

# **APPPC Workshop on Building Understanding and Preparedness for Electronic Phytosanitary Certification**

28-30 October, 2014, Bangkok, Thailand

## **Summary**

Over forty officials from twenty countries from the region participated in this meeting. Experts from the Netherlands and the IPPC Secretariat also attended.

The basic elements of an ePhyto system were described in relation to the New Zealand and Netherlands systems. These included: exporter input of relevant data, computers in trading countries for the production and the receipt of certificates, a system for the transfer of data as XML as per the UN/CEFACT SPS Schema (note – several versions are used around the region), security arrangements and the use of harmonised terms on the PCs.

The work of CPM and the ePhyto Steering group was noted. There has been a study on the Hub concept as applied to the ePhyto situation. It can supply efficient, effective and secure transmission of information without the complexity of different arrangements for each trading partner and is much less subject to fraud than the hard copy system.

The electronic PC systems used in Australia, China, the Netherlands and New Zealand were described in some detail. The other participants also reported on developments in their countries. The developments in Indonesia, Japan, Korea, and Malaysia were of particular interest.

The analytical results of an ePhytos pre-meeting survey were presented and discussed. It was noted that 10 countries have a system for electronic PC production; 5 countries can send ePhytos; 5 countries can receive ePhytos (not all the same countries); 14 countries are interested in model legislation; and 12 countries are interested in a generic ePhyto system.

The discussion continued with a detailed analysis of the results under the following headings:

- Benefits, e.g. security of documents, more rapid information transfer
- obstacles, e.g. possible problems re compatibility with single window systems, need for legislation changes in some countries
- industry's role, e.g. need for enhanced public awareness, and participation in systems design
- constraints to the hub, eg security not clear, costs not estimated yet
- elements of model legislation, eg might not be as problematic as initially thought
- elements of a generic system for ePhyto, e.g. factors needing consideration – issuance and sending, receipt and processing, specifications, etc.

Further discussions on the achievements of individual countries and the future developments included inputs from Australia, China, Japan, Korea and the Netherlands.

Recent developments in the ePhyto area include: the harmonisation of the exchange protocol, the development of procedures for access and the updating of the list of harmonized terms (with further terms being added), the study on the feasibility of the Hub, and the drafting of

the STDF capacity development project. Future work includes work on: a harmonized exchange protocol, global access and updated databases, a hub decision from CPM 10, tools for setting up national systems, a web-based system for ePhytos, and awareness raising.

The importance of capacity development in the implementation of ePhyto was stressed.

Participants developed a series of action recommendation for an action plan for ePhyto. This was developed on a series of levels. The main points are listed below:

Action recommendations at a country level:

- each country to make the policy decision to pursue ePhyto
- defining user needs and system functionality (industry and NPPO)
- increase awareness across all stakeholders - public, industry, politicians, government departments,
- review IT systems to determine if they are able to support ePhyto needs
- review legislation to ensure it supports implementing ePhyto
- estimate costs and benefits to gain funding approval Consider cost recovery mechanisms
- build, test and implement.

Action recommendations at regional (APPPC) level:

- establish a regional ePhyto working group to coordinate activities
- seek agreement at the next APPPC biennial session for ePhyto work plan and funding

Action recommendations to IPPC ePhyto steering group:

- provide and disseminate the global timetable of activities
- coordinate the developing of guidelines for ePhyto at country level
- define criteria for participation in Hub pilot.

Action recommendations to CPM:

- countries to express continued support for ePhyto activities
- countries to support global ePhyto hub development and the generic web based ePhyto system at CPM.

There was general agreement among participants that the APPPC should establish an APPPC ePhyto working group to provide guidance and coordinate activities concerned. A recommended timeline for future developments concerning ePhyto was drafted.

## **Report**

### **Opening of the workshop**

Dr Piao opened the workshop. The participants introduced themselves.

Dr Surmsuk Salapetch, Deputy Director-General, Department of Agriculture, Thailand extended a welcome to all participants to Thailand. Dr Surmsuk stated the purpose of the workshop was to update the APPPC countries on the developments with the ePhyto system. She hoped that barriers can be solved and opportunities for working together developed. Dr Surmsuk thanked Mr Peter Johnston (New Zealand) and Dr Piao for organising the programme and wished the participants a successful meeting.

Dr Piao welcomed all the participants to the meeting and noted that the meeting had been planned at the last session of the APPPC. The workshop provides an opportunity to review the existing electrical systems relating to phytosanitary certification and the systems that are under development, and to look at the issues and gaps of future systems and areas for collaboration. He thanked the experts involved for all the efforts in arranging the programme.

## **1. Introduction to ePhyto**

### **1.1 The basics of ePhyto – a global perspective to facilitate international trade of plant material – Peter Johnston**

Mr Johnston began by mentioning that the initial use of ePhyto in New Zealand took place some fifteen years ago. The challenges of ePhyto were listed – the lack of harmonised approach, the variable use of terms, various official assurance regimes, the systems are usually tailored to individual country requirements, border management alignment (some aligning to Customs systems) and added to these issues were the challenges in confidence and trust.

Some agreements have been established in the IPPC context - for example, ISPM 12 has the certification data elements required, with the use of XML and the alignment with UN-CEFACT SPS XML schema included in ISPM 12 Appendix 1.

Mr Johnston described the basic business model of an ePhyto system. This includes: computers on each side of the border; exporter contact with the system to enter data; the validation of the data by the export NPPO; the ECPS (electronic certificate production system) that generates XML and a hard copy certificate; and this connects with the import system. From an IT perspective countries need: computers; a separate server to facilitate web-based application; security arrangements; software application – as per ISPM 12 App 1. with XML output as per the UN/CEFACT SPS Schema.

From a phytosanitary business perspective we need: business decision makers; a budget; skilled phytosanitary inspectors and certificate verification staff; and user support (IT assistance). An electronic system includes: importing country phytosanitary requirements; inspection results; issuance of export PCs; the ability to send and receive ePhytos; and integration with import biosecurity systems. The systems developed are web based systems and have much greater security than paper based systems.

Web-based systems need authorised users that can transact with such systems. The HTML file was described. Mr Johnston noted that the internet is a public network so users must remember to deal with access and protection. Countries need to use https:// and have firewalls that limit the transactions.

HTML cannot describe the attributes of data so we need to use XML. Core features for ePhyto were noted and include: production of hard copy certificates; data entry by exporters; online certificate viewing; the use of local language; online data clearance; an online manual; XML output; and robust security to protect electronic exchanges. The ePhyto system should use XML that creates the tag names in the UN/CEFACT SPS Schema.

The system should have the key components which are: IT coding holding the business rules and building blocks for the user interface; a web server; a database to record user inputs; production of hard copy certificates; XML output; and simple electronic exchange security.

## **1.2 Introduction and development of eCert/ePhyto in the Netherlands**

Mr Horn (Netherlands) described the development of the eCert/ePhyto system in the Netherlands with an import system. The initial systems that were developed were for veterinary assurances.

Mr Horn discussed the development of their Ecert/ephyto system – emphasised experience was needed first, then harmonisation with the details of ISPM 12 Appendix 1 later. Their first ePhyto system was simple – imports of roses from Kenya, one import requirement, one additional declaration, and longstanding good relationship between NPPOs. The consignments left Kenya without paper PCs and the data was transferred electronically. With this system – the PC did not go through the trader – just from national system to national system. Mr Horn listed the components of their system as being – production of certificates, receipt of certificates, exchange of PCs using the CMS (certificate mastering system), security, HTTPS transmission and encryption and scientific names.

The Netherlands has a certificate mastering system (CMS) as part of their Ecert/ePhyto operation which acts as an intermediate database system to manage import/export XML message transactions, data access & storage.

A second pilot with South Korea was for import and export. Security involved https transmission, and certificate encryption.

Further pilots went with several other countries including the United States, Chile and Australia. The same CMS could be used by several countries.

Mr Horn went on to describe with the differences between countries – versions of UN/CEFACT, contents, firewalls, and the hesitation to go paperless. Further developments include – harmonisation of terms/codes that need to be applied to implement Appendix 1 to ISPM 12, use of the same botanical names, which needs agreement between trade partners. Future needs include: agreed version of UN/CEFACT schema, the use of existing IPPC harmonisation, the harmonisation of contents and exchange system, to make it easier for other countries to join, and to increase the confidence of countries to go paperless. It is essential that these needs are dealt with and Mr Horn hopes they should be achieved in a few years.

## **1.3 FAO/IPPC developments and perspective on ePhytos and Hub concept – Craig Fedchock**

Mr Fedchock noted his appreciation at being present at an APPPC meeting. He briefly described the IPPC mission and purpose. The IPPC has a single template for export certificates the animal health and food areas. He described the advantages of ePhyto – the reduction the use of paper certificates, the increased the time for planning, the consistent handling of data, the reduction of fraud, the integration with Customs, and the increase accuracy and efficacy.

CPM 8 set up a steering group and produced a hub feasibility system for CPM 9. At the moment many countries are negotiating point to point electric systems. But it is hoped that countries will be able to use a central system which would be harmonised. The hub would receive the data and then send it out to the participating country. The June 2014 meeting of the Steering Group discussed some basic rules for a hub and set up a project proposal for consideration by STDF in December 2014 (\$1.2mill). This could go ahead in April 2015. Difficulties include: costs, limited resources in IPPC, and limited resources overall.

A global ePhyto hub would eliminate the need for many country to country arrangements. At the moment we have: the adoption of ISPM 12 App 1, a feasibility study which been done along with a scoping document, a request to obtain a STDF grant should there be a tender and contract accepted to develop the global ePhyto hub system.

## **2. Common concepts, terms and definitions**

### **2.1 The Hub concept**

Mr Peter Thomson (New Zealand) introduced the session as a participatory session to allow participants understand terms and use them the same way.

The reasons for having a hub were discussed. It is an effective efficient secure method of data transmission. Use of a hub avoids the complexity of many point to point systems e.g. New Zealand deals with 85 countries and could not afford such a system. The ability to provide a portal solution is one advantage. The STDF funding application is for a web based system for countries to create PCs and to receive PCs i.e. a portal.

For two countries to use a point-to-point system there needs to be a bilateral protocol and agreed security processes developed. Given the potential complexity of A point to point approach it is not an attractive option for New Zealand – the ePhyto hub concept is more feasible. Within an ePhyto hub approach there would not be the need for specific bilateral protocols – but one common multilateral hub managed protocol enabling participating NPPOs to exchange and access their relevant information.

The hub provides a less complex but yet rigid system. It is a simpler system to set up and to maintain and hence be of lower cost, with improved visibility of certificate exchanges, able to separate the message carrier from the actual certificate, and with simple security through the use of internet standard SSL certificates (using secure socket layout as a key). The security mechanism (envelope) will only have the sender, the receiver and the origin. The contents of the envelope would be the same as that on the PC – in an electronic form. The message has to be in a certain format – message header, the encrypted XML message and attachments.

The way forward was discussed. Countries will still have to use paper PCs for some countries. We have to decide whether to use a hub or the point to point system. There could be a complex expensive hub or have a simple system. The IPPC ePhyto Steering Group supported a secure hub system adopting simple security mechanisms such as the secure socket layout (SSL) method. This would need some organisational support which would have certain costs, we would need to define business rules, ownership and liability factors, and the possibly of any data retention.

At CPM some questions were asked. These referred to whether a hub system notify non-compliances, consignments in transit, costs, rules and regulations for operation.

## **2.2 New Zealand Prototype of the Hub**

Mr Peter Johnston (New Zealand) described the New Zealand prototype that was developed as a proof of hub concept . It uses modern cloud technology, contains a secure folder for each country, has a portal access function enabling countries without an ePhyto application to receive XML PCs, and has a secure exchange mechanism. Each country's data was isolated and it operates through transactions types – submit, revoke, replace, retrieve, reject, and contains a polling facility etc. This prototype includes a facility for dealing with attachments – including re-export PCs. The functionality was described based on the use of push – pull technology achieving good security. While New Zealand developed and system tested the hub prototype containing these components but has not applied them into a real live operational pilot test.

The hub prototype's portal enabled countries without a fully operational ePhyto system to withdraw certificate information sent to them. This prototype also had a facility to send notifications concerning upgrades/changes to all participants operating on the prototype hub. The next steps include agreement on the broad basic functionality for a global ePhyto hub and identifying the key persons in the region to support setting up a pilot Hub within the region.

## **2.3 Discussion**

Countries looking at ePhyto include China, Singapore, and the Philippines. Development and maintenance of a global ePhyto hub would be by contracting parties paying a small amount. Traders using the system could deposit monies – from which a fee would be deducted for each hub transaction/usage. Singapore noted the lack of business involvement in a similar system that was trialled in Singapore. Mr Craig Fedchock (IPPC Secretariat) noted that IPPC would explore the employment of professional IT service supply companies to operate such a global ePhyto system. The International Computing Centre of the UN could be employed to find a suitable IT service provider . It was suggested that paper systems will be more expensive to operate versus a global ePhyto system within the hub. Mr Johnston noted that New Zealand had costed a range of hub prototypes – an expensive system costs could be 50 cents to 5 cents for a simple system. Korea mentioned that the special paper for each PC is 25 cents. Mr Horn stated that there could be a system where developing countries which do not have their own system could go on-line to send a PC using an IPPC international ePhyto system.

Mr Thomson noted that a specification is being drafted for IT providers to tender for the development of an IPPC ePhyto hub. It was suggested that a few countries only be used for a pilot testing. Mr Sai (Japan) asked how a country with a trade single window system would be affected when a ePhyto system was introduced . New Zealand suggests that a trade single window is used for trade information and ePhyto used for government to government information – with some linking (for PC numbers). However, there must be a consideration of the relationship with Customs. There was mention of a system developed by UNCTADre the ASYCER system.

Contingency systems included using a service provider with servers located in different global locations which could act as backups. If a system does go down – the system could still restart in a short time that would be well within the travel time of most consignments. A contingency plan could include a paper system.

### **3. Country reports**

#### **3.1 Australia**

Mr Peter Neimanis reported on the Australian situation regarding electronic phytosanitary certification. He noted that Australia would like to see the understanding of ePhyto broadened across the region and to see key capacity development initiatives and existing limitations and obstacles identified. Australia would like to see stronger links developed between departmental executives, phytosanitary managers and IT specialists.

Mr Neimanis stressed that there should be a consistent implementation across the APPPC. It is hoped that the APPPC would contribute to the IPPC ePhyto pilot programme. The APPPC could develop an action plan for the “next steps”.

Regarding the use of hard copy PCs, in Australia some 71000 were produced in 2013 and 66500 in 2013-4 – most are produced electronically (90%). Regarding imports, Australia does not require a hard copy PCs from New Zealand.

Australia uses the 12B version of the UN/CEFAT SPS schema. Australia is mainly compliant with ISPM 12 App 1. Mr Neimanis also discussed their security provisions.

#### **3.2 Bangladesh**

The hard copy system is still being used but funds have been found to investigate the application of an ePhyto system.

#### **3.3 Cambodia**

Work is underway to establish a single window system under ASEAN. It is hoped that this will be able to be linked with an ePhyto system. Funds are being sought for implementation of an ePhyto system.

#### **3.4 China (reported in Section 5.2)**

#### **3.5 Fiji**

Fiji Islands have been working with Australia with phytosanitary certification. Executive management now supports the development of an ePhyto system.

#### **3.6 Indonesia**

The Indonesian system was described. Some 95,000 PCs are issued and 65,000 received. The domestic PC system was noted. PCs are issued by quarantine stations and XML used to move the data. There is a secure network, secure web, and web service (SOAP interface (Simple

Object Access Protocol) with XML data). Both models are being used domestically (including a web based system).

### **3.7 Japan**

Some 211000 PCs are received and 20000 issued. They have a single window system. Japan has not decided which system to use (hub or point to point). Animal quarantine have begun an electronic point to point system with Australia. However, the point to point system has been found to be expensive so there are still two options under consideration. An ePhyto system would require the revision of regulations and a new budget.

### **3.8 Korea, Republic of**

PCs issued 33000 and received 111000.

The UNI-PASS customs systems passes information to the Plant quarantine system. The E-cert system was described. UN/CEFACT 8 schema is used. Detailed information on the systems used was supplied and the harmonised terms from App 1 noted. The system was started in 2010. It has been used for seed from the Netherlands. The system has taken a lot of time and effort to apply. The experience Korea has gained from solving a number of problems could be shared with other countries.

### **3.9 Laos**

A hardcopy PC system is used. The requirements for Laos to establish an ePhyto system were listed.

### **3.10 Malaysia**

An internal system is being established - called MyPhyto. A budget has been procured and three phases identified. The system will shortly be trialled with sending to Australia. The project implementation programme from 2012 to 2016 was described. It was noted that fraud was common and security measures were being put in place. UN/CEFACT 11 is being used. The system has been promoted within Peninsula Malaysia only so ePhyto cannot be implemented in the whole of Malaysia at this time. Imports are being handled by a different agency, MAFIS, and this could give rise to some problems. Malaysia hopes to identify the improvements to MyPhyto required and the legislation needed.

### **3.11 Myanmar**

An electronic certification system for exports and imports was started in 2012 from a New Zealand aid project.

### **3.12 Nepal**

7000 pcs issued and 33000 received. Nepal has developed an internal electronic certification system. The legislation does not mention an ePhyto system. Only hardcopy system is used. All PQ information is collected and stored on a software system. A single window system is planned with an ePhyto system to follow later. Nepal would like to know how the systems operate in other countries and what changes might be needed in the Nepal system. Capacity development is needed to upgrade the electronic information system.



### **3.13 New Zealand**

New Zealand initiated their initial electronic certificate production system ( ECPS) fifteen years ago. Approximately 62000 PCs were electronically produced annually. The system is designed to operate to the UN/CEFACT SPS Schema and complies with ISPM 12 and Appendix 1. The system uses SOAP and has an automated Email function. It operates on X.509 security certificates for authentication.

New Zealand would like to share its experiences with electronic phytosanitary certification and discuss regional and global harmonisation.

### **3.14 Philippines**

The Philippines uses hardcopy systems and look forward to discussing infrastructure and capacity developments requirements of the system.

### **3.15 Singapore**

Singapore has two types of PC – some are watermarked. The service issued 15000 PCs and 11000 of these were for re-export. A barcode system is included.

Singapore needs a better understanding on the ePhyto concept and the preparation required for electronic certification.

### **3.16 Sri Lanka**

Hard copy PCs are used. ePhyto is not being developed because of infrastructure and technological barriers.

### **3.17 Thailand**

Thailand is developing a PC system and has an IT development project. Thailand has 42 Plant Quarantine stations. An electronic system is being used for information collection which then prints out a hard copy. The legislation is being amended. A professional IT company is to develop an ePhyto system.

### **3.18 Timor-Leste**

Hard copy PCs are used compliant with ISPM 12. The service issued 624 PC in 2013 and 798 permits. The country has a number of capacity development requirements including infrastructure, technical information and finance.

### **3.19 Tonga**

10000 PCs issued in hard copy format.

### **3.20 Viet Nam**

Regulations are being amended to come into force in Jan 2015. Only hard copy PCs issued and received. The plan is to develop a single window for customs and Plant Quarantine. Difficulties with implementing ePhyto include infrastructure and financial problems, a legal

basis for the application of ePhyto, training requirements and the acceptance of ePhyto worldwide etc.

#### **4. Report on survey results**

Peter Neimanis presented the results of the pre-workshop survey. Mr Neimanis noted there are opportunities to share these developments with the NAPPO region. The topics included in the survey were: PC production capacity, operating production, security protocols, supporting legislation, infrastructure requirements, and capacity development requirements. There were 20 responses from APPPC members plus 1 from NAPPO.

A summary of the high level findings presented by Mr Neimanis included: 10 countries have a system for electronic PC production; 5 countries can send ePhytos; 5 countries can receive ePhytos (not all the same countries that can send); 8 countries have legislation for hard copy PC; 8 countries can receive hard copy only; 14 countries are interested in model legislation; 12 countries are interested in a generic ePhyto system.

Regarding the current capacity of countries the following notes were presented: 12 countries use hard copy only; 10 countries have a soft-ware package to produce PC electronically, most of these are used for hard copy production but 6 countries can use XML output; different versions of UN/CEFACT 8.0, 5.0, 11.0 and 2011b; 5 countries can electronically transfer PC information to another NPPO; Australia send PCs electronically to 5 countries, New Zealand sends electronic certificates to 1 country, Korea 1 country, The Netherlands for seed for sowing. Regarding receipt of electronic certificate data: Australia can receive from 5 countries and Korea from one.

Regarding Appendix 1 of ISPM 12, 8 countries are compliant (there was a nil response from 7 countries). The difficulties noted in 6 countries included the lack of expertise and the lack of some species on the list of plants.

With security protocols, 5 countries are using web application, 6 countries SOAP. Four countries are using digital signatures by way of SSL certificates.

Regarding legislation – most countries do have legislation meeting the requirements of ISPM 12 (16) – some (8) insist on hard copy PC. With imports (regarding receipt of PCs) 17 have appropriate legislation (8 for hard copy only). Regarding model legislation, most countries would be interested in this.

Some 12 countries are interested in a generic electronic PC system. Some would need considerable capacity development.

##### **4.1 Consideration of key findings, challenges and opportunities by Meeting participants**

The participants discussed the survey results under six headings – benefits, obstacles, industry's role, constraints to the hub, elements of model legislation, and elements of a generic system for ePhyto.

Benefits: for NPPOs these included Security of documents, reduced data entry, more rapid information transfer, reducing fraud, traceability, communication, single depository for EPC. For industry the benefits included better communication, faster exchange, less paper, certainty around timing and cost.

Obstacles to ePhyto uptake in countries included the possible problems to achieve compatibility with single window systems (note ASEAN activities in this area), problems with the security of transmission, the need for legislation changes in some countries, difficulties with changing current systems, the cost of developing a new system with maintenance costs, the lack of electronic resources and skills, the development of contingency systems.

Industry's role: This discussion identified possible problems with enhancing public awareness, and obtaining sufficient input into developing systems by consultation. Industry participation in system design and in capacity development should be sought. The development of technical support and cost recovery has to be discussed with industry and is important to a successful implementation of ePhyto

Constraints to hub : Discussions identified possible restrictions to the freedom of countries, possible problems to connect to single window, security not clear at this stage, legal requirements not clear, costs need to be estimated and compared to a point to point system, and CPM endorsement has not been achieved yet. The development of a prototype hub was discussed – to allow countries to see how it might operate and to check out any difficulties.

Elements of model legislation: it was suggested that this might not involve too many problems and minor amendments to the legislative provisions involved might suffice in most countries.

Elements of a generic system for ePhyto: these were listed and included: issuance and sending (compatible with the National System), receipt and processing (compatible with the National System), specifications (data format or harmonized, exchange protocol); collation and generation of reports, security, integration, stakeholder interfaces. These activities would require the appropriate server, software, protocols, security modules, computers, IT personnel and budget.

## **5. Successes, challenges and new emerging issues**

Two countries, Australia and China, provided summarized some developments in their countries.

### **5.1 Australia**

Mr Neimanis summarised some of Australia's successes and the future challenges and opportunities. Australia has two systems, eCert for exports (linked to EXDOC) and eCert for imports (linked to AIMS). Both systems use SOAP for message transactions.

eCert for exports is used for all commodities to China, for phytos and meat to the US, and for meat to Japan. With eCert for imports all New Zealand PCs are accepted and a trial has commenced with the Netherlands looking at receiving all commodities. These arrangements have had considerable business impact, regarding Customs and the import clearance process

and in deciding the role of industry in providing information. IT capacity and capital funding needed for future developments.

Challenges include: the transmission control protocol – Australia uses SOAP and SMTP (Simple Mail Transfer Protocol); technical support is critical for the countries involved and communication needs to be clearly arranged; the XML data is structured using UN/CEFACT with the SPS Certificate and SPS Acknowledgement. The WSDLs (Web Services Description language) is another challenge to overcome and will benefit from harmonisation. There is much technical communication involved in this area.

Some countries have to use hard copy PCs as they are required to by their legislation. The aim of paperless trade still requires further work.

The emerging issues include:

- the ePhyto steering group is doing good work and needs to be supported
- more work has to be done on the harmonisation of terms
- the hub concept needs further development and a single WSDL should be developed
- awareness had to progress
- capacity development

Mr Neimanis also noted that CPM 9 has increased awareness of ePhyto and has encouraged the harmonising of terms. In Australia the Customs and ePhyto systems are not fully harmonised and there is a manual component to be developed. It is likely that there will be a point to point system running alongside any initial hub system and Australia will be able to support this approach.

Mr Neimanis stressed the opportunities for the APPPC with ePhyto. He suggested that members work towards using the hub concept, support ePhyto at CPM 10, and develop an APPPC action plan as the APPPC is the leading region in the area of ePhyto.

## **5.2 China**

The AQSIQ representative presented material on the developments on eCert in China. The PC facilitates the movement of consignments internationally and so many countries are investigating the use of ePhyto.

AQSIQ has 300 Branches and 200 local offices for entry-exit inspection. 2.25 mill export PCs were issued and 0.33 mill imports PCs need to be verified. There has been an increase of fraudulent activities and new paper PCs have been developed in response to this. It is expected that ePhyto should further help to improve the situation.

The Chinese eCert includes: work started in 2007. Cooperation with a number of countries has been established.

Features of the China's eCert system include:

standardization - follows international standards UN/CEFACT E-cert Data Standard Model.

- the system's flexibility allows on line viewing and verification.
- transmissions use SOAP and SMTP.
- it is an open system so there is no limit to the number of users.

- users can view e-cert information in real time and provide feedback.
- security is provided by HTTPS and 128 bit encryption for data exchange.
- the system is regarded as simple and operators do not need special training.

The system was built in 2009 and formally implemented in 2010. So far, over 9 million electronic certificates have been uploaded into the system. There are 300 officials in 40 countries using the system with nearly 5 million e-certs verified through the web view. Ecert agreements have been signed with New Zealand, Australia and the Netherlands. Many other countries are discussing arrangements with China.

Benefits have included faster consignment clearance and the reduction of fraudulent PCs, The system acts as a good communication channel in real time. China is inviting e-Cert cooperation with other countries to obtain the trade facilitation with the associated quality and security improvements. China is willing to share their experiences and to modify their system as needed.

It was noted that there is a need to understand what each country needs – and use an international standard where available. There is a basic need for a continuity of support, to be maintained and kept up to date, with appropriate expertise. There should be discussion with other partners in developing and using the system.

## **6. Harmonisation of data requirements and transmission protocols Preparation and implementation of ISPM 12 Appendix 1**

This information was presented by Mr Nico Horn (Netherlands).

Mr Horn stated that for ePhyto to function a software programme is needed to encrypt and decrypt and for an exchange between national systems. An ePhyto system has a sending element(transmission) and a receiving element. The system must include authentication equivalent to a signature and stamp. The ePhyto PC has the same wording and data as per the paper version. It is transmitted NPPO to NPPO and is secure.

The harmonisation provided by Appendix 1 of ISPM12 is essential as national systems need this for the format, content and exchange.

Regarding the format of the message, XML aligned with the UN/CEFACT SPS Schema is used with a separate schema for the re-export certificate (version 12). All phytosanitary data elements are assigned a place in the schema. The system would deal with more than one product as described in App 1. The same rules apply to the ePhyto as for paper certificates.

The terms for the contents of the message are also harmonised – for the plants and pests, ISO country codes, description etc. Mr Horn noted that the initial ePhyto Steering Committee and Working groups helped to develop Appendix 1. The commodity classes of Customs are not sufficiently detailed for phytosanitary purposes. Rules for the use of scientific names were devised – verified names, synonyms and old names, common names, that are easily accessible, maintainable, and as complete as possible. However, no database was totally satisfactory so the EPPO database was selected. The IPPC Secretariat is in discussion with EPPO to ensure this database has global coverage.

Regarding the exchange of the message, this needs https security, optional additional encryption, and harmonised communication on message exchange. Further harmonisation is needed.

Appendix 1 of ISPM 12 is likely to need to be adjusted over a period of time so any amended material would be presented on ePhyto.ippc.int. This means that the procedures for standard setting can be avoided when this material becomes available to countries.

Recent developments in the ePhyto area include: harmonisation of an exchange protocol, development of procedures for access and the updating of the list of harmonized terms, further development of harmonized terms, the study on the feasibility of the Hub, and the drafting of the STDF project.

Future work includes work on: a harmonized exchange protocol, global access and updated databases, a hub decision from CPM 10, a Hub for global exchange, tools for setting up national systems, a web-based system for ePhytos, and awareness raising. The intent of those working on the ePhyto Steering Group is to aim at a wide implementation of ePhyto in many countries throughout the world.

## **7. Legislative and regulatory requirements**

### **7.1 Japan**

Mr Sai (Japan) discussed the situation in Japan. He noted that Japan does not have an ePhyto system at the moment. He stated that in 1997 the Plant Protection Act was revised and work started on an electronic application system for plant quarantine and animal quarantine. He noted that Article 6 of this act states that a PC is needed for imports. It has reference to the acceptance of electronic material as a form of PC

### **7.2 Korea – status of phytosanitary certification**

A summary of international developments included the points that: electronic certificates are available for Taiwan, Australia and New Zealand; Chinese PCs can be verified on the website; and there is an MOU with the Netherlands for ePhyto for the import/export of seed .

The Act includes enforcement regulations. The content of a PC was shown. There are no relevant regulations for ePhyto so regulations need to be established. These would allow the use of ePhyto, ensure the practical use of certification, approve the use of ePhyto to increase the reliability of the quarantine service and expedite the service.

The department will establish guidelines for the approval of ePhyto for the import and export sectors. The approval of Appendix 1 of ISPM 12 has provided a reason for the amendment of the act.

### **7.3 Discussion**

The changing of regulations should be planned in each country as legislation/regulation amendment can take some time. The regulations may include the amendment of a range of matters – e.g. compliance, fines etc. It was noted that some countries will have to estimate the benefits of the ePhyto system before regulations can be revised.

## **8. Infrastructure requirements**

### **8.1 Australia**

Mr Peter Neimanis discussed the requirements for domestic systems to set up an ePhyto system.

Mr Neimanis went on to describe the Australian export/import system. Australia has an Export Control Act with Export Control Orders 2005 and 2011. The process involves: meeting the importing country requirements (MICoR), a notice of intention (EXDOC), inspection by an authorised officer (PEMS), authorisation process, and electronic exchange of information.

MICoR supplies a list of all importing country requirements, EXDOC facilitates the operation of a Notice of Intention to export prescribed goods. The authorised officers can be departmental or specially trained individuals. After inspection, the consignments are considered export compliant and a PC may be issued.

An example was discussed with *Gossypium* spp (cottonseed) to the USA. MICoR is consulted and the requirements ascertained. Exporters submit their export details (eg. Commodity, country) through third party software into EXDOC for the notice of intention. The inspection is then undertaken by an authorised officer (there are five types of inspection records). Then the authorisation of certification (EXDOC) is undertaken. Then an export permit and PC will be issued.

The exchange takes place The data then can be moved into a format that is suitable for the importing authority to assess and verify.

Mr Johnston explained with the export of avocados from New Zealand there is a similar system to that of Australia. New Zealand has an information system containing importing countries phytosanitary requirements. The New Zealand ePhyto system has two outputs – a paper PC and an XML message. The NZ ePhyto phytosanitary data map is aligned to the UN-CEFACT SPS Schema and information is encrypted. The certificate data is contained in the NZ ePhyto server and can only be extracted by Australia. Contingency measures are used for the security of the software for certificate production. The AIMS (AQIS Import management system) then deals with the consignment after going through the ICS (Customs system). Other attachments may be involved. The import clearance-direction can then be issued.

### **8.2 Discussion**

The benefits of a hub system was stressed – particularly the fact that countries would no longer need to have separate arrangements for each country they trade with. The basic need for a system is a server and a computer. The elements of ePhyto then have to be built into a software application operating in the national phytosanitary certification systems within each country.

## **9. Communication and capacity development challenges**

Mr Craig Fedchock, IPPC Coordinator noted that plant protection communication efforts to the non-IPPC audience are generally weak and limited. It was noted that FAO support of

IPPC communication efforts has not been strong. Communications has generally been a “nice to do” operation not a “need to do” exercise. There is no clear message and who or what are the audiences for the ePhyto message. The Secretariat has employed a firm to do a needs assessment for a communication strategy. There is a need to identify the best communication channels, the communication objectives messages and audiences and this would be associated with the redesigning of the IPP website.

The Secretariat has now hired a communications professional, is redesigning the website and has prepared a communications work plan.

Mr Fedchock noted that there is also insufficient material to support capacity development to non-IPPC audiences. Awareness raising is a big challenge. With ePhyto, we need electricity for 24/7 communication and access, the appropriate technology tools (computers etc), and training with adequate personnel.

The Secretariat is focused on building an ePhyto tool and seeking resources to develop and maintain an ePhyto Hub (including finance acquisition) and training. Each country will have their own specific challenges and these need to be considered. Mr Fedchock said that the next steps are extremely important so we can have adequate support for the development of national systems that link with an international system. The benefits and gains from the system are to facilitate trade in the future and these will be important for each country to stress support for.

The use of the website and its availability were noted. There needs to be consideration on how the website can promote IPPC activities more effectively. Unfortunately, the IPPC is quite opaque to many potential users.

It was pointed out that an ePhyto tool is separate to the issue of developing a IPPC global ephyto Hub. A module could be developed for ePhytos or a resource group could help countries interface an international module with national systems. The facility of batch filing was noted as PCs are usually not dealt with one at a time.

Mr Fedchock mentioned that the website is being redesigned. Mr Horn described two elements: transmission (harmonised exchange protocol for point to point system or a hub); and a national generic system (for PC production and receipt). An inventory of what available ePhyto systems will be made by the IPPC ePhyto Steering Group. An online system needs to be investigated. The ideas on the production part are not clear yet – but the inventory of what is there should be undertaken first.

Dr Piao noted that the question and answer forum on the Implementation Review and Support System (IRRS) is hardly used at all. It could be used for discussion on ePhyto. Dr Yim said that countries need to make decisions regarding the use of ePhyto and the possibility of using a Hub. More information should be made available – with the benefit listed and the requirements explained. This could be put in the form of a simple brochure. It is hoped that a few countries could take part in the pilot project for ePhyto.

The fact that some countries have national functioning ePhyto systems already was noted. These are point to point systems. A range of countries work with commercial support firms and this could be formally extended. An idea for the preparation of letters to Ministers to explain and support ePhyto developments was put forward. It was suggested that this could



be added to the CPM invitation. Mr Fedchock noted that a direct letter might be more difficult. It was also pointed out that an International Year of Plant Health might be able to support the ePhyto project.

## **10. Next steps and action plans**

Participants were invited to think about actions and next steps that are required to progress the development of an IPPC ePhyto system. This was considered at several levels – action at an individual country level, action at a regional APPPC level, action at the ePhytos Steering Group level, and action at the CPM level. The recommendations for action, divided in each section into Primary (with an imperative requirement for action) and related (where action associated with the primary actions is needed), are listed below.

### **Recommendations on an action plan from the APPPC workshop on ePhyto**

#### **Action recommendations at country level:**

##### **Primary:**

1. each country to make a policy decision to pursue ePhyto developments (or not!)
2. defining user needs and system functionality (industry and NPPO)
3. increase awareness across all stakeholders - public, industry, Politicians, government departments
4. review IT systems to determine if they are able to support ePhyto
5. review legislation to ensure it supports implementing ePhyto and commence change processes, if required
6. estimate costs and benefits to gain funding approval Consider cost recovery mechanisms – to charge exporters/importers for service (this may require regulation changes)
7. build, test and deploy/implement

##### **Related:**

8. make contact with and cooperate with customs to ensure compliance and alignment of National trade single window with ePhyto system as well as engagement of other stakeholders concerned
9. examine and plan changes to existing import/export certification systems and processes
10. country to country trial when countries are ready
11. consider contingency plan for national ePhyto system
12. capacity development of staff (training)
13. contact person for ePhyto through IPPC Contact point, Information on country website (Country ePhyto rep link to CPM rep)
14. ASEAN country should consider participation in ASEAN trade single window technical working group
15. gain awareness of APEC ecommerce initiatives (funding)

#### **Action recommendations at regional (APPPC) level:**

##### **Primary:**

1. establish a regional ePhyto working group to coordinate activities  
Member countries for the working group include: Thailand, Korea (support), Australia (lead country), Philippines, Malaysia, Indonesia, etc. (to be finalized at next session of APPPC)

2. seek agreement at the next APPPC biennial session for ePhyto work plan and funding: Coordinate actions across countries and identify countries for pilot and Leadership in pilot: Provide technical input to the IPPC ePhyto Steering Group

Related:

3. support information and Technology exchange between countries e.g. develop case study

#### **Action recommendations to IPPC ePhyto steering group:**

Primary:

1. provide/communicate global timetable of activities
2. coordinate the developing of guidelines for ePhyto at country level, e.g. legislation, infrastructure, processes ( ISPM 12 Appendix 1)
3. define criteria for participation in the IPPC ePhyto global Hub pilot.

Related:

4. develop communication materials to facilitate policy discussion/decisions, Common presentation on ePhyto (benefits, cost etc)
5. APPPC Secretariat to inform the IPPC ePhyto Steering Group that APPPC countries wish to strongly participate in Hub pilot
6. establish procedure to recommend and approve future changes to ISPM 12 App 1
7. develop contingency/continuity plans for consideration in a IPPC global ePhyto Hub (in case of failure of system)
8. possible Side session of ePhyto at CPM involving inputs from APPPC.

#### **Action recommendations to CPM:**

Primary:

1. countries to express continued support for ePhyto activities
2. countries to express support for IPPC global ePhyto hub development and generic web based system at CPM.

Related:

3. encourage CPM to have a campaign to promote ePhyto among all members e.g. (letter from the IPPC Secretariat to ministers) direction on communication for IPPC on ePhyto
4. promoting a Global ePhyto symposium.

### **10.1 Discussion**

Participants agreed that the APPPC should establish an APPPC ePhyto working group.

A number of countries expressed interest in joining an APPPC ePhyto working group including Thailand, Philippines, Korea, Indonesia, Australia and Malaysia. This proposed working group and membership will be finalised at the next session of the APPPC. It was suggested that the countries involved discuss a terms of reference and work plan before the session. Australia is to initiate proceedings and act as group leader.

The use of hard copy PCs was considered. The new ePhyto system needs to meet industry needs – such as continuing the availability of PCs to industry.

Korea supported the involvement of APPPC countries because of the range of expertise with these systems by APPPC countries. Korea will also host a global symposium on ePhyto in 2015.

## **10.2 Potential timeline of IPPC for their ePhyto Hub development**

March 2015 – CPM 10

- decision by CPM to develop generic web-based system for ePhytos, and to pilot using a hub with some countries that are ready.

April 2015 – STDF Proposal

- decision by STDF on proposal to fund development of hub and generic web-based ePhyto system plus initial capacity development activity

May 2015 – begin building Hub (including tendering process for service provider)

Sept 2015 – a global symposium on ePhyto in Korea

May 2016 – complete hub build and testing

May 2016 – begin pilot for “real world” testing of the hub to selected number of countries

May 2016 – complete inventory of existing modules for producing and receiving ePhytos

May 2017 – begin expanding availability of the hub to more countries

May 2017 – complete and deploy generic web-based system for ePhytos.

## **11. Closing session**

Mr Fedchock and Mr Horn expressed their good wishes for the future working group and thanked the organisers of the meeting. Dr Yim noted that CPM 10 would be considering the hub concept for the IPPC. She also thanked the APPPC Secretariat and all the presenters of sessions and the Thai Department of Agriculture who generously hosted the meeting. Dr Piao informed that the planning meeting for the next session of APPPC will be in May 2015 in Bangkok and the 29<sup>th</sup> Session of APPPC will be on September 2015 in Indonesia.

Dr Piao closed the meeting.

## Programme

## Day 1- Tuesday 28 October

- 08:30-10:00** **Introduction and Opening of the Workshop:** Piao Yongfan  
Keynote speakers (context for electronic exchange of phytosanitary certificate data):
1. Peter Johnston: “The Basics of ePhyto - A Global perspective!”
  2. Nico Horn : “Introduction& development of Ecert/ePhyto in The Netherlands”.
  3. Craig Fedchock : FAO/IPPC developments & perspective on ePhyto & the Hub concept
- 10:00-10:30** Coffee Break
- 10:30-12:30** **Session 1:** Common concepts, terms and definition-Facilitator: New Zealand  
Keynote speakers:
1. Peter Thomson “The Hub concept”
  2. Peter Johnston: “NZ prototype of the Hub”
- Keynote Speakers Panel:**  
Question & Answer session exploring the Hub concept
- 12:30-13:30** Lunch Break
- 13:30-15:30** **Session 2:** Country reports- Facilitator: Korea  
Each participant Country to:
1. State what they want to achieve at the workshop?
  2. Provide a brief report on the following (examples only);
    - Use of hard copy certificates
    - What version, if any, of the UNCEFACT SPS Schema they are using?
    - Compliance of their system with Appendix 1 of ISPM 12
    - What, if any, security mechanisms are in place for electronic exchange of phytosanitary certificate data?
- 15:30-16:00** Coffee Break
- 16:00-18:00** Session 2 Continued

## Day 2 - Wednesday 29 October

- 08:30-10:30** **Session 3:** Report on survey results – (to be undertaken within two discussion groups) Facilitator: Peter Thomson & Peter Johnston (New Zealand)  
Attendees will be split into two discussion groups with Australia & Japan, as members of the Workshop Organising Committee, acting as a discussion leader for each group.
- 3.1 Each group is to elect one of their country attendees to report on the group

discussion highlighting what the group has identified as their agreed key findings, challenges and opportunities within the Region for moving ePhyto forward.

3.2 Discussion leaders (Australia & Japan) will provide each group with a summary of the results of the APPPC situational analysis gathered from the Pre-Workshop Survey responses.

3.3 Each group with guidance from the discussion leaders explore & decide on the group's key findings, challenges and opportunities as taken from the survey results and country reports.

3.4 The two groups re-join as one workshop group.

- Each elected group reporter relays their groups determinations
- The combined group agrees on key findings, challenges and opportunities within the Region for moving ePhyto forward.

**10:30-11:00** Coffee Break

**11:00-12:30** **Session 4:** “Successes, Challenges and new emerging Issues”-Facilitator: Malaysia

Keynote speakers: Australia & China

Experiences to-date with eCert/ePhyto developments with a focus on;

- Budget constraints
- Successes
- Challenges
- New emerging issues

**12:30-1 3:30** Lunch Break

**13:30-15:30** **Session 5:**” Harmonization of data requirements and transmission protocols”  
Facilitator: Mr. Masahiro SAI (Japan)

Keynote speakers: Nico Horn & Peter Johnston

“Preparation & Implementation of Appendix 1 to ISPM 12”

**15:30-16:00** Coffee Break

**16:00-18:00** **Session 6:** “Legislative and regulatory requirements”-Facilitator: Peter Thomson

Keynote speakers: Korea and Japan

These keynote speakers will relay their individual experiences with amending the Laws of their respective countries to reflect the acceptance of both electronic & hard copy phytosanitary certificates.

**Panel Q & A session**

“Explore other attending countries regulatory requirements that may be preventing them from moving towards the receipt of ePhyto.”

### Day 3 - Thursday 30 October

**08:30-10:30** **Session 7:** “Infrastructure Requirements”-Facilitator: Korea  
Keynote speaker; Australia (supported by Peter Johnston New Zealand)

Australia will speak on what infrastructure is required to operate ePhyto and demonstrate how their ePhyto system works for sending electronic transmissions to the USA and receiving electronic certificate data from New Zealand.

**10:30-11:00** Coffee Break

**11:00-12:30** **Session 8:** “Communication & Capacity Development Requirements”-Facilitator: Indonesia  
Keynote speaker Craig Fedchock (supported by Peter Thomson)

This Session will consist of two stages as follows:

1. The keynote speaker reflecting on global “communication and capacity development challenges” already recognised within other regions of IPPC relating to ePhyto developments and also taking into account the results of the Pre- Workshop survey.
2. An open forum discussion to identify and agree on what level of assistance is required within APPPC and options for resolution to best facilitate the regions ePhyto development.

**12:30-13:30** Lunch Break

**13:30-15:30** **Session 9:** “Next Steps and Action Plans”-Facilitators: Peter Thomson and Peter Neimanis

Workshop attendees will be split into two discussion groups with Peter Thomson and Peter Neimanis acting as a discussion leader in each group.

9.1 Each group is to elect one of their country attendees to report on the group’s discussion highlighting what the group has identified as their agreed key findings.

9.2 Each group under the guidance of the discussion leaders “explore & decide on what they believe are the Next Steps & Action Plans” within the Region for moving ePhyto forward.

9.3 The two groups re-join as one workshop group.

- Each elected group reporter relays their group’s determinations.
- The combined group agrees on the “Next Steps” required to best facilitate ePhyto developments within the APPPC region & an “Action Plan” to achieve these.

**15:30-16:00** Coffee Break

**16:00-18:00** **Session 10:** Closing Session - Facilitator: Korea

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