Secretariat of the Rotterdam Convention 	<ul style="list-style-type: none"> • Progress report at the DNA meeting early 2008 • Take up in the COP 4 of RC-Oct 2008
c) Ratification of the RC	<ul style="list-style-type: none"> • Improve the status of information sharing and international trade 	<ul style="list-style-type: none"> • Encourage ratification • Identify the challenges • Use the APPPC as a forum for exchange of information on ratification and seek assistance form recently ratified neighbouring countries. 	<ul style="list-style-type: none"> • Progress at the next meeting of APPPC

Table 1: (continued)

Topic	Objective	Outcome	Targets for the Next Two Years/ Timeline/Workplan
d) Cooperation on trade-RC Import decision on Annex III chemicals	<ul style="list-style-type: none"> • To improve the status of international trade • Way forward 	<ul style="list-style-type: none"> • Prepare item on endosulfan for COP 4 Rotterdam Convention – countries that have taken action on endosulfan to contribute (Sri Lanka, Viet Nam, and others) • Those countries that have yet to take a decision to be encouraged to make decisions and if having difficulties to contact the neighbouring countries for information 	<ul style="list-style-type: none"> • Take up in the COP 4 of RC-Oct 2008 • Progress at the next meeting of APPPC • Progress report at the DNA meeting early 2008
Information Sharing Mechanism/Option			
e) Subregional initiatives	<ul style="list-style-type: none"> • Identification of events • Identification of “drivers” 	<ul style="list-style-type: none"> • ASEAN MEA to be used as forum to share information (report of the activities) • ESEA forum on environment and health 	<ul style="list-style-type: none"> • At the next meeting in 2008
f) Other regional initiatives	<ul style="list-style-type: none"> • Identification of opportunities • Way forward 	<ul style="list-style-type: none"> • DNA meeting to report the progress on APPPC initiatives on pesticide management 	<ul style="list-style-type: none"> • Progress report at the DNA meeting early 2008
g) Formation of communication link between pesticide regulators	<ul style="list-style-type: none"> • Effective information sharing • Way forward – Core group and mechanisms 	<ul style="list-style-type: none"> • Establish a core group (Viet Nam, China, Thailand, Malaysia, Lao PDR, Sri Lanka and Nepal) 	<ul style="list-style-type: none"> • Immediate
g) Pesticide & IPM synergies	<ul style="list-style-type: none"> • To improve two-way information flow 	<ul style="list-style-type: none"> • National level communication linkage between the two sectors 	<ul style="list-style-type: none"> • Progress at the next meeting of APPPC • Next biannual IPM vegetable meeting

Mr Ngin Chhay, Chair of the Standing Committee on IPM, presented the report. The following were noted:

i. Need for more restraint responses to outbreaks of rice brown plant hoppers

- The meeting expressed concern about tendencies that current BPH outbreak responses do not fall in line with IPM research and empirical field experiences built up over the years and that these responses actually could be counter-productive. The importance of reliable field data that reflect the real field situation was emphasized. There is a particular risk that pesticide (and other input) suppliers exploit the situation to promote pesticide use regimes that otherwise would not be acceptable.
- The meeting recommended that the dynamics of current BPH outbreaks are fully documented and shared with special attention to consequences for IPM, health and environment. The examples of the most recent FAO locust campaigns and the 1994 decision by the Thai government to cancel its outbreak budgets for pesticide and channeling funds instead into IPM farmer training could provide key guidance.
- The meeting expressed the need for consultation and involvement of technically competent experts (including National IPM Programme staff) in the decision making process with regards to government responses to BPH outbreak situations. National IPM Programmes should be formally tasked to facilitate the process of collection of scientific data that can be used to guide government decision making as to how best to manage the outbreak situations. In addition, possible complementary roles that a regional body, such as the APPPC, can play in facilitating such a documentation process should be explored.

ii. Need for policy reforms to capture benefits of IPM in pesticide risk reduction efforts

- The meeting expressed the position that IPM will not succeed without reform of pesticide policies consistent with IPM principles. The importance of employing the push-pull strategy of educating farmers about unnecessary use of pesticides and providing farmer access to effective and affordable alternatives need to be supported by policy enforcements to stop the supply of cheap and broad spectrum/highly hazardous pesticides.
- The meeting recognized that better demonstration of the contribution of IPM farmer education achievements to policy objectives related to food safety and promotion of Good Agricultural Practice programmes for better market access would be useful to the promotion of IPM and that specific efforts into this direction should be encouraged.

iii. Need to enhance collaboration between APPPC and ASEAN-IPM

- The meeting expressed concern over the designation of crop protection staff with limited IPM background who participate in ASEAN meetings where critical issues related to APPPC are discussed; and where the participation of staff associated with National IPM Programmes is necessary to ensure that due attention is given to IPM and quality farmer education. The meeting recommended the participation of at least one participant from each existing National IPM Programmes in ASEAN-IPM meetings.
- The meeting recommends an APPPC link up with ASEAN to push its IPM and farmer education agenda and for National IPM Programmes to lobby for its inclusion in relevant ASEAN working groups.
- The meeting recommended the idea of using existing websites and regional meetings as forum for sharing information on pest outbreaks and solutions. The meeting further recommended that an interim meeting of the IPM Standing Committee be called next year (around August 2008) to assess the status and progress of work related to the current BPH outbreaks in the AP region.

- The meeting recommended the publication of an FAO book documenting IPM history, evolution and best practices to address the need for better scientific documentation of IPM and empirical field results for policy reforms in support of IPM.

14.3 Discussions

14.3.1 Suggestions on regional control measures

There was a suggestion to have cooperation among countries in the region to control BPH. Measures such as information exchange and monitoring at regional level, etc., were proposed. For this reason, there needs to be more effort to develop an effective IPM regional network.

14.4 Report of the draft work plan for 2008-2009 by the Executive Secretary of APPPC

The work programme for 2008-09 was presented by the Executive Secretary. Three Standing Committees of APPPC have proposed tentative work plans for the next two years based on group discussions. APPPC Secretariat supports the plans of the standing committees, and hopes the plans will be implemented with the support of member countries especially financial support and in-kind assistance. Based on currently available financial sources, the secretariat will emphasize the following activities during the next two years:

- i. Facilitation of accelerating acceptance of the revised Agreement especially the amendment of 1999 in view of the growing importance of the IPPC as one of the base for the implementation of the SPS Agreement. At its 117th session (November 1999), the FAO Council approved two sets of amendments to the Agreement to bring it into line with the (new revised) IPPC and the SPS Agreement. While such amendments do not involve new obligations for the contracting governments, they did not come into force until now as their acceptance by 2/3 of the contracting parties which is required (pursuant to Article IX.4) has not yet been reached.
- ii. Follow-up steps for exploring financial support from various sources by the Planning Group including preliminary arrangements on assessed contributions of the members if there is available budget.
- iii. Regional Standard Setting including a meeting of the APPPC Standard Committee.
- iv. Technical assistance in implementation of Code of Conduct, Rotterdam Convention to member countries and IPM.
- v. Enhancement of the plant protection information exchange among member countries.

The following meetings have been identified and will be held subject to finance being available and according to the priorities identified by the Commission.

- i. Consultation and Meeting
 - Expert Consultations on Draft Regional Standards for Phytosanitary Measures, in 2008, Thailand or in another country
 - APPPC Standard Committee Meeting on review of the Draft RSPMs in May 2008.
 - 9th Regional Review on Draft ISPMs in 2008
 - 10th Regional Review of Draft ISPMs in 2009
 - Working Group on Financial, Administrative and Planning to meet during 2008-2009
 - Expert Consultation on pest management in 2008, if it is necessary, by collaborating with FAO Regional Vegetable IPM Programme
 - Workshop on Pesticide Management in 2008, which will be closely cooperated with RC
 - 26th Biennial Session of Asia and Pacific Plant Protection Commission (APPPC) in 2009, India

ii. Training Programme/Workshops

- Assisting/facilitating a Training Workshop on Phytosanitary Measures by collaboration with various stakeholders.
- Other training programmes according to member countries' requirements in the field of plant protection based on availability of budget resources.

iii. Assist in carrying out activities of the various Working Groups of the APPPC's Standing Committees based on available resources.

14.4.1 Discussions

14.4.1.1 Work programme related to SALB

A general standard will be drafted. The drafting of a series of annexes to provide technical procedures to support a general standard will be initiated. It is expected that this will enable the clear identification of any information required for the completion of useful annexes.

14.4.1.2 Farmers' Education

There was a proposal to organize workshops on farmers' education and improve public awareness on pesticide application and biocontrol. This may be included for consideration by the Standing Committee on IPM.

15. Side event

15.1 Presentations of Rotterdam Convention Secretariat

Four papers were presented and discussed:

- Presentation by the Rotterdam Convention Secretariat on Rotterdam Convention: Opportunities for the Asia and Pacific Region by Mr Bill Murray
- Viet Nam with Ratification of the Rotterdam Convention by Mr Pham Quang Huy, Plant Protection Department, Viet Nam
- Impact of the Rotterdam Convention in Improving Pesticides and Chemicals Regulation: Development of the National Action Plan for the Implementation of the Rotterdam Convention in Thailand by Pornpimon Chareonsong, Pollution Control Department, Thailand.
- The Role of the Rotterdam Convention in the Development of National Policy on Pesticides and Chemicals Management in China: Opportunities to Strengthen the Control of Import and Export of Pesticides and Chemicals Through the Rotterdam Convention, by Ye Gui Biao, Chief of Import and Export Control Division, Institute for the Control of Agrochemicals, Ministry of Agriculture, China.

15.2 Presentation on brown plant hopper

A presentation titled *Occurrence of Brown Plant Hopper and Rice Grass Stunt Virus (RGSV), Rice Ragged Stunt Virus (RRSV) in the South of Viet Nam* was given by Mr Ngo Tien Dung, IPM Coordinator, Plant Protection Department, Hanoi, Viet Nam.

16. Date and venue of the twenty-sixth session

The Session agreed that the twenty-sixth session would be held in Hyderabad, India in September, 2009

17. Other business

17.1 Letter of concern to the Government Cambodia

The APPPC Secretariat drafted a letter of concern to the Cambodian government regarding the removal of staff of plant quarantine entry points at the border posts. After discussing the situation, the Session agreed to send the letter.

18. Adoption of the report

The report was adopted.

19. Closing of the Session

The Chairperson thanked all the delegates and the organizing committee for making the meeting a success and closed the Session.

**THE 25TH SESSION OF THE
ASIA AND PACIFIC PLANT PROTECTION COMMISSION (APPPC)
27-31 August 2007, Beijing, China**

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RSPM No. 5

**GUIDELINES FOR THE ESTABLISHMENT AND APPLICATION OF
EMERGENCY ACTIONS AND EMERGENCY MEASURES**

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Regional Standard for Phytosanitary Measures No. 5

GUIDELINES FOR THE ESTABLISHMENT AND APPLICATION OF EMERGENCY ACTIONS AND EMERGENCY MEASURES

INTRODUCTION

Scope

The standard provides guidelines for the establishment and application of emergency actions and emergency measures in international trade according to the relevant International Plant Protection Convention (IPPC) articles and International Standards for Phytosanitary Measures (ISPMs).

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Definitions and abbreviations

detention	Keeping a consignment in official custody or confinement, as a phytosanitary measure (see quarantine) [FAO, 1990; revised FAO, 1995; CEPM, 1999; ICPM, 2005]
emergency action	A prompt phytosanitary action undertaken in a new or unexpected phytosanitary situation [ICPM, 2001]
emergency measure	A phytosanitary measure established as a matter of urgency in a new or unexpected phytosanitary situation. An emergency measure may or may not be a provisional measure [ICPM, 2001; revised ICPM, 2005]
Import Permit	Official document authorizing importation of a commodity in accordance with specified phytosanitary import requirements [FAO, 1990; revised FAO, 1995; ICPM, 2005]
intended use	Declared purpose for which plants, plant products, or other regulated articles are imported, produced, or used [ISPM No. 16, 2002]
interception (of a consignment)	The refusal or controlled entry of an imported consignment due to failure to comply with phytosanitary regulations [FAO, 1990; revised FAO, 1995]

interception (of a pest)	The detection of a pest during inspection or testing of an imported consignment [FAO, 1990; revised CEPM, 1996]
NPPO	National Plant Protection Organization [FAO, 1990; ICPM, 2001]
outbreak	A recently detected pest population, including an incursion, or a sudden significant increase of an established pest population in an area [FAO, 1995; revised ICPM, 2003]
phytosanitary action	An official operation, such as inspection, testing, surveillance or treatment, undertaken to implement phytosanitary measures [ICPM, 2001: revised ICPM, 2005]
phytosanitary measure	Any legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests [FAO, 1995; revised IPPC, 1997; ISPM, 2002]
point of entry	Airport, seaport or land border point officially designated for the importation of consignments, and/or entrance of passengers [FAO, 1995]
provisional measure	A phytosanitary regulation or procedure established without full technical justification owing to current lack of adequate information. A provisional measure is subjected to periodic review and full technical justification as soon as possible [ICPM, 2001]
transparency	The principle of making available, at the international level, phytosanitary measures and their rationale [FAO, 1995; revised CEPM, 1999; based on the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures]

Outline of requirements

The establishment and application of emergency actions and/or measures (as defined in ISPM No. 5) are based primarily on the IPPC Article VII 6, ISPM Nos. 13 and 20. NPPOs should note the different definitions and requirements for emergency action and emergency measures. Emergency measures may or may not be provisional measures.

In establishing and applying emergency actions and measures NPPO should consider:

- the identification of phytosanitary emergency situations
- the types of emergency actions and/or measures that can be applied
- procedures for the establishment and application of emergency measures and
- the notification of emergency actions and/or measures

BACKGROUND

The preparation of guidelines on the use of phytosanitary emergency actions and/or emergency measures is to assist all APPPC contracting governments to understand their responsibilities and to raise awareness of what actions and measures an importing country may apply.

The terms “emergency action¹” and “emergency measure” are at times misunderstood. This standard provides guidelines to contracting governments on how to establish and apply both phytosanitary emergency actions and emergency measures in a practical manner that follows the requirements of the IPPC and International Standards for Phytosanitary Measures (ISPMs).

These actions and measures are applied in an emergency situation – a new or unexpected phytosanitary situation.

¹ It should be noted that the term “emergency action” as used in IPPC VII 6 actually means “emergency measure” – as in ISPM No. 5 and as in the French and Spanish version of the IPPC.

IPPC and ISPM documentation relevant to emergency action and emergency measures

Normally, phytosanitary import requirements that apply to a particular commodity are determined and made available to the exporting party before exports commence. These phytosanitary measures would be technically justified by the importing party. However, with emergency actions and/or emergency measures they are typically applied immediately in response to an emergency situation without the exporter/exporting country receiving prior notice and full technical justification may not be available at the time of application. Therefore, there are strict conditions attached to the use of emergency action and emergency measures.

The section in the IPPC with particular relevance to emergency measures is Article VII 6.

“6. Nothing in this Article shall prevent any contracting party from taking appropriate emergency action on the detection of a pest posing a potential threat to its territories or the report of such a detection. Any such action shall be evaluated as soon as possible to ensure that its continuance is justified. The action taken shall be immediately reported to contracting parties concerned, the Secretary, and any regional plant protection organization of which the contracting party is a member.”

Article VII 6 clearly outlines the responsibilities of countries² that apply emergency measures. If a provisional measure is applied, its technical justification should be reviewed as soon as possible and the contracting governments concerned, the IPPC Secretary and any RPPO of which the importing party implementing the action/measure is a member should also be notified.

It should also be noted that this section of the IPPC specifically does not follow the basic principle in Article VII 2a and Principle 1.8 in ISPM No. 1:

“Contracting parties shall not, under their phytosanitary legislation, take any of the measures specified in paragraph 1 of this Article (VII) unless such measures are made necessary by phytosanitary considerations and are technically justified.”

However, the Glossary of Phytosanitary Terms (2007) makes a differentiation between the terms emergency measure and emergency action. The Glossary definitions are followed in this standard.

Principle 2.11: Emergency Measures of ISPM No. 1, states that *“Contracting parties may adopt and/or implement emergency actions, including emergency measures, when a new or unexpected phytosanitary risk is identified. Emergency measures should be temporary in their application. The continuance of the measures should be evaluated by pest risk analysis or other comparable examination as soon as possible, to ensure that the continuance of the measure is technically justified”*. Here it is noted that emergency action and/or emergency measures can be applied where a new or unexpected phytosanitary risk is identified and not just on the detection of a pest posing a potential threat. Again, the evaluation of the emergency measures is stressed so that the new phytosanitary requirements are technically justified by a PRA or comparable examination.

ISPM No. 13, *Guidelines for the Notification of Non-compliance and Emergency Action*, provides guidance on when emergency action may be taken (section 4.2), the information that may be included in a notification of such actions (mainly for non-compliance notifications) (section 4.6), and the nature of the investigation to be conducted to justify the emergency actions taken.

ISPM No. 20, *Guidelines for a Phytosanitary Import Regulatory System*, also discusses when emergency measures may be required plus phytosanitary actions that can be taken.

These documents provide the basis for the following requirements.

² Those countries that are members of the World Trade Organization will also have to take note of the requirements of the Agreement on Application of Sanitary and Phytosanitary Measures, Annex B, paragraph 6. These requirements include the notification of other countries via the Secretariat of the regulation (i.e. measure) including the products covered with an indication of the objective and rationale of the regulation.

REQUIREMENTS

1. Emergency actions and emergency measures

Emergency actions are prompt phytosanitary actions such as inspection, testing, treatment or refusal taken in a new and unexpected phytosanitary situation. In accordance with ISPM No. 13, the exporting contracting party should be notified of the emergency actions taken. Emergency actions in international trade are typically associated with individual consignments, and applied at one point in time.

Emergency measures are phytosanitary measures such as regulations or procedures, established as a matter of urgency in a new or unexpected phytosanitary situation. They are usually established without prior notification to trading partners. Immediately after emergency measures are established, they should be reported to contracting governments concerned, the Secretary of the IPPC and any RPPO of which the implementing contracting government is a member.

Emergency measures tend to be longer lasting than emergency actions and may result in a phytosanitary action being taken repeatedly, depending on the situation.

An emergency measure may or may not be a provisional measure. A provisional measure is a type of emergency measure that does not yet have full technical justification because it is implemented as soon as the emergency situation arises when there is a lack of technical information.

When taking emergency action or emergency measures, contracting parties should take into account the principles listed in ISPM No. 1.

2. Identification of emergency situations

As outlined in section 5.1.6.2 of ISPM No. 20 (*Guidelines for a phytosanitary import regulatory system*), situations that may require the implementation of emergency actions or emergency measures may include those where:

- pests are found, either in consignments or areas, that have not been previously assessed
- pests are found in unexpected pathways
- pests are found which cannot be adequately identified

2.1 Pests that have not been previously assessed include situations where:

- the pest intercepted is not listed as a regulated pest, and is known to have potential phytosanitary risk to the country of import
- a new pest is reported as occurring in the exporting country which would constitute a phytosanitary risk to the importing country
- reports indicate that the pest free or the low pest prevalence status has changed in export country because the pest has been found or the specified pest level for the area has been exceeded

2.2 Pests that have not been regulated for a particular pathway include those:

- that are detected on pathway not anticipated when the import requirements were established. This could be caused by a range of circumstances – for example, expansion of the host range or contamination of a non-host by the pest
- that are intercepted from products not subject to phytosanitary measures
- that are intercepted as contaminants of conveyances, storage places or other places related with imported commodities

2.3 Pests, suspected of being regulated pests, that cannot be identified adequately because, for example:

- the specimen is damaged or in too poor condition to identify
- the life stage does not allow identification or
- the species is not yet taxonomically described
- inadequate facilities for identification of the pest

3. Types of emergency action

Emergency actions for consignments in a point of entry, or during transportation include:

- resorting or reconfiguration
- changing of the intended use of the commodity
- treatment (fumigation, cold/heat treatment, irradiation, etc.)
- detention (while the matter is being considered)
- return to country of origin
- re-shipment
- destruction of the consignment

Emergency actions are usually individual operations on consignments. However, where an emergency situation occurs repeatedly on the same commodity from the same country of origin and the notification of emergency action does not result in an improved situation, then the continuation of emergency action may be justified. This may lead to the establishment and application of emergency or provisional measures.

4. Types of emergency measure

An emergency measure established and implemented by the competent authorities, can be directed against the pest or the pathway of pest.

Emergency measures may include:

- previously used phytosanitary measures for a new or unexpected situation, which have been technically justified before but have not been published as regular phytosanitary measures for the new emergency situation
- provisional measures applied in a new or unexpected situation which have not been technically justified and which have not been subject to prior notification and consultation because of their emergency application.

Emergency measures, which may be used by NPPO to deal with differing situations include:

- modification of regulations including:
 - restriction of points of entry
 - intensification of inspection/testing regime
- imposition of a new measure/treatment
- suspension of import of a particular commodity and/or from a particular country of origin
- prohibition of import of a particular commodity and/or from a particular country of origin

When an emergency situation occurs, an NPPO can apply one or more of the measures mentioned above as considered appropriate.

Where the emergency measure is not a provisional measure and which can be technically justified immediately, the technical justification should be made available as appropriate.

Where the emergency measure applied is a provisional measure, the NPPO should undertake a review of the technical justification of the measure as soon as possible. If the review indicates the measures are inappropriate, the measure should be modified accordingly.

5. Procedures for the establishment and application of emergency actions and emergency measures

Both importing countries and exporting countries have responsibilities when new or unexpected phytosanitary situations occur in international trade.

5.1 For the importing country

When an emergency situation occurs and emergency action or emergency measures need to be taken, the NPPO of an importing country may use some or all of the following procedures to establish and apply emergency action and/or measures. An NPPO:

- may organize relevant experts to analyse the situation and develop proposals for the application of emergency measures
- should audit the proposals and establish required emergency measures
- should implement the emergency actions and/or measures with appropriate publicity within the country
- should notify the exporting country of the emergency situation immediately

If emergency action is taken repeatedly, the NPPO may establish and apply emergency measures (with justification if available).

5.2 For the exporting country

The NPPO of an exporting country:

- should note and act upon the notification from the importing country's NPPO of the non-compliance causing the emergency situation
- should investigate, when requested by an importing trade partner, the cause(s) of non-compliance that led to the emergency action and/or measures and report the results to the importing country. The NPPO should address the cause of the problem as determined by the investigation to ensure that the non-compliance does not reoccur.

6. Notification of emergency actions and measures

6.1 Notifying body

NPPOs should clearly identify their relevant section or, if necessary, another agency that is responsible for making the notifications. Countries may use the section of their organization that is already responsible for similar functions such as the WTO-SPS inquiry point or IPPC contact point.

6.2 Parties to be notified

Emergency actions should be reported to the contracting government concerned.

Emergency measures should be reported to the "...contracting parties concerned, the secretary and any regional plant protection organization of which the contracting party is a member" (IPPC Article VII 6). The country applying emergency measures should ensure that trading partners are informed of the measures. Both the

International Phytosanitary Portal (that is the Secretary of the IPPC) and RPPOs will be able to inform the wider phytosanitary community of the application of emergency measures.

6.3 Time of notification

For emergency actions, notifications should be provided promptly (ISPM No. 13 section 5).

When an NPPO establishes emergency measures, the NPPO should notify all affected countries and parties of the measures “immediately” (IPPC Article VII 6). Such notification should allow the countries and parties to react appropriately to keep losses to a minimum.

6.4 Content of notification

ISPM No. 13 section 6 describes in detail the information required for a notification of non-compliance and emergency action.

The notification of emergency measures should include the following information:

- the country notifying
- the NPPO or other agency responsible for the notification
- the emergency measures, with explanation of action if appropriate
- the commodities covered
- the pests involved (scientific names)
- reasons for the application of the emergency measures
- date of adoption of emergency measures
- agency that can provide information on measures if different from the notifying body
- information on the modification or termination of the emergency measures where applicable

7. Evaluation of emergency actions and emergency measures

Emergency actions, as has been noted, are usually applied to single consignments. NPPOs apply such actions on a sound technical basis. Emergency actions taken repeatedly for the same emergency situation may become emergency measures.

If emergency measures require to be continued, they should be evaluated by pest risk analysis or other comparable means for the new emergency situation as soon as possible. The modification of the phytosanitary measures should then be communicated to the exporting country.

Where provisional measures have been applied, the NPPO should also:

- assess the effect and effectiveness of the emergency measures “as soon as possible” (see Principle 2.11 of ISPM No. 1 and the definition of provisional measure), using a PRA as appropriate, and modify the measures if this is required. This may lead to:
 - the modification of phytosanitary measures to deal with the pest risks identified in the PRA
 - the termination of the measures if the intercepted organisms are found not to be regulated pests in the importing country or if the phytosanitary situation in the exporting country changes and the pests of concern will no longer be present or likely to be associated with the export commodity
 - the NPPO making affected individuals or organizations aware of the regulatory changes and informing the Secretary of the IPPC and RPPOs of which the country is a member (as noted in section 5)
- undertake bilateral or multilateral negotiations, when requested, in order to facilitate cooperation and transparency in the application of emergency measures.
- decide whether to establish permanently, modify, or terminate the measures.

RSPM No. 6

**GUIDELINES FOR PRA ON SCALE INSECTS ASSOCIATED WITH
COMMODITIES FOR HUMAN CONSUMPTION**

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Regional Standard for Phytosanitary Measures No. 6

GUIDELINES FOR PRA ON SCALE INSECTS ASSOCIATED WITH COMMODITIES FOR HUMAN CONSUMPTION

INTRODUCTION

Scope

This standard provides guidelines for assessing the quarantine risks posed by scale insects of potential economic importance and the risk management measures that may be applied.

The scope of this standard is restricted to scale insects affecting fresh fruit and vegetables for human consumption moving in international trade, and excludes plants and plant products intended for propagation or processing.

References

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Definitions and abbreviations

ALOP*	Appropriate level of protection. The level of protection deemed appropriate by the member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory [WTO, 1994]
APPPC*	Asia and Pacific Plant Protection Commission
area	An officially defined country, part of a country or all or parts of several countries [FAO, 1990; revised FAO, 1995; CEPM, 1999; based on the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures]
consignment	A quantity of plants, plant products and/or other articles being moved from one country to another and covered, when required, by a single phytosanitary certificate (a consignment may be composed of one or more commodities or lots) [FAO, 1990; revised ICPM, 2001]

control (of a pest)	Suppression, containment or eradication of a pest population [FAO, 1995]
endangered area	An area where ecological factors favour the establishment of a pest whose presence in the area will result in economically important loss [FAO, 1995]
entry (of a pest)	Movement of a pest into an area where it is not yet present, or present but not widely distributed and being officially controlled [FAO, 1995]
establishment	Perpetuation, for the foreseeable future, of a pest within an area after entry [FAO, 1990; revised FAO, 1995; IPPC, 1997; formerly established]
FAO*	Food and Agriculture Organization of the United Nations
fresh	Living; not dried, deep-frozen or otherwise conserved [FAO, 1990]
fruits and vegetables	A commodity class for fresh parts of plants intended for consumption or processing and not for planting [FAO, 1990; revised ICPM, 2001]
infestation (of a commodity)	Presence in a commodity of a living pest of the plant or plant product concerned. Infestation includes infection [CEPM, 1997; revised CEPM, 1999]
inspection	Official visual examination of plants, plant products or other regulated articles to determine if pests are present and/or to determine compliance with phytosanitary regulations [FAO, 1990; revised FAO, 1995; formerly inspect]
intended use	Declared purpose for which plants, plant products, or other regulated articles are imported, produced, or used [ISPM No. 16, 2002]
interception (of a pest)	The detection of a pest during inspection or testing of an imported consignment [FAO, 1990; revised CEPM, 1996]
introduction	The entry of a pest resulting in its establishment [FAO, 1990; revised FAO, 1995; IPPC, 1997]
IPPC	International Plant Protection Convention, as deposited in 1951 with FAO in Rome and as subsequently amended [FAO, 1990; revised 1997]
ISPM	International Standard for Phytosanitary Measures [CEPM, 1996; revised ICPM, 2001]
National Plant Protection Organisation (NPPO)	Official service established by a government to discharge the functions specified by the IPPC [FAO, 1990; formerly Plant Protection Organization (National)]
official control	The active enforcement of mandatory phytosanitary regulations and the application of mandatory phytosanitary procedures with the objective of eradication or containment of quarantine pests or for the management of regulated non-quarantine pests [ICPM, 2001]
pathway	Any means that allows the entry or spread of a pest [FAO, 1990; revised FAO, 1995]
pest	Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products [FAO, 1990; revised FAO, 1995; IPPC, 1997]
pest categorisation	The process for determining whether a pest has or has not the characteristics of a quarantine pest or those of a regulated non-quarantine pest [ISPM No. 11, 2001]
pest free area (PFA)	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 [FAO, 1995]
pest risk analysis (PRA)	The process of evaluating biological or other scientific and economic evidence to determine whether a pest should be regulated and the strength of any phytosanitary measures to be taken against it [FAO, 1995; revised IPPC, 1997]
pest risk assessment (for quarantine pests)	Evaluation of the probability of the introduction and spread of a pest and of the associated potential economic consequences [FAO, 1995; revised ISPM No. 11, 2001]

pest risk management (for quarantine pests)	Evaluation and selection of options to reduce the risk of introduction and spread of a pest [FAO, 1995; revised ISPM No. 11, 2001]
phytosanitary measure	Any legislation, regulation or official procedure having the purpose to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests [FAO, 1995; revised IPPC, 1997; ISPM, 2002]
protected area	A regulated area that an NPPO has determined to be the minimum area necessary for the effective protection of an endangered area [FAO, 1990; omitted from FAO, 1995; new concept from CEPF, 1996]
quarantine pest	A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled [FAO, 1990; revised FAO, 1995; IPPC 1997]
regional standards (RSPM)	Standards established by a Regional Plant Protection Organization for the guidance of the members of that organization [IPPC, 1997]
spread	Expansion of the geographical distribution of a pest within an area [FAO, 1995]

* Indicates terms which are not included in ISPM No. 5 *Glossary of phytosanitary terms*. All other terms are present in ISPM No. 5.

Outline of requirements

Guidelines for a PRA on scale insects associated with fresh fruits and vegetable in international trade for human consumption include the consideration of aspects of initiation, assessment of probability of introduction and spread and the assessment of potential economic consequences. Options for risk management include sourcing the commodities from pest free areas, in-field management of the insects, areas of low pest prevalence, pre-export or on arrival phytosanitary inspection and possible remedial action, and disinfestation.

This standard is complementary to ISPM No. 11, *Pest Risk Analysis for Quarantine Pests Including Analysis of Environmental Risks and Living Modified Organisms*, and other relevant standards.

BACKGROUND

The higher taxonomy of scale insects (Hemiptera: Coccoidea) is under debate. They are generally considered in the Order Hemiptera, Suborder Sternorrhyncha, and Superfamily Coccoidea (Gullan 2001).

There are an estimated 7 355 species of scale insect in 1 050 genera and 28 families. Three families account for an estimated 6 073 of these species. These are the Diaspididae (2 409), Pseudococcidae (2 215) and Coccidae (1 149) (Ben-Dov *et al.* 2005).

A number of scale insects are well known as quarantine pests. Several of these species are distributed widely and are established in a range of production areas, whereas others have limited geographic distributions.

Scale insects are regularly detected upon plant and plant product commodities in international trade. Detection of scale insects on these commodities may result in phytosanitary measure(s) being applied.

Whilst evidence is limited, it is considered that the spread of many of these species has been mainly through the unregulated trade of propagative plant materials and plants (nursery stock), rather than via regulated trade in fresh fruits and vegetables for human consumption.

Although scale insects generally have limited mobility, they may be transferred passively by animal and human activities (e.g. transport of contaminated equipment and plant material) and by wind. The presence of scale insects on the pathway of commodities for human consumption provides a restricted opportunity for these pests to establish and spread compared to that associated with nursery stock. The developmental biology of scale insects may be a factor that mitigates phytosanitary risk.

ISPM No. 11, *Pest risk analysis for quarantine pests including analysis of environmental risks and living modified organisms*, 2004 provides guidance for undertaking a pest risk analysis (PRA) to determine the quarantine status of a given pest. It describes the integrated processes to be used for risk assessment as well as the selection of risk management options. This standard supplements ISPM No. 11 in regard to PRA for scale insects.

Purpose

Certain scale insects may be important pests on specific commodities for some countries, but evaluation of the probability of introduction and spread of these pests and of the associated economic consequence may conclude that they may not establish or spread on commodities for human consumption. The critical factor supporting this conclusion is their low mobility of the scale insect and the fact that the host is likely to be consumed and the skin either eaten or discarded relatively soon after harvest. The combination of these factors is likely to provide few opportunities for establishment or spread for scales of low mobility associated with commodities for human consumption.

This standard provides guidelines for considering the risk from scale insects on the pathway associated with fresh fruit and vegetables for human consumption. It provides guidelines on:

- assessing the potential for scale insects to enter, establish and spread, and the likely consequences to the PRA and/or endangered area by identification of biological traits of scale insects that are pertinent to the risk assessment.
- identifying possible phytosanitary measures to manage identified risks from scale insects.

REQUIREMENTS

Pest risk analysis on scale insects

The objectives of a PRA are, for a specified area, to identify pests and/or pathways of quarantine concern and evaluate their phytosanitary risk, to identify endangered areas, and, if appropriate, to identify risk management options. In accordance with ISPM No. 11, a PRA has three distinct stages:

- Stage I – Initiation
- Stage II – Pest risk assessment
- Stage III – Pest risk management

1. Initiation

Stage I, initiation, involves identifying the pest(s) and pathway(s) that are of quarantine concern and should be considered for risk analysis in relation to the identified PRA area. In this standard the pests are identified as scale insects associated with the importation pathway for fresh fruit and vegetables for human consumption.

2. Pest risk assessment

Stage II, pest risk assessment, begins with the categorization of individual pests to determine whether the criteria for a quarantine pest are satisfied. Risk assessment continues with an evaluation of the probability of pest entry, establishment, and spread, and of their potential economic consequences (including environmental consequences).

2.1 Probability of entry

In determining the likelihood that a given species will enter, in a viable state, the PRA area with the importation of fresh fruit and vegetable for human consumption, consider:

- prevalence of the pest in the source area
- how the pest is associated with the commodity (e.g. the life-stage is involved)

- seasonal timing (e.g. seasonal fluctuations in pest prevalence) for importation
- the commercial pest management applied, including packing house procedures and commercial production procedures (e.g. field hygiene, washing and quality inspections)
- probability of survival during transport or storage; duration and conditions of transport (i.e. would the species biology support suggest importation in a viable form)
- whether the imported commodity is to be sent to a few or many destination points
- the intended use of the commodity (i.e., restricted to human for consumption in this standard)
- the risks associated with disposal of by-products and waste
- probability of transfer to a suitable host, taking account of pest mobility and host availability in the area
- the volume and frequency of movement along the pathway

For scale insects it is important to consider:

- mobility between hosts, within the canopy of host crops in production areas and capacity to transfer onto and from the pathway (the means by which a pest may establish and spread)
- presence of sessile development stages and fixed feeding habits
- that mobility is restricted to specific development stages
- that association of a given scale insect with a host may not necessarily mean presence on the pathway for the commodity
- the risk from passive distribution mechanisms

2.2 Probability of establishment

In determining the likelihood that a given species will establish in the PRA area following entry consider:

- availability, quantity and distribution of potential hosts (polyphagous species have the greater potential for establishment)
- environmental suitability
- potential for adaptation of the pest
- reproductive capacity and mode of reproduction (e.g., sexual, parthenogenesis)
- commercial cultural practices and control measures that are used

For scale species it is important to consider:

- probability of transfer from the imported commodity to a potential host, taking into account that the mobility of the scale insect may be limited

2.3 Probability of spread after establishment

In determining the likelihood that a given species of scale insect will spread in the PRA area following entry and establishment consider:

- suitability of the environment for natural spread of the pest
- presence of natural barriers
- potential for pest movement with the commodity
- intended use of the commodity (human consumption)
- potential vectors of the pest in the PRA area
- potential natural enemies of the pest in the PRA area

For scale insects it is important to consider:

- ability to transfer between potential hosts
- extent of overlap in host plant range and environmental conditions between export and import countries
- reproductive capacity and mode of reproduction (e.g. sexual, parthenogenesis)
- potential competition from native fauna
- genetic plasticity and adaptability to new conditions (i.e. demonstrated establishment and spread of the species beyond its geographical origin)
- frequency of movement of host commodity within a country

2.4 Assessment of potential economic consequences

2.4.1 Direct pest effects

The direct effects of scale insects on host plant life or health should be assessed. Considerations may include: potential host plants; the pest's rate of spread and reproduction; degree of damage; and changes in yields.

Scale insects can cause direct harm to a wide range of host plants, affecting plant health as well as fruit quality. Scale insects feed on sap by means of long feeding stylets. Once feeding commences, they usually remain attached to the host plant permanently.

2.4.2 Indirect pest effects

Effect on trade

Assessment may include effects on the domestic market and/or international market access. Additional effects may include changes in consumer demand for affected commodities.

Indirect pest effects are those effects that are not host-specific. Certain species of scale insects may secrete honeydew, so sooty mould growth or attendances by ants may be issues of concern.

Impacts of eradication and control

The impact of eradication and control may include the cost of control measures and the effects on production systems such as those on organic production systems. Assessment may also include changes to production costs.

Non-commercial and environmental

Assessment of the effects on the environment may include changes in plant community structure, and impacts on endangered flora and may include effects on non-market values (e.g. amenity or ecosystem stability, biodiversity).

3. Pest risk management

Stage III, pest risk management, is the evaluation, selection and application of measures to mitigate the risk associated with the entry, establishment and spread of quarantine pests.

If the risk associated with scale insects is determined to be above a country's Appropriate Level of Protection (ALOP) for fresh fruit and vegetables for human consumption, phytosanitary measures may be applied. Assessment should be given to the efficacy, feasibility and impact of these measures in order to select the most appropriate measures that are least trade restrictive and have minimal impact on the environment.

The following phytosanitary measures are proposed to mitigate this risk, but this does not exclude any equivalent measures.

The following measures may be applied singly or as part of a systems approach as set out in ISPM No. 14, *The use of integrated measures in a systems approach for pest risk management*.

3.1 Sourcing commodities from designated areas

3.1.1 Sourcing the commodity from a pest free area

The requirements for establishing pest free areas are set out in ISPM No. 4, *Requirements for the establishment of pest free areas*.

3.1.2 Sourcing the commodity from a pest free place of production or pest free production site

The requirements for establishing pest free places of production or pest free production sites are set out in ISPM No. 10, FAO, *Requirements for the establishment of pest free places of production and pest free production sites*, 1999.

3.1.3 Sourcing the commodity from an area of low pest prevalence

The requirements for establishing areas of low pest prevalence are set out in ISPM No. 22, *Requirements for the establishment of areas of low pest prevalence*.

3.2 In-field management for scale insects

Production areas may be registered with the NPPO of the exporting country to produce commercial export-grade commodity and manage in-field the scale insects identified as being of quarantine concern. In-field management measures may include control of these pests during production.

3.3 Post-harvest management of scale insects

Packing houses may be registered with the NPPO of the exporting country to undertake post-harvest specific phytosanitary procedures that may be required to manage the pest risk of specific life stages of specific pests.

3.4 Pre-export phytosanitary inspection and possible remedial action

Consignments may be inspected pre-export by the exporting country's NPPO or delegated authority (under a bilaterally agreed arrangement) or by the importing NPPO under a pre-clearance arrangement.

Inspection of the commodity is to be completed after commercial grading, sanitation, and pre-export disinfestation treatment (if applicable). Commodities for export should comply with all risk management measures identified by the PRA. The detection of scale insects that are quarantine pests for the importing country during pre-export inspection may result in remedial action including withdrawal of the consignment from export.

3.5 On arrival phytosanitary inspection and possible remedial action

On arrival each consignment that had not been inspected prior to export (either in accordance with a bilateral arrangement or through a pre-clearance programme) should preferably be inspected at the first port of entry. Inspection of the commodity should be conducted in accordance with ISPM No. 23, *Guidelines for inspection*, 2005.

No detection of pests by inspection of the consignment provides a measure of confidence that the required measures have been effectively implemented in the exporting country and that the consignment is free of pests of quarantine concern.

Consignments accompanied with appropriate documentation from either a pre-export inspection or pre-clearance programme should only require document verification and standard import procedures (in relation to scale pests).

3.6 Disinfestation

Efficacious disinfestation treatments may be considered as effective measures, for example:

3.6.1 *Methyl-bromide fumigation*

Following commercial grading and sanitation procedures, consignments of the commodity may be fumigated with methyl-bromide. This may occur either pre-export or on arrival. The fumigation methods should be determined through pest risk analysis including identified risks and relevant established treatment standards or conditions established under a bilateral arrangement.

3.6.2 *Irradiation*

Guidance on the use of irradiation as a phytosanitary measure are set out in ISPM No. 18, *Guidelines for the use of irradiation as a phytosanitary measure*, 2003.

3.6.3 *Alternative treatments*

Alternative treatments with proven efficacy as measures against scale insects may be considered.

STRATEGIC PLAN FOR THE ASIA AND PACIFIC PLANT PROTECTION COMMISSION

This strategic plan has the following elements:

- Position statement
- Mission statement
- Strategic directions
- Goals and objectives

1. Position statement

The primary concern of the Commission on its initiation was the prevention of the introduction of the disease of rubber plants, South American Leaf Blight (SALB), to the region. This remains one of the major concerns for those members that cultivate rubber. The Commission holds biennial meetings, which for many years have been its principal activity. At these meeting members report on the plant protection situation in their countries. Up until recently, the Secretariat published a short bulletin which reported significant plant protection items occurring in the region and lists of the main pest and diseases of major crops.

In the 1990's, the Commission hosted early meetings on the Principles of Plant Quarantine and on Risk Analysis at FAO office in Bangkok. After the revision of the IPPC, the Commission decided in 1997 to review and revise the Plant Protection Agreement for the Asia and Pacific region so that it was aligned with the SPS Agreement and the revised IPPC. The modified Plant Protection Agreement was adopted by the Commission session of 1999. The amendments were proposed in two parts – Part A covering nearly all of the changes to the agreement including the power to make standards and to establish sub-commissions, and Part B covering the provision for the South American Leaf Blight (SALB). The acceptance of Part B depends on the Commission preparing a standard on SALB. This is under preparation with the finalising of a PRA on SALB.

In 2000 the APPPC held its first regional workshop to consider Draft ISPMs. Such regional workshops have been held every year since then.

Commission members have taken advantage of the facility within the revised agreement to develop and adopt regional standards. The Commission established an APPPC Regional Standards Committee. With the help of drafting material from Australia and New Zealand and expert working groups, two regional standards for phytosanitary measures were adopted in 2003 and two more in 2005.

Other activities include establishment of Standing Committees on IPM, Pesticides and Plant Quarantine that meet regularly in the Commission Sessions and support the member countries in reviewing and promoting activities in these areas. The Commission is strongly involved in the promotion of measures to prevent the introduction and spread of pests in the region and has been holding expert consultations on important quarantine pests such as Expert Consultation on Coconut Beetle Outbreak in APPPC member countries in 2004.

The successful implementation of IPM programmes in rice, cotton and vegetables in recent years is a positive example of the achievements of the APPPC member countries. The Commission is supporting sustainable and environmentally friendly Good Agricultural Practices (GAP) with the IPM programmes in the member countries through a programme of Farmer Education following the Farmer Field School approach.

APPPC has worked for the harmonization of pesticides regulations in the region and has especially supported the implementation of the International Code of Conduct on the Distribution and Use of Pesticides and the Convention of Prior Informed Consent, the apparent disparity existing in capacity to assess pesticides for proper regulation among the APPPC member countries and enforcement of effective control actions demands promotion of harmonization schemes among different member countries.

An APPPC Information Exchange Network is developed through the establishment of an APPPC website within IPP. To build the capacity of the member countries in areas of Quarantine, Pesticide Management and IPM training, workshops and programmes have been supported by APPPC.

As an FAO Commission established under IPPC Article XVI, Supplementary Agreements (of the 1997 version), the Commission was funded by FAO and the Secretariat was provided by the Plant Protection Service of FAO. In 1983, the Plant Protection Agreement for the Asia and Pacific region was amended to include a clause allowing for mandatory financial contributions from member countries. However, though 15 countries have ratified this amendment, it has not yet come into force (still need ratifications of 2 countries more). As noted above, the Plant Protection Agreement for the Asia and Pacific region has been amended again to update its provisions so they are aligned with the WTO-SPS Agreement and the revised IPPC.

The funds made available for the APPPC by FAO is from the regular budget of the Plant Protection Officer in the FAO Regional Office for Asia and the Pacific, which was originally from AGPP, FAO (HQ). These have made it possible to arrange one or two working group meetings per year. Other meetings have been arranged where it has been possible to put meetings back to back and have the participants funded from other sources. Some meetings have been arranged in the region as part of the IPP programme of the CPM or the Technical Cooperation Programme of FAO or the Rotterdam Convention or regional projects.

The increased activity of members has put considerable strain on the few resources provided by FAO for the Commission. The collection of funds for the work of Commission members has become an important issue. Members recognize that more resources must be forthcoming, in order to implement the provisions of the Agreement.

2. Mission statement

To support the common purpose to secure effective action in preventing the introduction and spread of pests of plants and plant products to:

- protect plant, human and animal health and the environment,
- facilitate trade,
- protect the sustainability of agriculture

for the Asia and Pacific region

This is accomplished by providing a regional forum for cooperation and promoting the full implementation of the Plant Protection Agreement for the Asia and Pacific region through:

- the development of measures for plant protection including the promotion of IPM and the Code of Conduct on the Distribution and Use of Pesticides
- the development of information management systems
- capacity development, including the coordination and training of staff
- input into international systems, including assistance for the development of international standards for phytosanitary measures
- the development of administration systems.

3. Strategic directions

Strategic direction No. 1: Plant protection measures

The major role of the APPPC is to assist members in the development of measures for plant protection. This will include programmes for:

- developing and adopting regional standards for phytosanitary measures

- the prevention of the introduction and spread of pests
- the promotion and implementation of IPM and GAP
- the promotion of the implementation of the FAO Code of Conduct on the Distribution and Use of Pesticides.
- the Rotterdam Convention

Strategic direction No. 2: Information management

This strategic direction covers the development of information management systems to:

- review the status of plant protection in the region and the need for action
- collect, collate and disseminate plant protection information in the region

Strategic direction No. 3: Capacity development

In furthering regional cooperating, members are encouraged to collaborate and assist in the development of plant protection systems. The Commission will identify specific needs in capacity building and facilitate assistance from APPPC members or other sources.

Strategic direction No. 4: International agreements

The APPPC will provide inputs into international agreements relevant to APPPC functions, including specifically the assistance in development of ISPMs.

Strategic direction No. 5: Administration

To operate the APPPC to implement its goals, the development of administration systems for:

- the implementation of the agreement including
 - Identification and mobilization of financial resources for the Commission's activities
 - Efficient management of resources
 - Coordination of information exchange
 - Development of an appropriate Secretariat capability
- the development of relevant bilateral or multilateral arrangements associated with the Agreement
- the coordination of the sub-commissions on regional issues
- the resolution/settlement of technical issues between members

4. Goals and objectives

Table 1. Strategic direction No. 1: Plant protection measures

Goals		Timing	Priority	Means
1.1	Develop and Adopt Regional Standards		High	APPPC SC and the biennial session
1.1.1	Establish and operate drafting group		High	SCPQ, SC, Secr.
1.1.2	Maintain and operate Standards Committee		High	SC, Secretariat
1.1.3	Develop mechanism for selecting topics for standards		High	SC
1.1.4	Develop PRA on SALB Standards		High	SCPQ and SC
1.2	Prevention of Introduction of Spread of Pests			
1.2.1	Training workshop for surveillance including use of acceptable methodology		Medium	SCPQ
1.2.2	List of identification experts and identification facilities, and develop pest detection methods for import and export quarantine system		Low	
1.2.3.	Development of climate pest damage model to provide advisory information		Low	
1.2.4.	Develop procedures for dealing with pest incursion		High	SCPQ
1.2.5	Procedure for pest reporting		Low	SCPQ
1.2.6	Listing and promotion of acceptable phytosanitary treatment for pest/product combination		Medium	SCPQ, SCP
1.3	Promote and Implementation of IPM			
1.3.1	Expert Consultations on special pests		Low	
1.3.2	Technical assistance for IPM FFS and biocontrol		Low	
1.3.3	Promote and support the development of IPM, GAP, food safety programmes		High	SC
1.4	Pesticides Management			
1.4.1	Promote implementation of Code of Conduct on Distribution and Use of Pesticides and Rotterdam Convention		High	SCP
1.4.2	Technical Assistance in Harmonization of Pesticide regulation		Low	SCP and Secretariat

Note: SC – Standard Committee of APPPC; SCPQ – Standing Committee of Plant Quarantine; SCP – Standing Committee of Pesticide Management

Table 2. Strategic direction No. 2: Information management

Goals		Timing	Priority	Means
2.1	Review the status of plant protection in the region and the need for action		High	Secretariat and information officer
2.1.1	Review reporting system for biennial discussion		High	Secretariat and information officer
2.1.2.	Collect and disseminate plant protection information in the region		High	Secretariat and information officer
2.1.2	Promotion of the provision of information by members to the IPP		Medium	Secretariat and information officer

Table 3. Strategic direction No. 3: Capacity development

Goals		Timing	Priority	Means
3.1	Specific needs			
3.1.1	Training workshops on PRA		High	Secretariat/ Coordinating Countries/Donors
3.1.2	Training workshop on Pesticide Risk assessment		High	Secretariat/ Coordinating Countries/Donors
3.1.3	Training workshop on Pest Free Area and low pest prevalence		High	Secretariat/ Coordinating Countries/Donors
3.1.4	Training workshop on collection & rehabilitation of pest specimen, and develop pest detection methods for import and export quarantine system		Low	
3.1.5	Training workshop on management of obsolete pesticides		Medium	Secretariat/ Coordinating Countries/Donors

Table 4. Strategic direction No. 4: International agreements

Goals		Timing	Priority	Means
4.1	Input into international agreement			
4.1.1	Conduct Regional Workshop on Draft ISPMs		High	APPPC and IPPC Secretariat
4.1.2	Identify topics for ISPMs		High	Regional Workshop and Members via Secretariat
4.1.3	Promote acceptance/ratification of specified agreements (e.g. IPPC, PIC)		High	IPPC/PIC/APPPC Secretariat etc.

Table 5. Strategic direction No. 5: Administration

Goals		Timing	Priority	Means
5.1	Implementation of the agreement			
5.1.1	Promote accept revised APPPC 1983 and 1999		High	Secretariat
5.1.2	Coordination funding for plant protection activities in the region		High	Secretariat
5.1.3	Efficient management of resources		High	Secretariat
5.1.4	Development of appropriate Secretariat capability to increase resource		High	APPPC Session
5.1.5	Develop of appropriate operational procedures as required		Low	

BUSINESS PLAN FOR THE ASIA AND PACIFIC PLANT PROTECTION COMMISSION

Executive summary

The Asia and Pacific Plant Protection Commission (APPPC) is one of the regional plant protection organisations set up under the framework of the International Plant Protection Convention (IPPC). The APPPC complements the activities of the IPPC in the Asia and Pacific region.

The primary aim of the APPPC is the protection of the plant resources of Asia and the Pacific from the introduction and spread of pests of plants. The protection preserves the plant, human and animal health and the environment, facilitates trade and protects the sustainability of agriculture in the region. The protection arises from the developing of measures for plant protection including regional plant protection programmes, regional phytosanitary standards, the developing of information management systems, the developing of phytosanitary capacity and training opportunities and from inputting into the international system for the development of international standards for phytosanitary measures.

The regional phytosanitary standards produced by the APPPC are specifically selected and designed by APPPC members to meet the needs of the region and to support international phytosanitary standards. They offer guidance in some areas not covered by the IPPC or are produced to meet particular requirements of APPPC members. The regional component of this organization could allow for the development of regional programmes for plant protection with effectiveness greater than that achieved by global programmes.

The APPPC supports IPM and Pesticides Management programmes in the region by providing technical assistance & information exchange for facilitation of programmes.

The developing of information management systems, with the consequential increasing availability of information on phytosanitary requirements, procedures and systems is of significant assistance to APPPC members. This is supported by the developing of phytosanitary capacity and training opportunities within the region. The liaison afforded by the APPPC will provide increased opportunities in capacity building and training programmes.

The resources of the APPPC have been limited to those provided by FAO and funds provided for specific programmes by some countries. At present, they support one biennial session for the Commission and three working group meetings per biennium. This level of activity is insufficient for the adequate functioning of the Commission.

The plan stipulates areas of works and projects which could be funded by government or other sponsored organization. These activities described are based on the requirements of member countries in the area of plant protection identity.

The proposed biennium expenditure of the APPPC for the year 2008–2009 would be US\$428 000.

BUSINESS PLAN FOR THE ASIA AND PACIFIC PLANT PROTECTION COMMISSION

1. Members' needs and the APPPC

The protection of plants from pests is fundamental for food security, trade access and protection of the environment and leads to a range of benefits to members, especially poverty alleviation. The APPPC is instrumental in assisting to provide this protection. The needs of the APPPC members include:

- effective plant protection measures are important for sustainable and efficient food production and protection of the environment.
- IPM and sound pesticides management for reducing costs of production, increasing farmer incomes and reducing contamination that may result from the use of chemical pesticides.
- market access to facilitate the establishment of trade in plants and plant products between countries. International standards for phytosanitary measures that provide a fundamental basis for the negotiation of market access for plant products. There is a basic need for the international standards to be understood and implemented by countries. These international standards can also be supported by regional standards.
- plant protection information for the operation of phytosanitary systems for the prevention and introduction of pests.
- capacity development and training which are fundamental for many of the members of the Commission.

The protection of the health status of plants in agriculture, horticulture, forestry and the environment is a major priority for the region. As much as possible, the region needs to develop and maintain the infrastructure, appropriate regulations and trained personnel. The Commission has the ability to set up and operate plant protection programmes over the region.

Chemical pest control is a popular option in agriculture. Indiscriminate use of pesticides, however, could create a number of adverse impacts, including agricultural production, human health, environmental effects and economic problems associated with marketing of agricultural produce. APPPC can facilitate the improvement of sound management of pesticides which is vital for a number of member countries through the promotion of implementing related international instruments, standards, codes and guidelines etc. developed by international agencies and other organization.

The understanding and implementation of standards is of primary importance in maintaining a country's plant health status and the gaining of access for the export of plants and plant products. Regional organizations such as the APPPC can have a major role in this area. The APPPC has the capability to arrange training programmes for the implementation of international and regional standards.

All countries of the region have the need for basic information on the plant health status of neighbouring countries and the regulations of trade partners. The application of all measures is dependent on this basic information. The APPPC can provide a coordinating data base for the sharing of such information.

The region has many requirements for capacity development and training. Having being established under FAO, the Commission is linked to the FAO programmes of capacity development and training in the area of plant protection and possesses the capability to develop programmes and coordinates programmes subject to the availability of funding.

With active participation and contribution from the member countries and other organizations of this regional APPPC, the regional Plant Protection organization – which was the first regional organization to establish a regional working group on Draft ISPMs – could continue to play an active role in furthering the plant protection activities in this region.

2. The APPPC and its current situation

As an FAO Commission established under Article XVI, Supplementary Agreements (of the 1997 version), the Commission was funded by FAO and the Secretariat was provided by the Plant Protection Service of FAO. In 1983, the Plant Protection Agreement for the Asia and Pacific region was amended to include a clause allowing for mandatory financial contributions from member countries. However, 15 countries have ratified this amendment, but it has not yet come into force (still less than 2/3 – 16). Since then, the Plant Protection Agreement for the Asia and Pacific region has been amended again in 1999 to update its provisions so they are aligned with the WTO-SPS Agreement and the revised IPPC.

Commission members meet once every two years and use the forum to share experiences, report developments, develop contacts and discuss problems. Members have taken advantage of the facility within the revised agreement to develop and adopt regional standards. Two regional standards for phytosanitary measures were adopted in 2003 and two more in 2005. The increased activity of members has put considerable strain on the few resources provided by FAO for the Commission. The collection of funds for the work of Commission members has become an important issue.

The funds made available by FAO have been sufficient only to arrange one or two working group meeting(s) per year and the biennial session at the Commission. Other meetings have been arranged where it was possible to put meetings back to back and have the participants funded from other sources.

Some meetings have been arranged in the region as part of the IPP programme of the CPM or the Technical Cooperation Programme of FAO or the Rotterdam Convention.

The APPPC has developed a strategic plan based on the following mission statement and strategic directions:

To support the common purpose to secure effective action in preventing the introduction and spread of pests of plants and plant products to:

- protect plant, human and animal health and the environment,
- facilitate trade,
- protect the sustainability of agriculture

within the Asia and Pacific region.

This is accomplished by providing a regional forum for cooperation and promoting the full implementation of the Plant Protection Agreement for the Asia and Pacific region through:

- the development of measures for plant protection include the phytosanitary measures, promotion of IPM and the Code of Conduct on Distribution and Use of Pesticides
- the development of information management systems
- capacity development including the coordination and training of staff
- input into international systems including assistance with the development of international standards for phytosanitary measures
- the development of administration systems.

Resources for the APPPC have been primarily provided by FAO in the form of funds and a Secretary (part time of the Plant Protection Officer based in Bangkok). The limited nature of Secretary resources restrict the development of the APPPC work programmes. Some meetings have been sponsored by New Zealand, Australia and Republic of Korea. Present resources are only sufficient to fund three working group meetings per biennium and one biennial session of the Commission. The full functioning of the Commission, taking account of its strategic directions, would require considerable more funding.

3. Current work programme

The present work programme for the Commission is limited. It consists of:

Commission meeting

There is one Commission meeting per biennium. The APPPC bears the expenses for the meeting and supports the travel of a number of delegates from the developing countries to the venue of the meeting.

Regional standards

This includes two meetings concerned with the production of standards:

- one meeting of a working group to draft the regional standards
- one meeting of the APPPC Regional Standards Committee

The APPPC bears the expenses for the meetings and supports the travel of a number of experts from the developing countries to the venue of the meeting.

Other meetings

Within each biennium there have been funds just enough to hold one other meeting dealing with an urgent issue.

Other meetings concerning phytosanitary issues have taken place in the region but they have been initiated by other bodies – e.g. the IPPC Secretariat dealing with training for the operation of the IPP and PCE.

Expert consultations on specific pest outbreaks (i.e. coconut beetle) and implementation of the International Code of Conduct on the Distribution and Use of Pesticides were organized with certain amounts of external financial supports.

Information management

The Executive Secretary has been able to deal with some components of an information management system by entering some material on the APPPC website and by publishing some reports and the regional standards.

Capacity development and training

The trainings on IPP and phytosanitary capacity building as well as pest risk analysis were organized with IPPC programme, respectively.

Input into international Agreements

The APPPC has been involved in the annual meetings to discuss and consider draft international phytosanitary standards. These meetings have been a success in the area – with countries increasing their understanding of international standards and increasing their participation in the international standard setting system.

4. Future work programme

4.1 Introduction

The APPPC Business Plan for 2008-2009 proposes an increase in the funding and staffing of the APPPC Secretariat. This increase supports six major thrusts in the development of the APPPC. These are:

- the development of emergency planning and pest control procedures
- the maintenance of a programme for the development and adoption of phytosanitary measures

- the strengthening of the information services of the APPPC Secretariat to ensure full participation of developing countries
- the support and improvement of sound pesticide management
- promotion and support of IPM and GAP
- the development and coordination of a capacity development and training programme

4.2 Surveillance and pest control programmes

It is expected that these programmes will demand attract substantial efforts from members. Surveillance programmes are resource-intensive but essential as the base of phytosanitary systems. It is hoped that coordinated programmes covering adjacent countries can be developed. Likewise, the spread of important pests can be prevented or slowed down by joint actions by affected or threatened states. These programmes should be able to attract donor funds.

4.3 Promotion and support to IPM and GAP

The achievement of IPM programmes and the application of good agriculture practices (GAP) should be promoted and disseminated through the member countries by continuing to provide support for sustainable development in the region.

4.4 Capacity development and training programmes

The programme is expected to emphasize training associated with the implementation of standards for the first years. Programmes will be specifically designed to link training with the implementation of international or regional phytosanitary standards. It is hope that links will be developed with the training systems provided by the IPPC Secretariat. Specific training programmes should be able to find sponsors for support.

4.5 Programme for the development and adoption of regional standards for phytosanitary measures

The programme for the development and adoption of regional standards for phytosanitary measures has so far produced four standards. Two more are to be drafted in 2006-2007. This programme is dealing with the specific needs of the Asia and Pacific region and also supporting the international standards programme. This activity is seen to be an important part of the APPPC function which not only creates regional standards but also increases member's familiarity with the procedures used in formulating phytosanitary standards.

4.6 Programme for the support and improvement of sound pesticide management

Proper assessment of risks and benefits associated with pesticides used under local condition is extremely important for implementing effective control measures. There are a number of global initiatives which could be supported by the APPPC as the windows to the members to improve and harmonize existing management systems. The support programme should be able to find synergies within ongoing global initiatives and programmes by other interested parties.

4.7 Strengthening of the information services of the APPPC Secretariat

All of the programmes for the APPPC will be dependent to some degree on the information management system operated by the Secretariat. The future development of this system will depend on the acquisition of staff support for the Secretariat.

The work programme may be facilitated by directing efforts to specific countries. This could be helped by the establishment of working groups or committees. Administrative procedures will be kept to a minimum.

5. Conclusions

It is noted that:

- the APPPC is an increasingly valuable adjunct to each country's plant protection programme, providing opportunities for contact development and discussion
- the APPPC has been involved with promotion of IPM and management of pesticides in the region
- the APPPC has produced a number of regional phytosanitary standards which has provided valuable experience for members
- increased staff and resources are required for the operation of a fully functional Secretariat
- members need to cooperate in the delivery of an expanded work programme
- it would be desirable for APPPC members to accept the revised texts of the APPPC Agreement (1983 and 1999) in order for the texts to come into force
- there is an urgent need for capacity development and training, particularly in the area of standards implementation
- the Secretariat will endeavour to develop the information management system for members within the resources available

It is believed that with increased resources, the APPPC will be able to assist the member countries more effectively in improving the plant health status within the region, by executing new activities and undertaking new programmes.

6. Proposed work programme for the 2008-2009 (biennium) (Including cost estimates)

This programme is based on the goals proposed in the Strategic Plan; resources required are listed according to Strategic Directions.

6.1 Plant protection measures

To fund programmes on:

Development and adoption of regional standard	38 000
Workshop on pest incursion management	20 000
Workshop to promote and support the development of IPM, GAP, food safety programmes	20 000
Commission study and review of the implementation of Code of Conduct on the Distribution and Use of Pesticides	15 000

6.2 Information management

To fund preparation of:

Resources for information management projects	140 000
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6.3 Capacity development

To fund preparation of:

Workshop on PRA	25 000
Workshop on manual for preparation of pesticide residue assessment	20 000
Workshop on PFA and ALPP and course material	20 000
	10 000

6.4 International agreements

To fund preparation of:

Regional workshop on draft ISPMs	70 000
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6.5 Administration

To fund preparation of:

Promote acceptance of revised APPPC	20 000
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Coordination of funding for plant protection activities in the region	30 000
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** Information and Coordination officer already costed

TOTAL COST	428 000
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for biennium

Note: This estimate is based on 2006 costing.

OPTIONS FOR FUNDING

Section 4 of the report presents a summary of the discussions of the SGSP on options for funding. The discussions are reported here in note form at greater length.

A number of basic points arose from the discussions: some of these are fairly obvious but need to be borne in mind when attempting to find sources of monetary support for an organization such as the APPPC. The group then tried to sketch out a series of actions to try to obtain such support.

1. Basic points to be considered when setting up a funding programme

1.1 FAO funding

FAO has supplied the resources for the operation of the APPPC. These have included part of the time of the Plant Protection officer and funds for some meetings.

These funds have been supplemented by monies from the IPPC Secretariat, Australia and New Zealand.

1.2 Types of activities of the Commission

There are two different types of activities that funds are required for:

- the long-term continuing functions of the commission (the basic administration, the biennial commission session, the biennial meetings related to standards, pesticides, and IPM).
- the one-off or non-regular activities or projects that are also part of the APPPC biennial programme

1.3 Types of funding

Funds could be received by the APPPC in several ways but funding is of two main types:

- **Funding as a result of a legal agreement** (i.e. as in the APPPC agreement 1983 Article III or 1999 Article X) where countries undertake to contribute to the budget. (This has been referred to as mandatory contribution.)

- **Funding in the form of voluntary contributions.** Two forms of such voluntary contributions are:
 - voluntary contributions on a regular basis (e.g. annual or biennial) at a predetermined level agreed to by all the contributing countries. Such contributions are generally called voluntary assessed contributions.
 - voluntary contributions on an ad hoc basis:
 - to a Trust Fund for use as decided by the Commission
 - for specific purposes or projects identified by the contributor.

Likely that voluntary contributions would still be needed if mandatory funding was in place

- other organizations: from joint initiatives
- sponsored projects
- cost recovery projects

1.4 Joint initiatives

On some occasions the Commission collaborates with another organization with a joint project. This has occurred in the past with programmes associated with the Rotterdam Convention. Funding may therefore be joint or provided by the collaborating organization depending on the level of input.

1.5 Sponsored project

This type of project would be resourced by voluntary funding (as noted above) with funds from a government, international organization, funding organization or possibly a commercial enterprise.

1.6 Cost-recovery projects

This type of project is where training is supplied to commercial operators who provide fees that offset the cost of the exercise.

1.7 Trust Funds

A Trust Fund mechanism would need to be established in FAO to deal with the receipt and expenditure of funds. Expenditure approval procedures would also need to be set up.

2. Recommendations for action programme to obtain support

2.1 Commission members contributing funds

The preferred option by the SGSP is to further the system with Commission members contributing funds to the APPPC (as per Article III of the 1983 revision).

It was noted that:

- this may not be a rapid process, so it will take some time. This will not solve funding problems in the short term.
- the procedure for doing this still has to be determined. This will involve discussions with the Headquarter, FAO.

2.2 Trust Fund for voluntary contribution to cover 2007

It is suggested that a Trust Fund be set up to receive funding donations if any are sent to the Secretariat as a result of requests to be made later in the year. It will not be possible to set up a funding system to supply funds for 2007.

2.3 Voluntary assessed contributions

In case action 1 described above does not succeed in setting up a funding system, it is suggested that the Secretariat prepare documents ready for submission to the 25th session of the Commission describing the voluntary assessed contribution system so that it could be considered at that meeting.

2.4 Voluntary contributions

It is recommended that the Commission investigate sources of voluntary funding. Such supplementary funding could be of the types already noted:

- Sponsored project by government or aid organization
- Jointly funded programme
- Project with cost recovery
- sponsored by commercial firms

It was suggested that a programme be initiated to identify likely sponsors, to contact them by correspondence, and possibly invite them to the 25th session. This suggestion requires further consideration by the Secretariat and the SGSP (if it is to continue in operation).

PEST RISK ANALYSIS
FOR
SOUTH AMERICAN LEAF BLIGHT (SALB)
OF RUBBER (*HEVEA*)

July 2007

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EXECUTIVE SUMMARY

Introduction

This pest risk analysis (PRA) was prepared by rubber (*Hevea brasiliensis*) growing member countries of the Asia and Pacific Plant Protection Commission (APPPC); namely Thailand, Indonesia, Malaysia, India, China, Viet Nam and Sri Lanka. The PRA is expected to provide the scientific justification for standards that will be developed by the APPPC and member countries to manage the trade-related phytosanitary risks of South American Leaf Blight (SALB). Associated standards on diagnostics, surveillance, import regulation, control and eradication would provide guidelines to further assist countries efforts to safeguard against the incursion of SALB into the PRA area.

Summary of the risk assessment

Vector	Probability of Entry	Probability of Establishment	Probability of Spread	Likely Impact	Level of Risk
Host material (<i>Hevea</i> species)					
Budded stumps or budwood	High	High	High	High	High
Foliage (stem and leaf material not for planting)	Low	High	High	High	Moderate
Flowers, fruit and seeds	Low	High	High	High	Low
Plants <i>in-vitro</i>	Negligible	N/A	N/A	N/A	Negligible
Non-host material					
Inanimate goods or non-host organic material	Negligible	N/A	N/A	N/A	Negligible
Inanimate goods or non-host organic material contaminated by host plant material	Low (if <1 cm ²)	High	High	High	Low (if <1 cm ²)

Summary of recommended risk management options

Viable or non-viable SALB host material (susceptible *Hevea* species) can either be imported from areas considered free of SALB or meet the following phytosanitary requirements:

Budded stumps or budwood

a. Pre-export inspection and treatment

- Mother plants should be inspected by suitably qualified plant pathologist for signs of SALB infection and deemed to be free of SALB infection. Inspections should take place immediately before the harvesting of budded stumps or budwood and during a period considered optimal for disease expression;
- Harvesting of budded stumps and budwood should only occur when the bark has been hardened (brown in colour) and during the low-disease season (e.g. dry weather). Budded stumps and budwood should be no longer than 1 metre when exported;
- Budded stumps and budwood should be packaged for export in a manner that limits the likelihood of infestation during transport.

- Budded stumps and budwood should be dipped in an appropriate surface sterilant and a systemic fungicide effective against *M. ulei*;
- Budded stumps should have their roots washed of any attached soil.

b. *Measures on arrival (in an appropriately secure facility)*

- Budded stumps and budwood should be dipped in an appropriate surface sterilant and a systemic fungicide effective against *M. ulei*;
- All packaging material should be destroyed or appropriately sterilised, and the budded stumps and budwood repackaged after treatment.

c. *Post entry quarantine*

- Imported budded stumps and budwood should be grown in a suitable post entry quarantine facility for at least one year or after new foliage has been produced at least six times;
- Plants should be inspected for signs of SALB daily by suitable trained facility staff and fortnightly by suitably qualified plant pathologists;
- Should any signs of SALB be detected, plants showing signs should be destroyed and all other *Hevea* plants within the facility should be treated with suitable fungicide (treatment may require six or more applications);
- Prior to release from the facility all plants in the facility should be inspected by a suitable qualified plant pathologist for signs of SALB infection;
- Plants may be released from the post entry quarantine facility only after having all plants in the facility have been free from any signs of SALB for at least one year or after new foliage has been produced at least six times.

d. *Intermediate quarantine*

Intermediate quarantine offers a further option to mitigate risk. This system can have some logistical, maintenance and financial problems when used for rubber, but it may operate successfully in some specific circumstances.

Plants *in vitro*

Plants *in vitro* should be held in culture and free of any type of contamination for at least three months prior to being released into the PRA area.

Seeds, flowers and fruit

Flowers and fruits should be washed with a surface sterilant such as 200 ppm of sodium hypochlorite (Chee 2006). Only healthy seeds should be selected for export, washed with water and soaked in formalin (5%) for 15 minutes, and then air dried and dressed with thiophanate methyl, benomyl or mancozeb (Chee 1978; Santos and Pereira 1986).

Foliage

Normally, foliage of rubber plants is prohibited and hence not imported.

Non-viable host material on the cargo pathway

Cargo from SALB infested countries or areas should be screened for goods or shipments that are likely to contain or be contaminated by non-viable host material. A profile list should be established that identifies cargo most at risk of containing non-viable host material.

Cargo such as used machinery (cars, logging equipment, chainsaws, cutters etc.) that may have been used in rubber plantations should be thoroughly steam cleaned of all organic material larger than 1 cm², and dismantled if there are parts that can not be easily cleaned. Household effects should be inspected for gardening equipment that may be contaminated by organic material.

Any organic material that is thought to be from a susceptible *Hevea* species, is larger than 1 cm², and can not be removed from the goods or can not be destroyed (e.g. herbarium material), should be heat treated for a minimum of 30 continuous minutes at 56°C or greater. Measures may include cleaning, disinfection or destruction.

Non-viable host material on the passenger pathway

Passengers and accompanied luggage arriving within 21 days from areas not known to be free of SALB should be inspected for both viable and non-viable host material. Special care should be taken with such items as camping equipment and hiking boots, farm equipment, and decorative plant material as these are more likely to contain or be contaminated by non-viable host material greater than 1 cm².

Residual risk after measures

While the measures above, if strictly and effectively enforced, should be expected to manage the phytosanitary risks posed by SALB to the PRA area, it should still be considered possible that slippage (undetected risk items) may result in the establishment of SALB in the region. Efforts should be made to manage this residual risk by establishing an effective monitoring system that would be expected to detect an establishment event early enough to allow for an effective eradication programme to be completed.

PEST RISK ANALYSIS FOR SOUTH AMERICAN LEAF BLIGHT (SALB) OF *HEVEA* RUBBER

1.0 INTRODUCTION

This pest risk analysis (PRA) was prepared by rubber (*Hevea brasiliensis*) growing member countries of the Asia and Pacific Plant Protection Commission (APPPC); namely Thailand, Indonesia, Malaysia, India, China, Viet Nam and Sri Lanka. This PRA was prepared in response to the proposed deletion of Article IV and Appendix B (see Annex 2) on transitional measures for South American Leaf Blight (SALB) of rubber caused by *Microcyclus ulei* within the new proposed revised text of APPPC Plant Protection Agreement for the Asia and Pacific region. The revision updates the Plant Protection Agreement and brings it into compliance with the Sanitary and Phytosanitary Agreement (SPS Agreement) and the 1997 revised text of the International Plant Protection Convention (IPPC). The APPPC member countries agreed that Article IV and Appendix B of the Agreement as currently in force dealing with SALB should be retained until a PRA on SALB had been completed and an appropriate regional standard agreed to by APPPC.

Subsequently, a Technical Cooperation Programme project (TCP) was approved by FAO in July 2001 (Project Pest Risk Analysis for SALB of rubber-TCP/RAS/0168A) to develop a PRA on SALB. The PRA is expected to provide the scientific justification for standards that will be developed by the APPPC and member countries to manage the trade-related phytosanitary risks of SALB. Associated standards on diagnostics, surveillance, import regulation, control and eradication would provide guidelines to further assist countries efforts to safeguard against the incursion of SALB into the PRA area.

The purpose of this PRA is to:

- i. examine and evaluate the risks of SALB being associated with the relevant commodities/pathways from the SALB endemic countries into the Asia and Pacific region;
- ii. evaluate risks of introduction and spread of SALB into the region;
- iii. evaluate the economic consequences that may result from the establishment of SALB in the region;
and
- iv. evaluate various management options to mitigate the identified phytosanitary risks.

This PRA is prepared based on the International Standard for Phytosanitary Measures Guidelines on Pest Risk Analysis (ISPM No. 2) and Pest Risk Analysis for Quarantine Pests, including analysis of environmental risks and living modified organisms (ISPM No. 11 Rev. 1).

Other resources utilized include:

- a. Literature on SALB;
- b. Consultation with scientists/experts on SALB;
- c. Asian rubber producing country regulatory agencies and plant pathologists.

Definitions used in this PRA are consistent with ISPM 5: Glossary of Phytosanitary Terms (2005) unless otherwise stated.

1.1 Background

Natural rubber is produced by *Hevea brasiliensis*, a tree native to the Amazon region of South America. In the late eighteenth century, rubber was introduced to the Far East, which is now the main rubber-producing region of the world. Currently, the major producers of natural rubber are Thailand, Indonesia, Malaysia, India, China, Viet Nam and Sri Lanka. In 2005, the world's production of natural rubber amounted to 8682 million

tonnes whereby 7 466 million tonnes (approximately 86 percent) originated from these seven countries. In 2005, the world's consumption was over 8 742 million tonnes of natural rubber.

The natural rubber industry is a very important component of the agricultural sector and economies of the Asia and Pacific rubber producing countries. The introduction of SALB which has severely damaged the rubber industry in South America (see below), is currently considered to pose a direct threat to the natural rubber industry of these countries. Regional cooperation and phytosanitary action to protect these industries may be necessary to appropriately manage any potential consequences from SALB establishment and spread.

1.2 Compliance with international rights and obligations

The SPS Agreement applies to measures designed to protect human, animal and plant life and health from pests and diseases, or a country from pests, which may directly or indirectly affect international trade. It also recognizes the right of WTO member countries to determine the level of protection they deem appropriate and to take necessary measures to achieve that protection. Sanitary (human and animal health) and phytosanitary (plant health) measures apply to trade or movement of animal and plant based products within or between countries.

In the SPS Agreement, SPS measures are defined as any measures applied:

- to protect animal or plant health within the territory of the member from risks arising from entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms.
- to protect human or animal life or health within the territory of member from risks arising from additives, contaminants, toxins or disease-causing organism in foods, beverages or feedstuffs.
- to protect human or animal life or health within the territory of member from risks arising from diseases carried by animals, plants or products thereof, or from the entry, establishment or spread of pests.
- to protect or limit other damage within the territory of the member from the entry, establishment or spread of pests.

As SALB only directly affects plant health, the SPS measures should be developed and implemented in accordance with the principles of the IPPC (ISPM 1 2006). In the context of this risk analysis these principles include:

- **Sovereignty** – Contracting parties have sovereign authority, in accordance with applicable international agreements, to prescribe and adopt phytosanitary measures to protect plant health within their territories and to determine their appropriate level of protection for plant health.
- **Necessity** – Contracting parties may apply phytosanitary measures only where such measures are necessary to prevent the introduction and/or spread of quarantine pests, or to limit the economic impact of regulated non-quarantine pests.
- **Minimal impact** – Contracting parties should apply phytosanitary measures with minimal impact.
- **Transparency** – Contracting parties shall make relevant information available to other contracting parties as set forth in the IPPC.
- **Non-discrimination** – Contracting parties should, in accordance with the IPPC, apply phytosanitary measures without discrimination between contracting parties if contracting parties can demonstrate that they have the same phytosanitary status and apply identical or equivalent phytosanitary measures. Contracting parties should also apply phytosanitary measures without discrimination between comparable domestic and international phytosanitary situations.
- **Technical justification** – Contracting parties shall technically justify phytosanitary measures.

1.3 The PRA area

The PRA area for the purpose of this PRA is the Asia and Pacific region which encompasses the major rubber growing countries of Thailand, Indonesia, Malaysia, India, China, Viet Nam and Sri Lanka, as well as the minor rubber growing countries of Cambodia, Bangladesh, Lao PDR, Brunei, Philippines, Myanmar, and Papua New Guinea. These areas are currently considered free from SALB. The area of rubber planted, total production, export value and the number of rubber smallholders for these rubber growing countries are shown in Table 1.

Table 1. Area of rubber planted, production, export value and number of smallholders in Asia and the Pacific region 2003-2005

Country	Total area planted (million ha)			Total production ('000 metric tonnes)			Export value (\$USD millions)			No. of smallholders (million)
	2003	2004	2005	2003	2004	2005	2003	2004	2005	
Thailand	2.010	2.019	2.083	2 876	2 984	2 833	2 788	3 429	3 715	6.0
Indonesia	3.290	3.262	4.363	1 792	2 066	2 270	1 493	2 180	2 582	12.10
Malaysia	1.28	1.32	1.237	985	1 168	1 126	4 800	7 880	5 787	1.6
India	0.574	0.578	0.583	712	750	803	77.08	50.1	91.55	1.0
China	0.661	0.662	0.661	565	570	460	N/A	N/A	N/A	3.0
Viet Nam	0.440	0.454	0.480	450	513	697	350	579	1 270	0.068
Sri Lanka	0.115	0.116	0.116	92	51	104	39	51	47	0.2
Other Asia and Pacific Countries	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A: Information not available at time of publication.

1.4 Previous risk assessments

Ikin and Liyanage (1999) prepared a simplified PRA for SALB of rubber for the APPPC. The analysis and recommendations developed as part of that work have been considered in the development of this PRA.

2.0 INITIATION

2.1 Initiation event

Rubber is indigenous to South America. Many attempts to start a viable rubber industry in that region have met with failure because of the presence of SALB and the lack of a cost-effective management tools in that region. SALB spreads rapidly causing severe leaf fall and twig dieback. Chemical control that involves repeated fungicide applications to trees of great height has been found to be expensive and impractical. Breeding for disease resistance was continuously frustrated by the concurrent evolution of new physiological races of the pathogen that are capable of breaking down the resistance. No rubber clones can therefore escape infection over the long term. The rubber in Southeast Asia and the PRA area was introduced from South America and it was perhaps fortunate that SALB did not establish during this introduction period.

Foreseeing the potential risks of the disease, regulations, restrictions and prohibitions on imports from South America were introduced and imposed in the 1950's as required by Article IV in the Pacific Plant Protection Agreement for the Asia and Pacific region. In addition, the Association of Natural Rubber Producing Countries (ANRPC) introduced the ANRPC Agreement on SALB to complement the aforementioned agreement. The International Rubber Research and Development Board (IRRDB) also carried out research and undertook measures to exclude SALB from the region.

SALB is considered to remain a constant threat to the wellbeing of the Southeast Asia rubber industries. This is because of the expansion of international trade links with Central and South American countries wishing to penetrate Asian market. Although the importation of rubber planting material for breeding purposes is considered to pose the greatest danger of disease establishment in the region, other pathways need to be examined and their potential risks determined.

The Plant Protection Agreement for the Asia and Pacific region (APPPC) was revised between 1997 and 1999 to update and align the Agreement with the International Plant Protection Convention (IPPC 1997) and the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement 1995). The Agreement contains provisions referring specifically to SALB with a related appendix describing procedures for reducing the risk of introduction of SALB into the region.

The provisions of the APPPC Agreement placed stringent requirement on all contracting parties. These requirements are now seen not to be in compliance with the SPS Agreement or the 1997 revised text of the IPPC since phytosanitary measures imposed under the Agreement were not technically justified. This PRA on SALB is a result of the decision to amend the APPPC Agreement.

The main priority of the 1998–1999 APPPC work plan was the revision of the SALB Agreement.

- A working group meeting was held on 20-24 April 1998 to prepare the 1st draft. The working group could not reach an agreement on the deletion of Article IV and Appendix B concerning measures to exclude SALB from the region.
- A further consultation was held on 8-12 February 1999 and agreed to the restructuring and updating of the Agreement. A compromise was reached on the issue of SALB – measures in the Appendix B would be restricted to rubber producing countries and those with contiguous borders and be recognized as transitional until the Commission had developed an appropriate regional standard.
- At 21st session of APPPC (1999), it was decided that Article IV and Appendix B of the Agreement as currently in force dealing with SALB be retained until such time as a PRA had been completed and an appropriate regional standard agreed to by the Commission. It was noted that Article XIV and the Appendix B set out in the proposed revised Agreement were in contradiction with the requirements of the SPS Agreement and as such could not accept an Agreement that was not compliant with current SPS Agreement.
- October 1999, a working group on SALB was established and focused on the development of a Technical Cooperation Project (TCP) for a PRA for SALB of rubber.
- August 2003 – at the 23rd APPPC meeting, it was decided to rephrase some parts of the TCP to ensure that the PRA is developed by a group of experts from within the region. It is expected that follow-up work will be needed to produce supplementary standards to meet the needs of the rubber growing countries in the APPPC.

2.2 Conclusion of initiation

SALB of rubber is endemic in South America and is currently considered a high risk quarantine pest in the PRA area where 90 percent of the world's rubber is grown.

Following the decisions at the 21st session of APPPC (1999), a PRA on SALB has been initiated to develop appropriate standards to manage the phytosanitary risks of SALB to the APPPC region.

3.0 PEST RISK ANALYSIS

Given the level of uncertainty surrounding many of the epidemiological characteristics of SALB and the causal organism, the following risk analysis has been undertaken using qualitative rather than quantitative values. Table 2 describes these qualitative values in terms of the descriptors used for estimating likelihoods and consequences in the risk assessment.

Table 2. Rating for qualitative likelihood

Descriptor	Likelihood description	Consequence description
High	The event would be most likely to occur	<ul style="list-style-type: none"> • Impact threatens economic viability of a number of industries • A large increase in plant injury or mortality • A large decrease in production • Impacts are not reversible
Moderate	The event would be likely to occur	<ul style="list-style-type: none"> • Impact threatens economic viability of an industry • A moderate increase in plant injury or mortality • A moderate decrease in production • Impacts may not be reversible
Low	The event would be less likely to occur	<ul style="list-style-type: none"> • Impact does not threaten economic viability of an industry • Only a minor increase in plant injury or mortality • A minor decrease in production • Impact is reversible (if greater than listed)
Negligible	The event would be unlikely to occur	Impact not distinguishable

3.1 Pest categorization

At the outset, it may not be clear if an identified pest requires a PRA. The categorization process examines for the target pest whether the criteria in the definition for a quarantine pest are satisfied.

3.1.1 Pest identity, taxonomy, hosts and plant parts affected

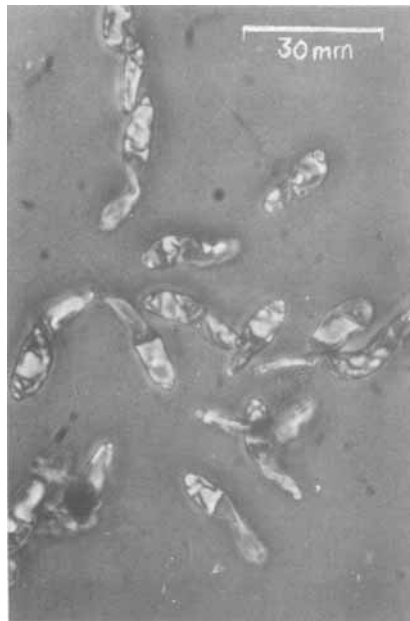
Pathogen:	<i>Microcyclus ulei</i> (P. Henn.) v. Arx
Order:	Ascomycetes
Family:	Dothideales
Synonyms:	<i>Dothidella ulei</i> (Henn. 1904) <i>Melanopsammopsis ulei</i> (Henn.) Stahel 1917 <i>Aposphaeria ulei</i> Henn 1904 (conidial state: <i>Fusicladium macrosporum</i> Kuyper 1912)
Common name:	South American Leaf Blight (SALB)
Host species:	<i>Hevea brasiliensis</i> Muell. Arg. (Commercial species) <i>Hevea benthamiana</i> Muell. Arg. <i>Hevea guianensis</i> Aubl. <i>Hevea spruceana</i> (Benth.) Muell. Arg.
Part of plants affected:	Young leaves severely affected. The young tissue of petioles, stems, inflorescences and fruit pods is less affected.

3.1.2 Biology and epidemiology

Spore production, germination and infection

The causal pathogen *Microcyclus ulei* is known to only infect species within the genus *Hevea*. It produces three types of spores; conidia on immature leaves; pycnosporos on newly matured leaves; and ascospores on fully matured leaves. The main propagules are conidia and ascospores (Plate 1b, d). Pycnosporos do not appear to germinate and do not therefore constitute an effective agent of disease dissemination (Plate 1c).

Plate 1. Conidia, pycnospores and ascospores (from Chee & Holliday 1986)



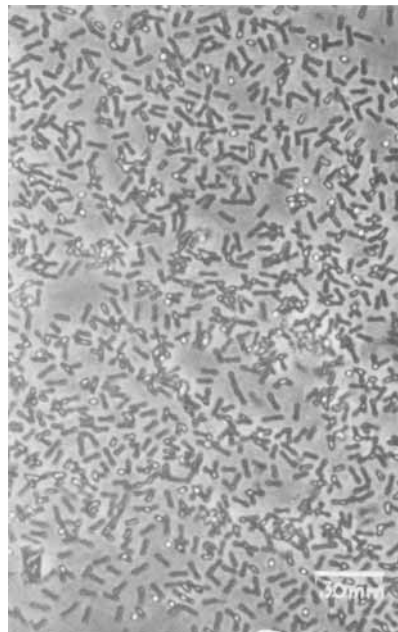
a) Dry, collapsed conidia



b) Turgid conidia



c) Pycnospores

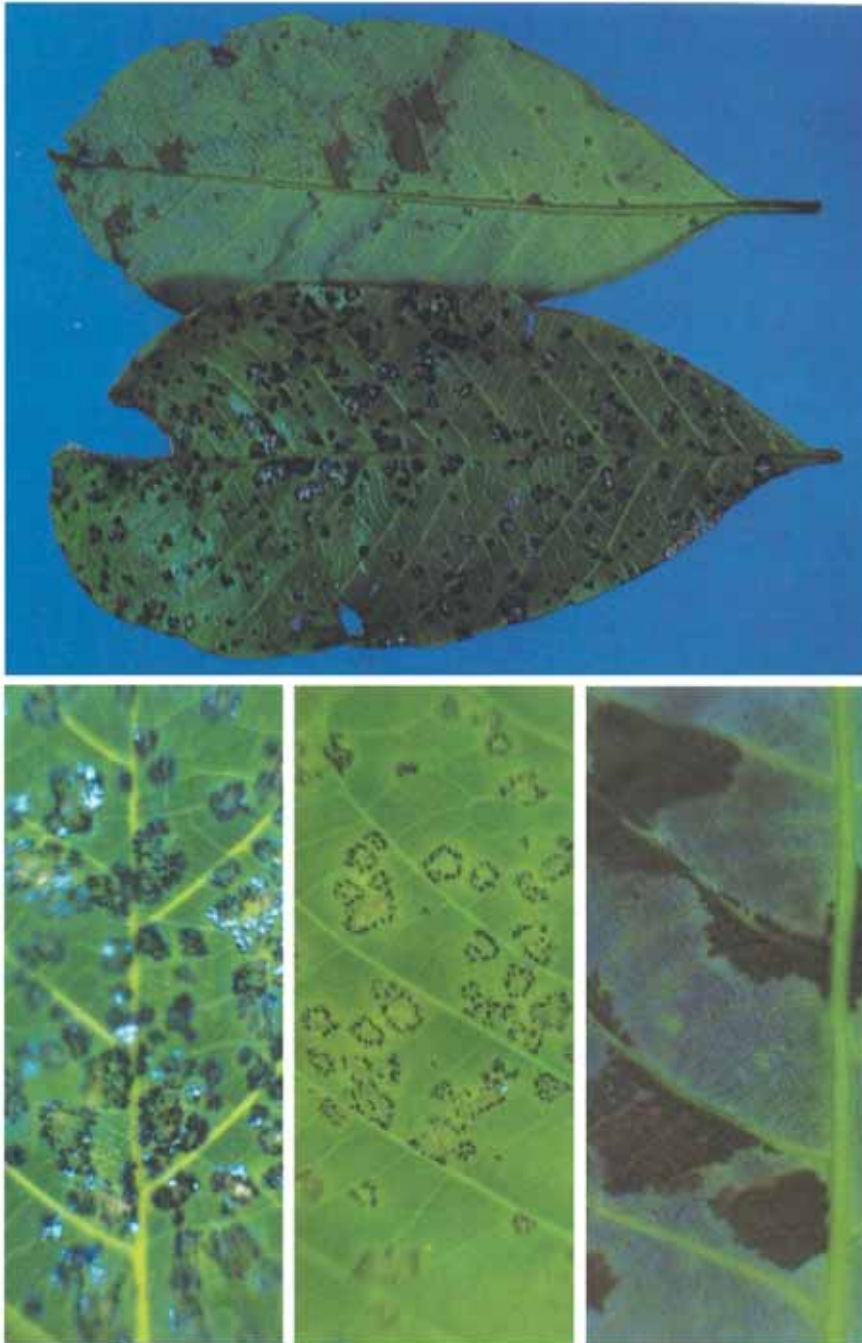


d) Ascospores

The conidia and ascospores infect the young developing leaves causing distortion followed by necrosis of the lamina (Plate 2). Affected leaves will abscise if infection is severe. Repeated defoliations and twig dieback weaken the tree and may sometimes cause its death (Plate 3) (Chee and Holliday 1986).

The primary stage of the disease on young leaves is characterized by the appearance of lesions covered by dark grey powdery masses of conidia on the abaxial leaf surface. Sporulation lasts for 2 to 3 weeks, later it becomes sparse and eventually no more conidia are produced. The conidia are disseminated by wind, vectors and water.

Plate 2. Foliar signs of SALB (from Chee & Holliday 1986)



Clockwise: a) Conidial lesions and ascostromata on leaf surfaces; b) close up of conidial lesions; c) and d) pycnidia and ascostromata on mature and old leaves respectively.

The ascospores play an important role in the survival of the fungus from one season to the next. The viability of detached conidia and ascospores is affected by moisture and temperature. The optimum temperature for growth, sporulation and infection is 24°C. Conidia and ascospores germinate in 3-4 hours at 24°C. The optimum temperature range for ascospore germination is 19°C to 25°C, but none germinate at 26-32°C. Water, in the form of dew or rain for about 8 hours, is considered necessary for germination, the formation of an aspersorium, infection hypha and penetration. Penetration is direct and through the leaf cuticle. Conidia begin to form within a week of infection and the perfect state mature about 8-9 weeks later. In infected rubber plantations ascospores are present throughout the year with peak concentrations occurring during the wet seasons. The wet season also marks the period of maximum production and dispersal of conidia (Chee 1976a, c).

Plate 3. Plants infected with SALB



Immature rubber plant infected with SALB



Matured rubber trees infected with SALB

The optimum temperature for germination of conidia is about 24°C (Holliday 1970; Chee 1976a; Kajornchaiyakul *et al.* 1984; Gasparotto *et al.* 1989a). Sporulation was found by Kajornchaiyakul *et al.* (1984) to be totally inhibited at 20°C. However, some isolates of *M. ulei* are able to infect and produce spores at 16°C (Gasparotto and Junqueira 1994). These differences seem to reflect physiological differences between isolates from different ecological regions.

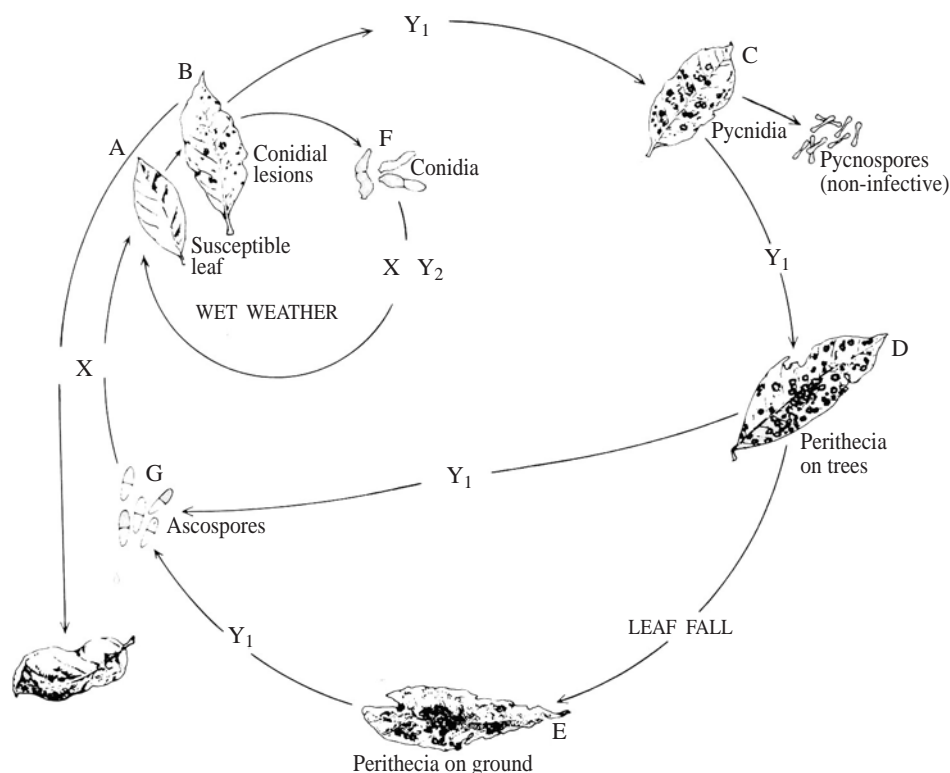
Dry conidia need to be wetted and require 6-8 hours of high relative humidity after deposition for infection. Gasparotto and Junqueira (1994) found that one isolate of the pathogen did not need more than 3 hours of leaf wetness for infection and other isolates could infect within 4 hours. It is assumed that the different periods of leaf wetness required for infection are related to the virulence of the isolates and the susceptibility of the clones used. Optimum temperature for infection ranges from 19-25°C, but little infection occur at 26-29°C and none at 30-32°C. After inoculation high disease intensity was observed on plants incubated at 19-22°C or 23-25°C. Lesions developed best at 23-25°C. Conidial sporulation occurred at 19-28°C and was increased by high humidity especially at 23-25°C (Kajornchaiyakul *et al.* 1984). Ascospores are released in rapid succession when leaves are wetted at sub-ambient temperature (14°C). Leaves which fall during wintering discharge ascospores readily after rain (Chee 1976a, b). During wet weather secondary infections from leaf diseases such as *Collectotrichum* and *Oidium* can occur causing secondary leaf fall (Chee 1990).

Ascospores are released from dark green leaves throughout the dry season (Chee 1976c; 1980a). Under moist conditions at 24°C, perithecia on green leaves lose their viability after 12 days and after 9 days for perithecia on fallen brown leaves. In Brazil, epidemics of the disease occur when daily temperatures are under 22°C for longer than 13 hours, relative humidity is over 85 percent for a period of over 10 hours, and rainfall exceeds 1 mm per day the preceding 7 days (Rocha and Vasconcelos 1978).

Spore survival and adaptability

The detached conidia stored at 24°C between 65-85 percent relative humidity remained viable after 3 weeks. The conidia still attached on leaf lesions when stored under desiccation, 9 percent of the conidia still germinated after 16 weeks. Fresh conidia produced under optimum conditions can survive over a week on leaves, clothes, polyethylene, artificial leather, glass, mature *Hevea* leaves, metal, paper as well as soil (Zhang *et al.* 1986). Conidia recovered from these materials were tested for viability by their ability to germinate. These recovered single conidia were transferred to leaf discs in laboratory infection tests to determine their ability to infect host material. No infection occurred (Darmono and Chee 1985; Chee pers. com. 2007).

Plate 4. Disease cycle of SALB (from Chee & Holliday 1986)



Plant infection requirements

Junqueira *et al.* (1986) determined that the optimum inoculum concentration was 2×10^5 conidia/ml, with higher concentrations inhibiting conidial germination and reducing the diameter of lesions. Outdoor (natural) light reduced viability more quickly than reduced-light (indoor) or no-light conditions. It is expected that for successful infection, with an inoculum concentration similar to that noted above, a spore loading equivalent to that generated from perithecia on a leaf segment at least 1 cm² would be required. This in effect means that for the purposes of this risk analysis it will be assumed that leaf segments of less than 1 cm² would not lead to successful infection under normal circumstances. This technical estimation is supported by the general experience of a number of workers (Chee, pers. comm.).

Population variation

Isolates of *M. ulei* grown on agar culture exhibit morphological differences and also differ in the rate of sporulation. Numerous strains have been observed. Over the years clones resistant to SALB succumbed to infection one after another and this was found to be due to evolution of new physiological races breaking down the resistance. Eight races were found initially (Chee *et al.* 1986), and four more have been added (Rivano 1997). Additionally geographical strains have been noted in Brazil (Chee pers. com. 2007)

Propagation of commercial rubber plants (Hevea brasiliensis)¹

Hevea brasiliensis, also known as the Para rubber tree after the Brazilian port of Para, is a quick growing, fairly sturdy, perennial tree of a height of 25 to 30 metres. It has a straight trunk and thick, somewhat soft, light brownish gray bark. The young plant shows characteristic growth pattern of alternating period of rapid elongation and consolidated development. The leaves are trifoliate with long stalks. Once older than about 6 years the tree is deciduous in habit and refoliation is quick with copious flowering following. Flowers are small but appear in large clusters. Fruits are three lobed, each holding three seeds, much like castor seeds in appearance but much larger in size. The seeds are oil bearing.

¹ This section has been extracted from text on the Indian Rubber Board, Ministry of Commerce and Administration, Government of India website (<http://rubberboard.org.in>)

The rubber tree may live for a hundred or more years, however, its economic life period in plantations is only around 32 years – 7 years of immature phase and 25 years of productive phase.

The main form of propagation is budding, which involves the replacement of the shoot system of a plant with that of another more desirable plant. In this process, a patch of bark of the seedling plant (stock) is replaced by a patch of bark with a dormant bud (bud patch) taken from the clone to be multiplied. The bud patch gets attached to the stock permanently and becomes a part of it. The stock is then cut off above the budded portion and the grafted bud develops into a shoot (scion) exhibiting the characters of the plant from which it was taken. The new tree thus formed is a two-part tree, comprising a root system belonging to the stock plant and a shoot system contributed by the donor of the bud.

Depending on the colour and age of the buds as well as the age of the stock plants used, three types of buddings are mainly recognized. These are brown (conventional) budding, green budding and young budding. In the first method, older buds having brown colour are used while in the other two, green tender buds are utilized. Depending on the part of the stock where budding is carried out, buddings are classified into four types: base budding, crown budding, over budding and high budding. Base budding is carried out at the base of the stock plant and includes brown budding, green budding and young budding.

After harvesting, the brown budwood is cut into pieces of one metre length for the convenience of handling. The immature top portion, which may be green or partially brown, is discarded. For longer storage and transporting, the cut ends are sealed with melted wax, each piece covered with wet sacking or equivalent, and then tied into bundles of a convenient size. By this method, viability could be retained up to three days. For storing up to 14 days and carrying over very long distances each piece is first wrapped with perforated polythene and then packed in boxes with a moist substrate.

3.1.3 International distribution of SALB

SALB is present in all countries in Central and South America where rubber are present, whether cultivated or wild. In 2003 Brazil's total rubber planted area was 108 373 ha, of which Sao Paulo state had 33 477 ha, Bahia 29 314 ha and Mato Grosso 25 536 ha. The area under production was 103 586 ha; dry rubber production was 156 318 tonnes. Brazil's own production for 2003 was 94 000 tonnes; and in 2004 was 100 000 tonnes. In the second largest rubber planting state Bahia, despite ravages by SALB and low rubber yield (estate: 1 000-1 200 kg/ha/yr; smallholder: 500-600 kg/ha/yr), rubber cultivation is still being attempted. Commercial rubber area in the northern states is negligible. Although indigenous wild populations exist, Amazonas' 540 ha of rubber in 1995 has dwindled to 28 ha today.

3.1.4 Presence or absence of SALB in PRA area

SALB has not been recorded from any of the Asia and Pacific rubber producing countries (the PRA area). A map showing areas where SALB is endemic and the PRA area for this analysis is provided in Plate 5.

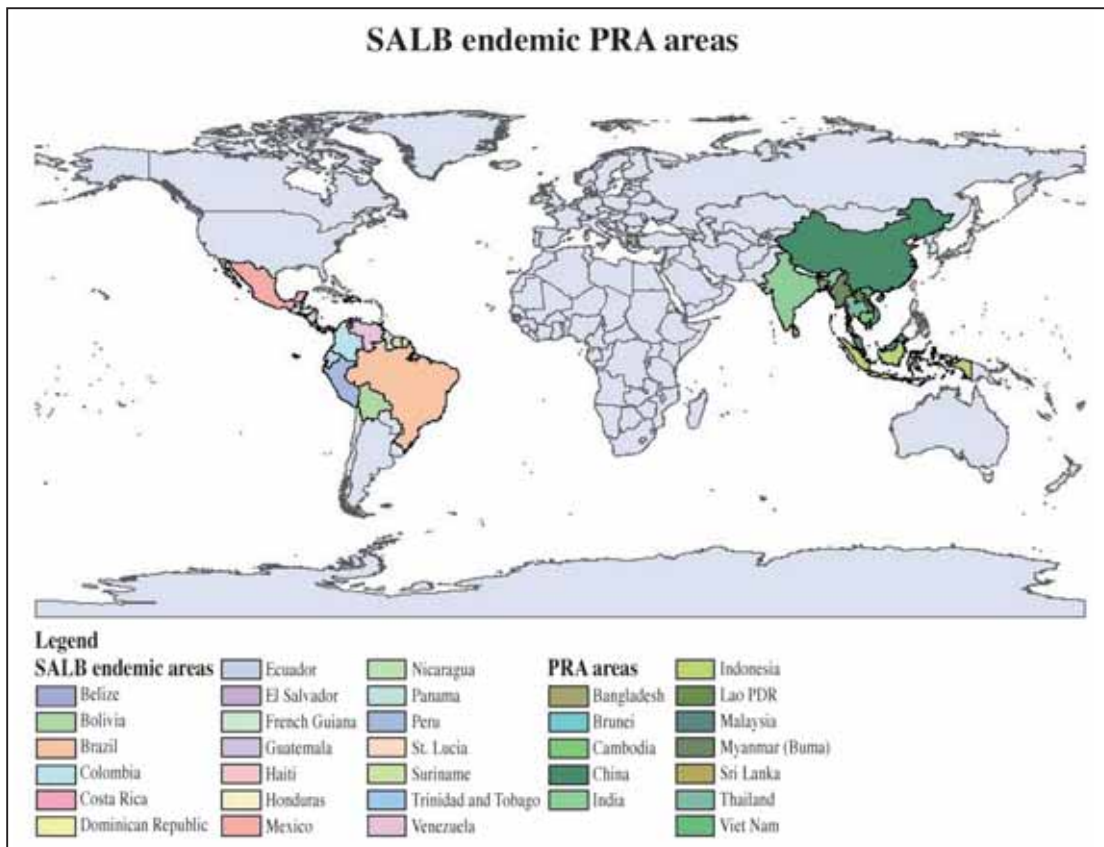
3.1.5 Current regulatory status

At present, all the Asian rubber growing countries have legislation, regulations and requirements to exclude SALB. Some countries may have more stringent measures than others due to the availability of appropriate infrastructure, facilities and resources (see Annex 4 for more details).

3.1.6 Entry potential

The pathogen *M. ulei* is specific to the plant genus *Hevea* and almost all aerial parts of the host plant, leaves, petioles, stems inflorescence and fruit pods, can be affected though they become infected only when the tissues are young. Fresh conidia produced under optimum conditions can survive for over a week on inorganic or inanimate objects such as clothes, polyethylene, artificial leather, glass, metal, paper and soil (Zhang *et al.* 1986). Pathways for the entry of *M. ulei* into the PRA area can therefore be separated into host and non-host material.

Plate 5. Map showing areas where SALB is endemic, and the PRA area



3.1.7 Potential for establishment and spread

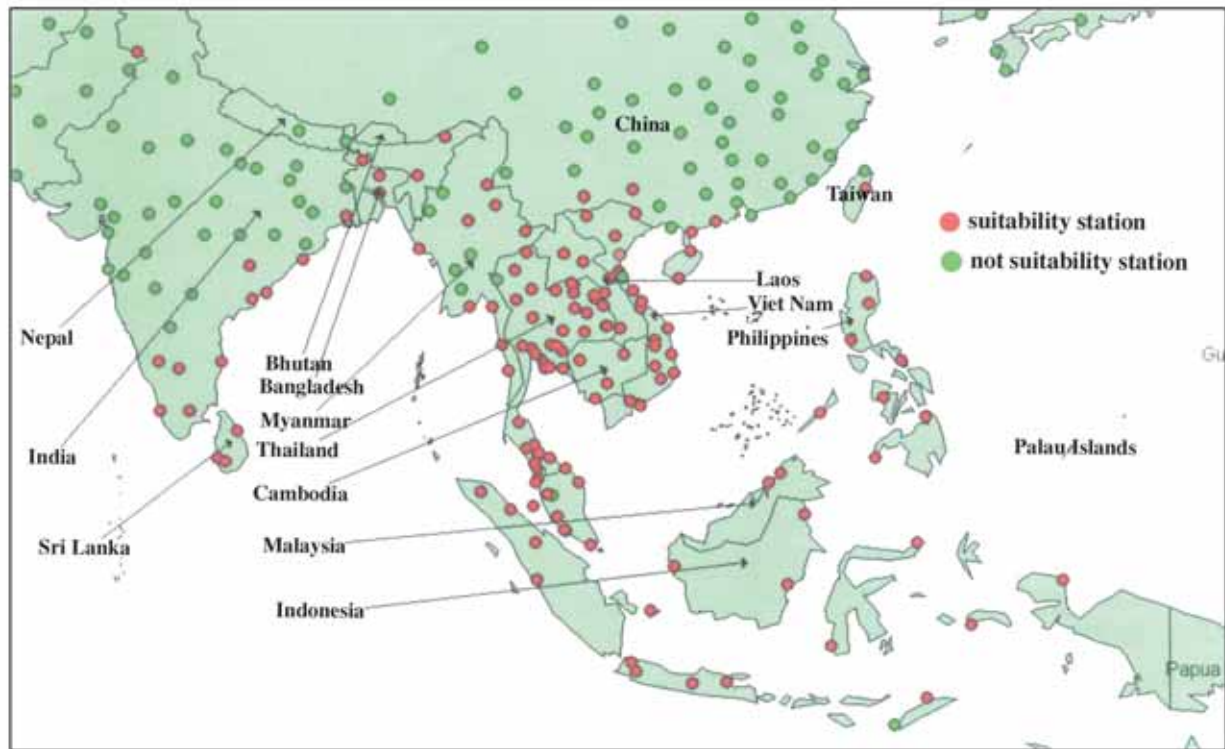
Infection and establishment of SALB requires the presence of susceptible young foliage, wet weather and suitable temperature (22°C-28°C). Depending on the local climatic conditions, after the annual wintering, rubber trees refoliate from February to April. There are abundant rubber plantations throughout the PRA area, and host plants (*Hevea* species) can be found in urban plantings and forest areas.

In South American countries the initial spread is believed to have originated from wild rubber trees, but spread to Trinidad and Central American and to Bahia and Sao Paulo areas of Brazil was presumably through infected material when attempts were made to grow rubber in these regions. The spread of disease to Haiti is speculated to be through the spores brought over by wind and rain from Guyana or Trinidad and Tobago. Spread of the disease from Amazon basin to the surrounding areas was possibly caused by long distance dissemination by wind and rain and deposition of spores from infected plants in the field (Holliday, 1970).

Climatic conditions especially rainfall in Asian countries are similar with SALB endemic regions of the Amazon. SALB occurs in epidemic proportions in the months which have 18 days of high relative humidity (exceeding 85%) for 10 hours. The climatic condition in many parts of Asian countries is similar to SALB endemic region in Brazil (Chee 1980b). Lin (2006), using Geographic Information System (GIS) analysis to compare the climatic records of 12 rubber growing countries in the PRA area, including Thailand, Indonesia and Malaysia, with SALB endemic regions, confirmed the climatic suitability of SALB to these countries. The criteria used in the analysis were:

1. Average temperature of March, April and May (refoliation in Northern Hemisphere) is higher than 18.5°C; the average temperature of September, October and November (refoliation in Southern Hemisphere) is higher than 18.5°C.
2. Annual rainfall is higher than 760 mm.
3. There is no more than 6 consecutive months with less than 42 mm per month of rainfall.

Plate 6. Map showing climates suitable for SALB development within the PRA area (from Lin 2006)



3.1.8 Potential for economic consequences

Natural rubber is one of the most important commercial commodities in Asia, particularly Southeast Asia. Presently, the rubber areas in Asia are free from SALB. If SALB were to establish and spread in the PRA areas the potential consequences would be expected to include:

1. Increased cost of production with lower productivity
 - additional disease and weed control costs
 - shortage of raw material for rubber and rubber wood based industries
 - poor stand and wood quality when infected trees suffer dieback
2. Adverse financial effects
 - reduction in country's revenue from rubber and rubber wood exports including effects on growers and rubber manufacturing sectors
 - loss of income due to unemployment of rubber smallholders
 - escalating rubber wood prices because of low supply

3.1.9 Conclusion of pest categorization

There are abundant rubber plantations throughout the PRA area. Currently SALB is absent from the PRA area. If SALB were to be introduced into the PRA area, it has the potential to establish, spread and cause unwanted consequences as the PRA area has similar climatic conditions as in the SALB affected area (Lin, 2006). SALB therefore fulfils the criteria for a quarantine pest as defined by IPPC: "A pest of potential economic importance to the area endangered thereby and not yet present there ...", (ISPM 5 2006).

3.2 Assessment of the probability of introduction and spread

Pest introduction includes both the entry and establishment. As mentioned in section 3.1.6, commodities that can carry *M. ulei* into the PRA area can be separated into host and non-host material. For ease of analysis host material, which includes plant parts from species in the *Hevea* genus, has been classified into the following groups:

1. *Budded stumps or budwood*
2. *Foliage (including stem and leaf material but not for planting)*
3. *Flowers, fruit and seeds*
4. *Plants in-vitro*
5. *Rubber wood*

Non-host material can be classified into two main groups:

1. *Inanimate goods or non-host organic material*
2. *Inanimate goods or non-host organic material contaminated by host plant material*

3.2.1 *Probability of entry*

The probability of entry describes, in qualitative terms, the likelihood of an organism successfully moving from the place of origin to the PRA area. In this PRA the organism in question is *M. ulei*, the place of origin is the areas in which SALB is endemic, and the PRA area includes the rubber growing member countries of APPPC (see section 1.3).

3.2.1.1 *Probability of being associated with host pathways*

Budded stumps or budwood: On infected young leaves, conidia are found on the surface of necrotic lesions. On old leaves ascospores are borne within the stomata and are released following wetting and cooling. Conidia are therefore more readily dispersed from this material when infected leaves are present. SALB and therefore *M. ulei* is present in all areas of South America where host material is likely to be sourced. Infection is mainly through young leaves however once plants have SALB all aerial parts can contain the disease. There is no evidence that stems (e.g., budwood) are affected by the pathogen when they are mature brown wood, but these may carry infections which have occurred when the stems were green. The likelihood that this material would be infected before transport to the PRA area is therefore considered **high**.

Foliage (including stem and leaf material but not for planting): At the height of an epidemic *M. ulei* affects actively growing stems and petioles causing them to curl and twist and occasionally spirally roll. The lesions become suberised and sometimes split (Holliday, 1970). SALB and therefore *M. ulei* is present in all areas of South America where host material is likely to be sourced. Therefore the likelihood that this material would be infected before transport to the PRA area is considered **high**.

Flowers, fruit and seeds: The inflorescences and flowers are infected by the pathogen. The small flowers turn black and drop. Young fruit pods up to 1 cm diameter can be destroyed by the pathogen. Larger fruit pods form swellings, 0.5-2 cm in diameter, on which the fungus fructifies (Holliday, 1970). In Bahia, Brazil, SALB coincides with *Phytophthora*, both occur during the wet season. Fruit pods are highly susceptible to *Phytophthora* thus denying SALB infection. There is no evidence that the pathogen is directly seedborne and seed transmitted (Holliday, 1970), however, it is likely that conidia could contaminate seed lots in the same manner that inanimate objects could become contaminated. SALB and therefore *M. ulei* is present in all areas of South America where host material is likely to be sourced. Therefore the likelihood that this material would be infected before transport to the PRA area is considered **moderate**.

Plants in-vitro: Plant parts or callus that has been held in sterile culture for more than 3 continuous months should be considered axenic and pose a **negligible** risk of being associated of *M. ulei*. This material will therefore not be considered further in the risk assessment sections of this analysis.

Wood: Manufactured wood and logs with bark are considered unlikely to transmit the pathogen and thus constitutes a **negligible** risk.

3.2.1.2 Probability of being associated with non-host pathways

Inanimate goods or non-host organic material: Conidia from infected host plants may become associated with this type of material if it is sourced from or passes through SALB infested areas. It is unlikely that the conidia in these circumstances will remain viable given the extended period that may occur between contamination and shipment, and contamination levels are likely to be low. Therefore the likelihood that this material would be contaminated before transport to the PRA area is considered **low** (Zhang *et al.*, 1986).

Inanimate goods or non-host organic material contaminated by host plant material: Goods that contain or become contaminated by host plant material, such as plant cutters, chainsaws, compost, footwear, or plant decorations, could be contaminated with conidia if the host plant material in question is leaf material and of a significant quantity. SALB and therefore *M. ulei* is present in all areas of South America where host material is likely to be sourced. Therefore the likelihood that these goods would be contaminated before transport to the PRA area is considered **moderate**.

3.2.1.3 Probability of surviving during transportation

For the purposes of this PRA methods of transport were categorized into three main groups:

1. *Sea cargo, passengers, and ocean going vessels*
2. *Air freight and aircraft*
3. *Air passengers and accompanied luggage*

Sea cargo, passengers, and ocean going vessels: The most significant aspects of these methods of transport are the duration of travel and the environmental conditions during travel. Transport by sea generally takes three weeks from South America and environmental conditions such as temperature and moisture would not be optimal for spore survival during this period. It is therefore considered that *M. ulei* would not survive the journey via this pathway unless it was infecting host material (Zhang *et al.*, 1986). The likelihood that *M. ulei* would survive transport via this pathway is therefore considered **negligible** unless associated with the appropriate host material. Under these exceptions the likelihood that *M. ulei* would survive transport via this pathway would be considered **high** for appropriately packaged budwood or foliage and **low** for other host material.

Air freight and aircraft: Transport by air takes three days from South America to the PRA area in Southeast Asia. In optimal environmental conditions it is likely that spores of *M. ulei* would survive the journey via this pathway. However the aircraft surfaces and freight held within aircraft holds is exposed to low temperatures at high altitudes that would significantly reduce spore viability. The survival of spores in the aircraft would be **negligible**.

Spores on the outside of an aircraft would be subject to extreme conditions. It is noted that while the spores of *M. ulei* are reported to survive at -28°C and -78°C (LebaiJuri *et al.* 1997) (a method used in preservation of the viability of many micro-organisms), conidia are killed on exposure to ultraviolet irradiation for periods 4-60 minutes or solar radiation for 3 (ascospores) to 6 hours (conidia) (Chee 1985; 2006). Survival of spores on the outside of an aircraft would be **negligible**.

Air passengers and accompanied luggage: Air passengers and accompanied luggage should be considered equivalent to air freight above. Unless spores of *M. ulei* were infecting live or fresh host material, the likelihood that they would survive transport via this pathway is **negligible**. When infected live host material is introduced to this pathway, the likelihood of survival should be considered **high** for budwood or foliage and **moderate** for other host material.

3.2.1.4 Probability of surviving existing pest management procedures

Visual inspection: Unless there are obvious signs of infection in the host material, detecting the presence of *M. ulei* would not be possible by visual examination alone. To confirm the identity of the pathogen by

laboratory isolation, a special technique of isolating *M. ulei* must be used (Holliday 1970; Junqueira *et al.* 1984). Inspections for host material above 1 cm² should be considered a relatively effective measure if the material is not otherwise concealed.

No other pest management procedures were considered relevant to this analysis.

3.2.1.5 *Probability of transfer to a suitable host*

Rubber is widely planted in smallholdings scattered over the PRA area, and can be found in urban areas within parks and peoples dwellings.

Infected host material: Any propagable host material that is infected with *M. ulei* would be expected to act as both a vector of the disease into a region and as a host once the material has been planted into the environment. The likelihood that *M. ulei* would transfer to a suitable host would only be limited by the nature of the imported host material itself. This material has therefore been separated into the following sub-groups for analysis:

1. *Budded stumps or budwood:* This type of imported material would be expected to act as both a vector and host. The likelihood that *M. ulei* would transfer to a suitable host on budded stumps or budwood is considered **high**.
2. *Seeds:* While seeds could also act as a vector, the likelihood that the infecting agent, in this case surface spores, could survive until the seed has germinated and young leaves have developed, and subsequently infect these young leaves is considered highly unlikely. In the absence of conclusive research data demonstrating the potential or not for vector transfer in this manner, the likelihood should be considered **low** (rather than negligible).

Infected fresh non-viable host material: While this type of material could act as a vector for *M. ulei* into a region, this material will not or can not be propagated. Therefore any contaminating infection agent such as spores must find their way onto a suitable host in the PRA area. As a suitable host in this instance is the young leaf material of a susceptible *Hevea* species, and the spore load for achieving infection must be relatively high, the conceivable mechanism for successful transfer to a suitable host would be via the development of conidia (on immature leaves) or ascospores (on fully matured leaves) and the dissemination of subsequent spores. The host material must therefore be suitable for conidia or ascospore production and of a size sufficient to produce the required volume of airborne or water washed spores.

The likelihood, therefore, that small sizes (<1 cm²) of infected fresh non-viable host material could result in the transfer of *M. ulei* to a suitable host in a new region should be considered **negligible**. The likelihood that larger sizes (>1 cm²) of infected fresh non-viable host material could result in the transfer of *M. ulei* to a suitable host in a new region should be considered **low**.

3.2.1.6 *Conclusions of the assessment of the probability of entry*

Table 3 provides a summary of the different aspects of the entry pathway discussed in the previous sub-sections (3.2.1.1-3.2.1.5) and provides a final probability of entry for each category of potential vector.

3.2.2 *Probability of establishment*

The definition of establishment provided in ISPM 5: Glossary of Phytosanitary Terms (2005) is:

The perpetuation, for the foreseeable future, of a pest within an area after entry
[ISPM 5 2006]

ISPM 11 considers the following factors should be taken into consideration when determining the probability of an organism establishing in a PRA area.

Table 3. Summary of the assessment of entry

Vector	Probability of association	Probability of transit by Sea/Air	Probability of transfer to a suitable host	Conclusion of probability of entry
Host material (<i>Hevea</i> species)				
Budded stumps or budwood	High	High / High	High	High
Foliage (stem and leaf material not for planting)	High	High / High	Low (<1 cm ²)	Low (<1 cm ²)
Flowers, fruit and seeds	Moderate	Low / Moderate	Low	Low
Plants <i>in-vitro</i>	Negligible	N/A / N/A	N/A	Negligible
Wood	Negligible	Negligible / Negligible	Negligible	Negligible
Non-host material				
Inanimate goods or non-host organic material	Low	Negligible / Negligible	N/A	Negligible
Inanimate goods or non-host organic material contaminated by host plant material	Moderate	Low / Moderate	Low (<1 cm ²)	Low (<1 cm ²)

3.2.2.1 Availability, quantity and distribution of host in the PRA areas

There are 8.7 million ha of rubber in the PRA area and all the clones planted are susceptible to SALB. Initial signs of SALB are similar to other rubber leaf diseases already occurring in PRA area. Therefore, early detection of the occurrence of SALB is difficult.

3.2.2.2 Environmental suitability in the PRA areas

The climatic conditions in SALB endemic area are characterized by high rainfall and temperatures from 26°C to 28°C. Similar environmental conditions exist in the PRA area. Temperatures in the west of Malaysia may be slightly above the optimum for development of the disease, but the rainfall regime appears to be extremely favourable (Holliday 1969). However the north-west region of Malaysia may be sufficiently dry when the rubber trees undergo withering and therefore could escape serious disease development (Wycherley 1967).

3.2.2.3. Potential adaptation of the pathogen

Morphological, ecological and physiological strains of *M. ulei* have evolved suggesting that the pathogen is adaptable to the new environment in the PRA area.

3.2.2.4 Reproductive strategy of the pathogen

The pathogen produces abundant conidia during refoliation. If the infected leaves escape severe infection and do not fall ascospores are produced on the dark green harden leaves. Sporulation therefore follows from one spore stage to another. When conidia production is tailing off ascospores begin to produce. Ascospores are therefore present through the year but low in concentration during wintering when old leaves are shed. Infection can be due to conidia or ascospores or both depending the time of the year.

3.2.2.5 Method of survival of the pathogen

In plantations, the pathogen survives on old leaves by producing the secondary stage of stromata. The stromata are alive on the leaves that are on the trees or have fallen to the ground, and will continue to eject ascospores from the perithecia contained in the stromata.

3.2.2.6 Effectiveness of existing control programmes

Cultural practice has little value in control measures. Fungicide spraying is effective to certain extent, but the cost of chemical control is high and method of application is difficult because of uneven terrain and tree height.

3.2.2.7 Conclusion of the assessment of the probability of establishment

The probability of establishment within the rubber growing areas of the PRA area should be considered **high** if SALB is introduced into a suitable environment on appropriate host material.

3.2.3 Probability of spread after establishment

The definition of spread provided in ISPM 5: Glossary of Phytosanitary Terms (2005) is:

Expansion of the geographical distribution of a pest within an area [ISPM 5 2006]

ISPM 11 considers the following factors should be taken into consideration when determining the probability of an organism spreading in a PRA area.

3.2.3.1 Suitability of the natural environment

The natural environment is suitable for natural spread of the disease. Given the temperatures between 16°C-32°C the pathogen will establish on the susceptible host and spread unabated. Little information is known on the relative humidity over the region in relation to SALB.

3.2.3.2 Presence of natural barriers

Spores of SALB are spread by wind and splashing rain. Natural barriers such as desert, arid area, mountains, ranges and seas may limit the spread to some areas over the short term, but SALB would be expected to spread to all areas over time.

3.2.3.3 Potential of dispersal with commodities or conveyances

There is currently free movement of commodities, planting materials, conveyances and people within and between countries in the PRA area. As many of these areas have relatively uncontrolled land borders, effective limitations on dispersal with commodities or conveyances are not considered possible.

3.2.3.4 Intended use of commodity

Rubber is a processed product and should not be considered a pathway for SALB. Rubber wood may act as a pathway for a short period immediately after harvesting, but natural drying and use in manufacturing would remove any viable infection.

3.2.3.5 Potential of natural enemies

There is no known natural enemy or other biological control agent for SALB. Work with *Dicyma pulvinata* does not appear to have produced successful results (Chee pers. com.).

3.2.3.6 Conclusion of the assessment of the probability of spread

The probability of spread within the rubber growing areas of the PRA area should be considered **high** if SALB is introduced into a suitable environment and an area where sufficient host material is available.

3.3 Assessment of economic consequences

SALB is known to cause severe economic losses in the agriculture system and until today it remains as the main obstacle for the viable natural rubber industry in South America. Severely affected plantations had been abandoned (Holliday 1970). Rubber cultivation in Brazil has moved from its traditional state of Bahia to Sao Paulo and Mato Grosso where refoliation occurs during the dry season escaping *M. ulei* infection. Rubber growers in Bahia are therefore denied of an income while land in Sao Paulo is escalating in price. According to Michelin Plantation in Itubera, in Bahia SALB causes, conservatively, rubber yield reduction of about 30 percent.

3.3.1 Direct effects of SALB

SALB would directly affect the yield of latex and rubber wood, shortage of raw material for downstream rubber industry, loss in employment and effect on environment. The direct effects of the disease on the host were evaluated with these considerations using factors listed in table 4.

Table 4. Direct consequences of SALB

Event	Rationale	Consequence
1. Rubber plant mortality	The pathogen causes defoliation and dieback, weakens the plants and kills the tree. All clones are susceptible. Within a few years, all standing stock within the PRA area is expected to be infected.	High Almost all rubber plants affected; 8.7 million ha.
2. Reduction in latex yield	Infected trees are bare of leaves or having poor canopy and twig dieback. It causes a reduction of rubber yield and indirectly affecting the down stream rubber industry. Estimate 30-50 percent yield reduction in rubber production (Chee K.H., pers. com.)	High Estimated loss 4.4 million tonnes.
3. Reduction of rubber wood production	Affected trees experience retarded growth. Estimated 40 percent reduction in rubber wood availability. Affect manufacturing and industrial sector.	Moderate Estimated loss of 1.1 million m ³ .
4. Investment in eradication	Should SALB be detected within an isolated area early in the infection cycle, eradication may be possible. For the period of the eradication programme tree mortality due to eradication measures would exceed expected disease mortality.	Moderate Eradication exercises to be carried out of a minimum area of 1 000 ha within a radius of 3 km of infected trees.
5. Increases in production costs	Costs of production would increase due to increased need for disease control, weed control and stock replanting or replacement.	Moderate
6. Loss of income and employment within affected regions	Rubber industry supports millions of families, mainly smallholders.	High Loss of income for the country due to closing down-stream rubber industries/factories. Loss of income for employment in rubber industry.
7. Environmental impact	Chemical control of rubber leaf diseases is not normally practiced. In the event of SALB eradication and prophylactic treatment, large scale fungicide application will be implemented. Loss of rubber stands equivalent to deforestation with subsequent habitat degradation.	High Environmental pollution and health hazards to human and animals, soil erosion.
8. Loss in aesthetic value	Rubber trees contribute to the agro ecosystem beauty and tourism from its unique form and attraction.	Low
9. Loss in foreign exchange	Loss of revenue due to reduction in export of rubber and rubber products. Increase production costs are thus not competitive in global export market. Loss of foreign exchange in importation of pesticides.	High

3.3.2 Indirect effects of SALB

The indirect consequences of SALB would be a shift in consumer demand and domestic social dislocation. The indirect SALB effect is evaluated using factors listed in Table 5.

Table 5. Indirect consequences of SALB

Event	Rationale	Consequence
1. Loss of market opportunity (International trade)	Depressed supply of rubber and rubber wood would be expected to lead to loss of market share	High
2. Intensified research and development	Increase research and development costs for disease management	Moderate
3. Social dislocation	Urbanization and migration of rubber labour force	High
4. Decline in the standard of living of people involved in rubber industries, especially small holders	Smallholders and workers in the rubber downstream industry will be denied of decent income affecting food and education expenditure	High

3.3.3 Conclusion of the assessment of economic consequences

Both the direct and indirect SALB effects are high. Control measures for a relatively widely spread infestation would involve great costs and would not be economical sustainable. Without treatment, vast areas of rubber would eventually be lost, directly affecting the livelihood of rubber smallholders and indirectly the rubber wood furniture industry and rubber goods manufacturing sector, in particular rubber gloves and tyres. The combined economic consequences are a loss of revenue in the region of USD 10 billion a year. This would have a significant impact on the gross domestic product of the highest volume rubber-producing countries.

The economic consequences of SALB are **high** as rubber is a significant economic crop in ANRPC countries. It provides employment to many people and brings in foreign exchange earnings as a result of export of the raw material or processed products.

3.4 Endangered areas

The endangered area is where rubber is grown in the Asia and Pacific countries i.e. Thailand, Indonesia, Viet Nam, Sri Lanka, Malaysia, southern part of India, tropical part of China, part of Lao PDR, Myanmar, Bangladesh, Brunei, Cambodia, the Philippines and Papua New Guinea.

The major rubber producing countries Thailand, Indonesia and Malaysia will be the most vulnerable since rubber is found throughout the country. Other countries although rubber is scattered, but all the countries in the region are in fact in close proximity to each other geographically and there is active inter-countries movement of trade and people in the region.

3.5 Conclusions of the risk assessment

Table 6 provides a summary of the conclusions reached in the assessments of introduction, spread and consequences completed in the previous two sections (3.2 and 3.3).

It should be noted that foliage is normally prohibited and entry would not generally occur. The strict control and treatment of other host material such as budded stumps, budwood or flowers, fruit and seed is discussed in section 4.

Table 6. Summary of the assessments of introduction, spread and consequences

Vector	Probability of Entry	Probability of Establishment	Probability of Spread	Likely Impact	Level of Risk
Host material (<i>Hevea</i> species)					
Budded stumps or budwood	High	High	High	High	High
Foliage (stem and leaf material not for planting)	Low	High	High	High	Moderate
Flowers, fruit and seeds	Low	High	High	High	Low
Plants <i>in-vitro</i>	Negligible	N/A	N/A	N/A	Negligible
Non-host material					
Inanimate goods or non-host organic material	Negligible	N/A	N/A	N/A	Negligible
Inanimate goods or non-host organic material contaminated by host plant material	Low (if <1 cm ²)	High	High	High	Low (if <1 cm ²)

4.0 RISK MANAGEMENT

The guiding principle for risk management should be to manage risk to achieve the required degree of safety that can be justified and is feasible within the limits of available options and resources. Pest risk management (in the analytical sense) is the process of identifying ways to react to a perceived risk, evaluating the efficacy of these actions, and identifying the most appropriate options (ISPM 11 2005). The effectiveness of any risk management measures depends on our perception and understanding of the disease and the risk pathways. Phytosanitary measures drawn up on the basis of science and practicality are essentially easy to implement, have minimal economic impact and are discriminating.

Based on the assessment of risks completed in the previous chapters of this risk analysis, risk commodities have been divided into the following groups.

A. *Viable host material:*

1. *Plants for planting:* Whole plants and cuttings, and plants *in-vitro*;
2. *Seeds, flowers and fruit.*

B. *Non-viable (inanimate) host material:*

3. *Cargo pathway* (including sea freight, airfreight and mail);
4. *Passenger pathway* (including accompanied luggage).

For goods or passengers originating from an area not known to be free of SALB, the following risk management measures may be applied.

4.1 Management options for viable host material

Viable host material includes any plant parts that are being imported into the region for the purposes of propagation or could be propagated by conventional means.

4.1.1 Plants for planting

The IPPC definition of plants for planting includes whole plants and cuttings, and plants *in-vitro* (ISPM 5 2006). For the purposes of this risk analysis only budded stumps and budwood have been considered for measures as they are the most likely form to be transported between countries for planting.

4.1.1.1 Budded stumps and budwood

Management of the phytosanitary risks associated with the import of budded stumps and budwood for propagation should start in the country of origin. Efforts should be made to ensure that, as far as is reasonable and possible, budded stumps and budwood exported to the PRA area should be free of SALB. The United States Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) Plant Protection and Quarantine (PPQ): *Postentry Quarantine Manual for State Inspectors* (2006) states that to achieve an appropriate level of assurance from plant inspections, plants should be inspected over two growing seasons. It is therefore considered appropriate that mother plants of budded stumps and budwood should undergo periods pre-export and post entry inspection for signs of SALB before being distributed in the PRA area.

In the case of SALB and the susceptible *Hevea* species, the period of greatest disease expression is at the time of new foliage growth. Therefore budded stumps and budwood should only be harvested from mother plants that have been recently inspected during a period of optimal disease expression and no signs of SALB were detected. To further lessen the likelihood of contamination, harvesting of budded stumps and budwood should only occur when the bark has been hardened (brown in colour) and during the low-disease season (e.g. dry weather). Budded stumps and budwood should be no longer than 1 metre when exported, and the material dipped into a suitable surface sterilant followed by a suitable systemic fungicide. All packaging material should be destroyed on arrival in the PRA area.

During the post-entry quarantine inspection period plants should be maintained in an environment that both stimulates SALB expression and limits the ability of SALB to escape the facility and infect surrounding host plants. No fungicides effective against SALB should therefore be applied to plants during the inspection period (new leaf growth) as fungicides may mask disease expression. SALB containment can be achieved either through the use of high security quarantine facilities or by ensuring no host plants are within 3 km of the boundaries of the facility. To ensure any infected plants are removed from the post-entry quarantine facility as possible, plants should be inspected daily by staff trained to detect signs of SALB infection. Suitably qualified plant pathologists should also inspect the plants every two weeks to verify the daily inspections by facility staff.

If SALB is positively identified in the quarantine facility, all host plants in the facility should be treated with an appropriate fungicide, and another inspection period instigated.

Based on the aforementioned recommendations, the following measures should be applied to budded stumps and budwood before export from the SALB affected country or region, during transport to the PRA area, and on arrival in the PRA area.

Pre-export inspection and treatment

- Mother plants should be inspected by suitably qualified plant pathologist for signs of SALB infection and deemed to be free of SALB infection. Inspections should take place immediately before the harvesting of budded stumps or budwood and during a period considered optimal for disease expression;
- Harvesting of budded stumps and budwood should only occur when the bark has been hardened (brown in colour) and during the low-disease season (e.g. dry weather). Budded stumps and budwood should be no longer than 1 metre when exported;
- Budded stumps and budwood should be packaged for export in a manner that limits the likelihood of infestation during transport.

- Budded stumps and budwood should be dipped in an appropriate surface sterilant and a systemic fungicide effective against *M. ulei*;
- Budded stumps should be free from soil.

Measures on arrival (in an appropriately secure facility)

- Budded stumps and budwood should be dipped in an appropriate surface sterilant and a systemic fungicide effective against *M. ulei*;
- All packaging material should be destroyed or appropriately sterilised, and the budded stumps and budwood repackaged after treatment.

Post entry quarantine

- Imported budded stumps and budwood should be grown in a suitable post entry quarantine facility for at least one year or after new foliage has been produced at least six times;
- Plants should be inspected for signs of SALB daily by suitable trained facility staff and fortnightly by suitably qualified plant pathologists;
- Should any signs of SALB be detected, plants showing signs should be destroyed and all other *Hevea* plants within the facility should be treated with suitable fungicide (treatment may require six or more applications);
- Prior to release from the facility all plants in the facility should be inspected by a suitable qualified plant pathologist for signs of SALB infection;
- Plants may be released from the post entry quarantine facility only after having all plants in the facility have been free from any signs of SALB for at least one year or after new foliage has been produced at least six times.

Intermediate quarantine

Intermediate quarantine offers a further option to mitigate risk. This system can have some logistical, maintenance and financial problems when used for rubber, but it may operate successfully in some specific circumstances.

4.1.1.2 Plants in-vitro

Plants *in-vitro* should not be considered a risk pathway for the entry of *M. ulei* if the cultures are axenic. However, at the moment the practice is not commercially used.

4.1.2 Seeds, flowers and fruit

As the risk from seeds and fruit material relates to surface contamination only, all such products exported from SALB regions should be surface sterilized immediately prior to export.

Flowers and fruits should be washed with a surface sterilant such as 200 ppm of sodium hypochlorite (Chee 2006). Only healthy seeds should be selected for export, washed with water and soaked in formalin (5%) for 15 minutes, and then air dried and dressed with thiophanate methyl, benomyl or mancozeb (Chee 1978; Santos and Pereira 1986).

4.2 Management options for non-viable host material

Non-viable host material is essentially leaves or other parts of a host plant (susceptible *Hevea* species) that are imported either deliberately or as contaminants into the PRA area from countries or areas not known to be free of SALB. These types of host material are not able to be propagated by normal means.

4.2.1 Cargo pathway

Cargo from SALB infested countries or areas should be screened for goods or shipments that are likely to contain or be contaminated by non-viable host material. A profile list should be established that identifies cargo most at risk of containing non-viable host material.

Cargo such as used machinery (cars, logging equipment, chainsaws, cutters etc.) that may have been used in rubber plantations should be thoroughly steam cleaned of all organic material larger than 1 cm², and dismantled if there are parts that can not be easily cleaned. Household effects should be inspected for gardening equipment that may be contaminated by organic material.

Any organic material that is thought to be from a susceptible *Hevea* species, is larger than 1 cm², and can not be removed from the goods or can not be destroyed (e.g. herbarium material), should be heat treated for a minimum of 30 continuous minutes at 56°C or greater.

4.2.2 Passenger pathway

Passengers and accompanied luggage arriving within 21 days from areas not known to be free of SALB should be inspected for both viable and non-viable host material. Special care should be taken with such items as camping equipment and hiking boots, farm equipment, and decorative plant material as these are more likely to contain or be contaminated by non-viable host material greater than 1 cm². Measures may include cleaning, disinfection or destruction.

4.3 Residual risk after management

While the measures above, if strictly and effectively enforced, should be expected to manage the phytosanitary risks posed by SALB to the PRA area, it should still be considered possible that slippage (undetected risk items) may result in the establishment of SALB in the region. Efforts should be made to manage this residual risk by establishing an effective monitoring system that would be expected to detect an establishment event early enough to allow for an effective eradication programme to be completed.

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ARTICLE IV OF THE APPPC

Functions of the Commission

1. The function of the Commission shall include:
 - a. the determination of procedures and arrangements necessary for the implementation of the Agreement and the making of recommendations to the Contracting Governments accordingly;
 - b. the review of the state of plant protection in the region and the need for action to prevent the introduction and spread of pests;
 - c. the promotion of appropriate measures to prevent the introduction and spread of pests of plants and plant products, and to control pests, including the use of integrated pest management, as appropriate, eradication and the establishment of Pest free areas and areas of low pest prevalence and the application of phytosanitary measures in relation to genetically modified organisms;
 - d. the development and adoption of Regional Standards, including the development of pest risk analyses, and the identification of pests for common action and recognition of pest free areas and areas of low pest prevalence;
 - e. assistance in the development of International Standards to be adopted within the framework of the International Plant Protection Convention;
 - f. the review of the status of integrated pest management and the promotion of its implementation within the region;
 - g. the harmonization of pesticide regulation;
 - h. the collection, collation and dissemination of information on plant protection in the region as decided by the Commission;
 - i. the coordination and, as appropriate, the arrangement for training of human resources;
 - j. the promotion and development of multilateral and, as appropriate, bilateral arrangements to further the objectives of this Agreement;
 - k. coordination of the work of the sub-commissions and consideration of matters of regional concern arising from that work; and
 - l. the resolution of technical issues.

APPENDIX B

MEASURES TO EXCLUDE SOUTH AMERICAN LEAF BLIGHT
OF *HEVEA* FROM THE REGION

1. In this Appendix
 - a. “the American tropics” means those parts of the continent of America, including adjacent islands, which are bounded by the Tropic of Capricorn (latitude 23 1/2°S) and the Tropic of Cancer (latitude 23 1/2°N) and the meridians of longitude 30°W and 120°W, and includes the part of Mexico north of the Tropic of Cancer;
 - b. “Competent Authority” means the officer or Government Department or other agency, which each Contracting Government recognizes as its authority for the purpose of this Appendix.
2. Each Contracting Government shall prohibit by law the importation into its territory or territories of any plant or plants of the genus *Hevea* from outside the region, unless
 - a. the importation is made for scientific purpose; and
 - b. written permission has been granted for each consignment of plant or plants by the Competent Authority of the importing territory or territories and the importation is in accordance with such special conditions as may be imposed by the Competent Authority in granting such permission; and
 - c. the plant or plants have been disinfected and freed of any original soil in the country of origin in a manner acceptable to the Competent Authority of the importing territory and are free from pests and diseases, and each consignment of plant or plants is accompanied or covered by a certificate to the effect that the above requirements have been fulfilled, and signed by an appropriate authority in the country of origin; and
 - d. each consignment is addressed to and is received by the Competent Authority of the importing territory.
3. Each Contracting Government shall prohibit by law the importation into its territory or territories of any plant or plants of the genus *Hevea* capable of further growth or propagation (excluding seed) from the American tropics or from any other country in which South American Leaf Blight (*Dothidella ulei*) is present, unless, in addition to the requirements of paragraph 2 of this Appendix, at a place approved by the Competent Authority of the importing territory and situated outside the Region and outside the American tropics and any other country in which South American Leaf Blight (*Dothidella ulei*) is present, such plant or plants have been grown for an adequate period at a plant quarantine station for *Hevea* and each consignment of such plant or plants is accompanied or covered by a certificate to the effect that the above requirements have been fulfilled, and signed by the officer-in-charge of such quarantine station.
4. Each Contracting Government shall prohibit by law the importation into its territory or territories of any seed of any plant of the genus *Hevea* from the American tropics or from any other country in which South American Leaf Blight (*Dothidella ulei*) is present, unless, in addition to the requirements of paragraph 2 of this Appendix, such seed, having been examined and again disinfected at a place approved by the Competent Authority of the importing territory and situated outside the region and outside the American tropics and any other country in which South American Leaf Blight (*Dothidella ulei*) is present, has been repacked with new packing materials in new containers, and unless each consignment of such seed is accompanied or covered by a certificate to the effect that the above requirements have been fulfilled, and signed by the officer-in-charge of these operations.
5. Each Contracting Government shall prohibit by law the importation into its territory or territories of any plant or plants of the genus *Hevea* not capable of further growth or propagation (such as fresh or dried

herbarium specimens); unless, in addition to the requirements of sub-paragraphs (a), (b) and (d) of paragraph 2 of this Appendix, the Competent Authority of the importing country is satisfied that such plant or plants are required for a legitimate special purpose and that such plant or plants have been sterilized in the country of origin by a method satisfactory to the said Competent Authority.

6. Each Contracting Government shall prohibit by law the importation into its territory or territories of any plant or plants other than the genus *Hevea*, capable of further growth or propagation and originating in the American tropics or in any other country in which South American Leaf Blight (*Dothidella ulei*) is present, unless written permission has been granted for each consignment of such plant or plants by the Competent Authority of the importing territory or territories and the importation is in accordance with such special conditions as may be imposed by the Competent Authority in granting such permission.
7. The Competent Authority of any territory or territories into which any plant or plants of the genus *Hevea* are imported for further growth or propagation shall ensure that such plant or plants are grown under control for such period as will ensure that such plant or plants are free from all pests and diseases before they are released.

IDENTIFIED INFORMATION GAPS AND ADDITIONAL AREAS OF RESEARCH

Information Gap (Detection)	Status
Determine whether <i>M. ulei</i> is seedborne.	Available evidence and expert opinion considers that <i>M. ulei</i> is not seedborne. Research to confirm this assumption should be completed when possible.
Develop quick detection methods/procedures.	At present, there is no available method for rapid diagnosis or detection of SALB. Molecular-based techniques may be able to provide an appropriate method. This technology would require capacity building in this aspect.
Determine latent infection period of various races on various ages of leaves (susceptible and moderately susceptible leaf stages), clones and young stems.	Still requires research.
Determine the level of contamination on various related pathways.	Research partially completed.

Information Gap (Survival)	Status
In carriers and containers.	Not done
In real situation studies.	Research partially completed

Information Gap (Spread)	Status
Distance of spore travel.	Distance was determined to be 3 km based on available information. Further information is necessary to provide more confidence in this assumption. This information can be obtained through the use of spore-traps.
Dispersal agents – animals.	Bees, flies and birds should be included as potential dispersal agents in future research.

CURRENT REGULATORY STATUS FOR SALB IN SEVEN RUBBER PRODUCING COUNTRIES WITHIN THE PRA AREA

Thailand

The Plant Quarantine Act (PQ Act) has been established in Thailand in 1964. With the authority of the PQ Act, the Department of Agriculture (DOA) carries on regulatory measures against the introduction of the exotic pests including SALB into Thailand. Recently, the PQ Act has been revised to widen the scope of the Act and to strengthen the phytosanitary measures and the 2nd Edition of the PQ Act came into force in 1999. There are some changes in quarantine regulations and implementation with regard to prevention of introduction of SALB into Thailand as follows.

Plant Quarantine Regulations on Importation of Plant Materials

Hevea plant materials

- Hevea species from every sources as prohibited materials
- Importation authorized by Director General of DOA under specified conditions
- Limitations of amount and for scientific purposes only
- Maximum quantity:
 - seed – 100
 - budwood – 5 metres
 - budded stump – 50 plants
 - tissue culture – 100 plants/clone
- Plants treated with effective fungicides on SALB organism
- Import consignment accompanied by Phytosanitary certificate
- Subject to intermediate quarantine station
- Import via Plant Quarantine Stations in Bangkok
- Subject to Post-Entry Quarantine Station upon arrival

Non-Hevea planting material

- Subject to Post-Entry Quarantine Station upon arrival
- Require Import Permit/Phytosanitary Certificate
- Planting materials treated with fungicides

Non-Hevea plant products

- Phytosanitary certificate
- Inspection at port of entry
- Passenger from SALB areas (direct flight)
- To fill in Quarantine Declaration Form

Baggage (direct flight)

- Double tagging and separate compartment
- UV irradiation
- Spray with soap solution

Indonesia

- Law No. 12 of 1992 on Crop Cultivation System (Article 19 up to 21)
- Law No. 16 of 1992 on Animal, Fisheries, Plant Quarantine
- Government Decree No. 14 of 2002 on Plant Quarantine
- Ministry of Agricultural Decree No. 38 of 2006 on List of Quarantine Pest
- Ministry of Agricultural Decree No. 559 of 1985 on Plant Quarantine Requirements for the importation of plant propagating materials of rubber, cocoa, coffee, tea, sugarcane, coconut, oil palm, and tobacco
- Ministry of Agricultural Decree No. 861 of 1989 on Prevention of the Introduction into Indonesian territory of SALB of Hevea
 - a. Basically, import of propagation material and products of hevea and non-Hevea from SALB endemic countries into Indonesia territory is prohibited.
 - b. The exception is made to import of above materials under the following terms and conditions
 - For research purposes which is conducted by government research institution
 - Having import permit from Minister of Agriculture and comply with other terms and condition according to prevailing law and regulation
 - Addressed to the related government research institution
 - Have been treated in its origin country
 - Have been washed or cleaned of any attached soil from its origin country
 - Accompanied by Phytosanitary Certificate explaining that all requirement stated in point d and e above have been fulfilled
 - c. In addition to the compliance to the above stipulation, import of hevea propagation material other than seeds has to comply with the following condition as well:
 - Has been grown in the intermediate quarantine installation of a non-SALB endemic country outside Asia-Pacific region and has been treated
 - Accompanied by recommendation letter from Phytopathologist from the intermediate quarantine installation stating that the above requirement has been fulfilled and the propagation material is free from SALB
 - Subject to post-entry quarantine on arrival in entry point
 - d. In addition to the compliance to above stipulation, import of hevea in the form of seeds has to comply with the following conditions:
 - Subject to treatment in the intermediate quarantine installation in a non-SALB endemic country outside Asia-Pacific region
 - All packaging material, including the containers, from origin country has to be replaced with a new one in the intermediate quarantine installation
 - Accompanied by recommendation letter from Phytopathologist from the intermediate quarantine installation stating that requirement in point a and b above have been fulfilled and the hevea seeds is free from SALB
 - Have been given treatment on arrival in entry point
 - Subject to import quarantine
 - e. In addition to the compliance to the above terms and conditions, import of products of hevea should be treated in its exporter/origin country
 - f. In addition to the compliance to the above terms and conditions, import of non hevea propagation material is subjected to post entry quarantine on arrival in entry point
 - g. Import non-Hevea products from SALB endemic country subject to treatment in entry point
 - h. Non plants material which is carrier medium of SALB disease, such as luggages, clothes, camera, shoes and parcels from SALB endemic countries should not be released before being treated

Malaysia

Restriction on the importation Hevea planting materials

- Only for research
- Consigned to the Director of DOA
- Refer to Director General of Rubber Research Board before importation
- Subject to PEQ upon arrival

Hevea from area where SALB is present

- PEQ outside SEA Pacific Region for a period of time
- Free from pests
- Accompanied by phytosanitary certificate

Seed of any Hevea species from SALB area is prohibited unless inspected and treated outside the area where SALB is not found:

- Outside Pacific and South East Asia
- Repacked with new packing/containers
- Accompanied by phytosanitary certificate

Vessels

- If more than 40 days, allow entry (spores will not survive),
- If less than 40 days, refuse entry

Importation of plants and plant products

- For research only, Consigned to the Director General of DOA
- Subjected to quarantine or treatment

Lumber (non-Hevea)

- Import permit and PC

Direct flight

- Interception of passengers and baggage
- Plant Quarantine Declaration Card
- Announcement in the flight
- Double tagging
- Passengers and Cargo Manifest
- Separate compartment/conveyer for baggage

Treatment for passengers

- Floor mat with Dettol
- Air tunnel
- X-ray machine

Treatment baggage including equipment

- Treated with soap/Dettol
- UV – light chamber

India

Plant Quarantine Order (Regulation of Import into India) Order 2003 effective with effect from 1 January 2004

Hevea planting material

- Prohibited from American continent and West Indies. For remaining countries require Import Permit, Phytosanitary Certificate, Intermediary Quarantine Station and Post-Entry Quarantine.
- Special permission from export and import committee of Department of Agriculture and Cooperation
- Can only be imported through/by Director of Rubber Institute, Kottayam (Kerala)

Hevea plant product

- Require Import Permit, Phytosanitary Certificate and inspection upon entry

Non-Hevea planting material

- Require Import Permit, Phytosanitary Certificate, inspection upon entry and post-entry quarantined.

Non-Hevea plant products

- Require Import Permit, Phytosanitary Certificate and inspection upon entry

Passengers from SALB area/Container

- No regulation

China

SALB is listed on the Quarantine Pest List (A1)

Hevea planting materials

- Restriction on importation from countries where SALB is known present.

Non-Hevea planting materials

- Restriction on importation from the countries where SALB is known present.

Seeds or other Hevea planting materials

- Special import permit required in advance.
- Quarantine treatment required at intermediate quarantine station.

Soil

- Restriction on importation from the countries where SALB is known present.

Passengers

- Should be transited one day at the place of North American or Europe
- Plant Quarantine Declaration Cards

Cargo or posting materials

- Quarantine treatment such as ultraviolet and so on, required.

Viet Nam

SALB is listed on the Quarantine Pest List (Group I)

Hevea planting materials

- *Import permit required in advance from Plant Protection Department (PPD)*
- *Phytosanitary certificate (PC) is required*
- *Inspection at point entry*
- *Subject to Post-Entry Quarantine*

Hevea plant product

- *PC is required*
- *Inspection at point of entry*

Non-Hevea planting materials

- *Import Permit required in advance from PPD*
- *PC is required*
- *Inspection at point of entry*
- *Subject to Post-Entry Quarantine*

Soil

- *Prohibited*

Passengers from SALB area/Container

- *No regulation*

Sri Lanka

Regulatory Position on Importation of Rubber:

- *Import of rubber planting material is allowed only for scientific purposes.*
- *Import permit from Director-General of Agriculture (DGA) is necessary.*
- *Permission from Rubber Controller is necessary.*
- *DGA will issue the permit only for the Director of The Rubber Research Institute Sri Lanka (RRISL)*
- *Import conditions specified.*
- *Soil, packing material of plant origin and planting media are not allowed.*
- *Phytosanitary certificate required.*
- *Inspection at port of entry.*
- *Mandatory PEQ for a considerable period.*

Import from SALB Endemic Area.

- *All conditions given in previous case will apply.*
- *Collection of the material preferably by a senior researcher of RRISL.*
- *Intermediate Plant Quarantine mandatory.*
- *Phytosanitary certificate for re-export is required.*
- *Inspection at port of entry.*
- *Packing material and packaging material should be destroyed.*

Other (non-Hevea) planting material from SALB endemic area for scientific studies.

- Import permit of DGA is required.
- No soil and plating media.
- Intermediate Plant Quarantine Station.
- Phytosanitary certificate (PC) and PC for re-export are required.
- Inspection at port of entry.
- Mandatory PEQ for a period less than 2 years.
- RRISL should have a contingency plan to combat the disease, in case of accidental entry.

**PLACE AND DATE OF SESSIONS OF
THE ASIA AND PACIFIC PLANT PROTECTION COMMISSION**

First	–	Bangkok, Thailand	3 to 7 December 1956
Second	–	Kandy, Sri Lanka	2 to 7 December 1957
Third	–	New Delhi, India	7 to 12 December 1959
Fourth	–	Manila, Philippines	11 to 19 June 1962
Fifth	–	Canberra, Australia	26 November to 2 December 1964
Sixth	–	Kuala Lumpur, Malaysia	27 March to 3 April 1967
Seventh	–	Noumea, New Caledonia	15 to 23 July 1969
Eighth	–	Jakarta, Indonesia	4 to 11 October 1971
Ninth	–	New Delhi, India	2 to 9 November 1973
Tenth	–	Canberra, Australia	9 to 16 February 1976
Eleventh	–	Kathmandu, Nepal	22 to 29 September 1978
Twelfth	–	Chiang Mai, Thailand	27 October to 3 November 1980
Thirteenth	–	Manila, Philippines	18 to 23 April 1983
Fourteenth	–	Jakarta, Indonesia	5 to 10 August 1985
Fifteenth	–	Bangkok, Thailand	27 to 30 October 1987
Sixteenth	–	Suweon, Rep. of Korea	26 to 30 September 1989
Seventeenth	–	Kuala Lumpur, Malaysia	2 to 7 October 1991
Eighteenth	–	Beijing, China	23 to 28 August 1993
Nineteenth	–	Los Banos, Philippines	27 November to 1 December 1995
Twentieth	–	Chiang Mai, Thailand	26 to 29 August 1997
Twenty-first	–	Yogyakarta, Indonesia	19 to 23 July 1999
Twenty-second	–	Ho Chi Minh City, Viet Nam	17 to 21 September 2001
Twenty-third	–	Kuala Lumpur, Malaysia	4 to 8 August 2003
Twenty-fourth	–	Bangkok, Thailand	5 to 9 September 2005
Twenty-fifth	–	Beijing, China	27 to 31 August 2007