Electronic management and exchange of sanitary and phytosanitary certificates

Dr Heiner Lehr
heiner@syntesa.eu
INTRODUCTION
The global food trade is estimated to be worth about 1.45 trillion USD

Src: Global Imports of Food, WTO
Over the centuries, diseases and pests have had major economic and social impact worldwide.

The Irish famine 1846-1850 was a result of potato blight and took more than 1m lives.

The chestnut blight introduced in the US in 1904 virtually eliminated chestnut trees from North America.

The US congress established plant quarantine laws in 1912 as a direct result of severe disease loss from imported plant material.

The plant louse Phylloxera was introduced to Europe from Californian vines in the 1850s. About 1 million hectares of vineyards in France alone were destroyed.
Has food safety improved over time?

### Total RASFF alerts 2004-2010

![Graph showing total RASFF alerts from 2004 to 2010.](source: RASFF)

### Notifications by world regions 2000 - 2007

![Graph showing notifications by world regions from 2000 to 2007.](source: RASFF)

### Number of cases and incidence rates of various foodborne and waterborne diseases, 2005 (1) Source: EUROSTAT

<table>
<thead>
<tr>
<th></th>
<th>EU-25 Confirmed cases (units)</th>
<th>EU-25 Incidence rate (per 100,000 inhab.)</th>
<th>Member States Incidence rate (per 100,000 inhab.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botulism</td>
<td>147</td>
<td>0.0</td>
<td>LT 0.2</td>
</tr>
<tr>
<td>Brucellosis</td>
<td>1,426</td>
<td>0.3</td>
<td>PT 1.4</td>
</tr>
<tr>
<td>Campylobacteriosis</td>
<td>107,802</td>
<td>45.0</td>
<td>CZ 296.2</td>
</tr>
<tr>
<td>Cholera (2)</td>
<td>34</td>
<td>0.0</td>
<td>BE 0.1</td>
</tr>
<tr>
<td>Cryptosporidiosis</td>
<td>7,960</td>
<td>28.9</td>
<td>IE 13.8</td>
</tr>
<tr>
<td>Echinococcosis</td>
<td>336</td>
<td>0.1</td>
<td>LT 0.4</td>
</tr>
<tr>
<td>Giardiasis</td>
<td>14,637</td>
<td>5.2</td>
<td>BE 24.3</td>
</tr>
<tr>
<td>Listeriosis</td>
<td>1,476</td>
<td>0.3</td>
<td>DK 0.9</td>
</tr>
<tr>
<td>Salmonellosis</td>
<td>180,363</td>
<td>39.1</td>
<td>CZ 322.2</td>
</tr>
<tr>
<td>Shigellosis</td>
<td>7,255</td>
<td>1.8</td>
<td>LT 13.4</td>
</tr>
<tr>
<td>Trichinellosis</td>
<td>153</td>
<td>0.0</td>
<td>LV 2.1</td>
</tr>
<tr>
<td>Tularaemia</td>
<td>489</td>
<td>0.1</td>
<td>SE 2.7</td>
</tr>
<tr>
<td>Variant Creutzfeldt-Jakob disease (VCJD)</td>
<td>14</td>
<td>0.0</td>
<td>SI 0.2</td>
</tr>
<tr>
<td>Verocytotoxigenic Escherichia coli (VTEC)</td>
<td>5,199</td>
<td>1.2</td>
<td>CZ 167.7</td>
</tr>
<tr>
<td>Yersiniosis (non-pstis)</td>
<td>9,535</td>
<td>2.3</td>
<td>LT 14.5</td>
</tr>
</tbody>
</table>
Impact of world trade

• Expansion of world trade and travel increases health risks (plants, animal and humans)

• Risks to health are derived from:
  – Entry and establishment or spread of pests
  – Diseases
  – Disease carrying/causing organisms
  – Additives
  – Contaminants
  – Toxins or disease causing organisms in foodstuffs

• Sanitary and Phytosanitary (SPS) measures aim to address this risk while avoiding Technical Barriers to Trade (TBT)

• Where is SPS applied?
  – Typically applied to trade in, or movement of, animal-based and plant-based products within or between countries

Historic importance of plant diseases and pests

Over the centuries, diseases and pests have had major economic and social impact world-wide. The Irish famine 1846-1850 was a result of potato blight and took more than 1m lives. The chestnut blight introduced in the US in 1904 virtually eliminated chestnut trees from North America. The US congress established plant quarantine laws in 1912 as a direct result of severe disease loss from imported plant material. The plant louse Phylloxera was introduced to Europe from Californian vines in the 1850s. About 1 million hectares of vineyards in France alone were destroyed.
• WTO SPS agreements: a fair and safe trading regulatory framework
  – An agreement on how governments can apply food safety and animal and plant health measures
  – WTO members operate a non-discriminatory trading system that spells out their rights and obligations.
  – Each country receives guarantees that its exports will be treated fairly and consistently in other countries’ markets.
  – Each WTO member promises to do the same for imports into its own market.
  – The system gives developing countries some flexibility in implementing their commitments.

• WTO fundamental requirements on traded products:
  • That they are safe and do not pose risks to human, animal and plant health

• Countries impose regulations to ensure food safety and prevent the introduction or distribution of diseases and pests through trade
• The Application of Sanitary and Phytosanitary Measures requires that governments apply food safety, animal health and plant health measures without unnecessary obstacles to trade

• The SPS Agreement allows countries to set their own measures to protect their economy or environment from damage caused by the entry, establishment or spread of pests

• Governments are encouraged to use international standards, guidelines and recommendations when developing SPS measures

• The SPS Agreement states that measures should be science-based and not used for trade protection

• It requires that sanitary and phytosanitary measures be based on an assessment of the risk to plant health, taking into account risk assessment techniques developed by the relevant international standard setting body, and that the measures be technically justified

• **Many importing countries require a Sanitary/Phytosanitary Certificate:**
  – An official document issued by the Competent Authority of the exporting country to the Competent Authority of the importing country
  – Certifies that the plants or plant products covered by the certificate have been inspected and are considered to conform to the SPS agreement between the exporting and the importing country
  – Facilitates trade but it is not a trade document
SPS Certificate Workflow - Typical process

1. Application for SPS Certificate
2. Approved SPS Certificate
3. Transmit SPS Certificate to importer
4. Submit SPS Certificate for quarantine clearance
5. Goods Cleared

Certification Process

Issuing Authority (Export)

Validation, Inspection and Clearance of Import Shipment

Recipient Authority (Import)

Exporter

Importer
eCERT

Uses the Extensible Markup Language (XML) to transmit data for agricultural products

-- Allows for information to be exchanged G2G for sanitary (human and animal health) and phytosanitary (plant health) SPS certificates by download or by viewing it directly on the web
• Scope of products in NZ for export (eCERT/AP eCERT/ePhyto)
  – Plant products including seeds, living and dried plants, seafood, game, poultry, eggs, pet food, bee products, hides, wool and skins, and dairy products. Products can also be living, fresh or frozen

• Other Recognition:
  – The IPPC in the form of the IPSM No 12 e-Phyto certificate
  – The Pan Asian e-commere Alliance, CODEX/CCFICS (CAC/GL 38-2001)
  – The ASEAN Single Window effort (ASW)

**eCERT history**

• Initiated in New Zealand, as result of traceability and verification system in 1999 and an export module in 2000

• New Zealand, Australia, USA and the Netherlands were early adopters of electronic SPS certificates
  – soon realised that standardisation via UN/CEFACT was essential to the success of electronic SPS certificates

• eCERT was released in 2008 as a UN/CEFACT standard.

• Today New Zealand and Australia provide and/or accept electronic certificates with about 15 countries and all European member states for a variety of products

• China launched its eCERT system in 2010 and has over 40 countries and 300 officials using the system

• Other countries: Canada, Kenya, The Republic of Korea, Vietnam, Hong Kong, Singapore and others use some form of electronic certification and/or the infrastructure of trade partners to file or review e-SPS certificate
### Paper-based vs Electronic SPS Certificates

**Integrity**
- No guarantee a certificate is valid
- Difficult to consolidate
- More scope for irregular behaviour
- Electronically secured certificates
- Cross-checking in real time
- Single national register of certificates

**Efficiency**
- Difficult to maintain and update in different languages
- Slower processing time
- No automated validation
- Faster processing through pre-validation
- Single view of all relevant information
- Simple maintenance of forms

**Security**
- Higher risk of forgery and manipulation
- Higher risk of import control failures
- More difficult to identify patterns of fraud/misuse
- Very difficult to forge
- Online verification for third parties incl. importing nations
- Searchable database with all certificates

**Time**
- More time to prepare
- Longer time to export
- More time to process
- Computer-assisted application preparation
- Faster processing cuts export time
- Faster management through real time status
HOW AN ELECTRONIC SPS CERTIFICATE SYSTEM WORKS
Export Implementation

- Electronic SPS management
  - Electronic application process
  - Electronic scheduling inspections
  - Electronic issuance of certificates
  - Integration with other certificates requiring inspection
  - Key Benefits
    • Greater processing efficiency
    • Balanced scheduling of inspections
    • Consistent collection of information and real-time validation of applications
    • Quick communication channel to im/exporters
    • Creation of central registry or exporters
    • Searchable application for data mining

- Electronic Export
  - Integration with Border Control processes and systems
  - Integration with other export certificates
  - Key Benefits
    • Greater processing efficiency
    • Better export controls
    • Risk-based border processes
    • Less Certificate fraud
    • Quick communication channel to im/exporters

- Electronic data exchange
  - Exchange of certificates with im/exporting nations
  - Pre-import checks
  - Scheduling of import inspections
  - Key Benefits
    • Provable integrity of certificates
    • Detection of product fraud
    • Non-repudiation of certificates
    • Greater processing efficiency
    • Less paper

- Negotiations
  - Intergovernmental discussions
  - Border Control negotiations

Import Implementation

- Electronic SPS management
  - Electronic application process
  - Electronic scheduling inspections
  - Electronic issuance of certificates
  - Integration with other certificates requiring inspection
  - Key Benefits
    • Greater processing efficiency
    • Balanced scheduling of inspections
    • Consistent collection of information and real-time validation of applications
    • Quick communication channel to im/exporters
    • Creation of central registry or exporters
    • Searchable application for data mining

- Electronic Import
  - Integration with Border Control processes and systems
  - Integration with other import certificates
  - Key Benefits
    • Greater processing efficiency
    • Better import controls:
      • Health and animal/plant disease prevention
      • Risk-based border processes
      • Less Certificate fraud
      • Quick communication channel to im/exporters

- Electronic data exchange
  - Exchange of certificates with im/exporting nations
  - Pre-import checks
  - Scheduling of import inspections
  - Key Benefits
    • Pre-arrival inspection
    • Provable integrity of certificates
    • Detection of product fraud
    • Greater processing efficiency
    • Less paper

Negotiations

- Negotiations
  - Interagency discussions
  - Border Control negotiations
How an electronic SPS Certificate system works

• Maximising the benefit of the eCERT program:
  – Four phases of in-country electronic SPS certificate management

• Exporting countries:
  – Phase 1: The exchange of electronic SPS certificates with other nations:
    • Requires the Ministry of Agriculture/Trade for the bilateral agreements and Border Control officials
    • And/or the Competent Authority of the importing country for an agreement of the message transport methodology and its details

  – Phase 2: Only competent authority:
    • With Exporters, the only stakeholders

  – Phase 3: Integration with Border Control systems:
    • Requires the collaboration of Border Control officials

  – Phase 4: In-country business processes:
    • Replacement of all paper-based systems
How an electronic SPS Certificate system works

• Component 1: Exchange of electronic SPS certificate with the exporting or importing country

• Component 2: Implementing the information systems necessary to capture applications from exporters for SPS certificates electronically and to manage such applications

• Component 3: Integration with Border Control systems

• Component 4: In-country business processes
  • Replacement of all paper-based systems
  • Often in context of National Single Windows

Main stakeholders

Square brackets indicate parties that do not necessarily play a role in the process.
Component 1

EXCHANGING ELECTRONIC CERTIFICATES
Component 1: Exchange of electronic SPS certificate with the exporting/importing country

- Technical basis of eCERT
  - eCERT is standard of UN/CEFACT and internationally recognised

### Core Components Library (UN/CCL)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Issued</th>
<th>Document Title</th>
<th>Download</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015</td>
<td>UN/CCL version 15B</td>
<td>ZIP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Validation report</td>
<td>PDF</td>
</tr>
</tbody>
</table>

[http://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html](http://www.unece.org/cefact/codesfortrade/unccl/ccl_index.html)

---

**Electronic data exchange**

- Exchange of certificates with im/exporting nations
- Pre-import checks
- Scheduling of import inspections

**Key Benefits**
- Provable integrity of certificates
- Detection of product fraud
- Non-repudiation of certificates
- Greater processing efficiency
- Less paper
For exchange three models are being discussed:

- **Bilateral Government-to-Government eCERT messaging using:**
  - NSW (National Single Windows)
  - eCustoms
  - More frequently: electronic SPS certificate management
    » Used by New Zealand, Australia and the Netherlands with their trading partners

- **Single Hub Model**
  - Currently under discussion in the context of the ePhyto project of the IPPC
  - Refers to phytosanitary certificates only, i.e. potentially subscribe to more than one hub
  - Most countries only trade with a limited number of other countries
  - Bilateral agreements, potentially resulting in different mandatory information elements
  - No easy path from the hub concept to a NSW

- **Bilateral Government to business to business to government (G2B2B2G) model**
Bilateral Government to business to business to government (G2B2B2G) model

1. Application for SPS certificate
2. Approved SPS certificate
3. Transmit SPS certificate to importer
4. Submit SPS certificate for quarantine clearance
5. Goods cleared

Issuing Authority (Export) → WTO SPS Agreement, eg. FAO IPPC ISPM12, CODEX/OIE Or Country-to-Country, Product-to-Product Requirements → Recipient Authority (Import)

Processing, Inspection and Issuance of SPS certificate

Certification process
Choice of model

• Choice of the model should be adapted to the local situation and be a process of the feasibility study

• Key questions to answer:
  – How is it verified that the eCERT is valid, used for only one consignment, and belongs to this particular consignment?
  – How can the importing authority verify the credentials of the certificate by the original issuing authority?
  – How can the issuing authority verify that its certificates are used for the consignment it has been issued?
How to access eCERTs

- Messages are preferably exchanged either using web services via the Simple Object Access Protocol (SOAP)
  - There are no standard descriptions of the corresponding SOAP services (WSDLs)
  - Requires technical coordination work between implementing parties

- The exchange is also possible via secure SMTP.
  - Secure email server
  - Receiving email address where messages can be monitored and automatically retrieved
  - Electronic certificates for secure identification of the source and potentially encryption of the message

- Use of SMTP for eBusiness system integration should be used only if the technical capacity to implement web services is not available.
• **Web browser:**
  – Simplest form of usage of an electronic SPS certificate is by accessing the remote system of the exporting nation e.g. through a web browser
  – The exporting nation will only have to provide credentials to officers of the importing nation; no integration of systems is necessary
  – This “web view” of the electronic SPS certificate is a precursor for the later integration
    • Allows validation that a certificate reference is valid and provides basic information to proceed with the validation at the first or second border
  – For importing nations this should be combined with a system showing all electronic SPS certificates in transit, ideally ordered by time, product, risk, and product type (frozen/fresh).

• **Note:** eCERT is not available as an UN/EDIFACT standard message
Component 2

MANAGING ELECTRONIC CERTIFICATES
Component 2: Electronic SPS certificate management system

- Implementation of the information systems necessary to
  - capture applications from exporters and/or importers for SPS certificates electronically
  - manage such applications.

- Allows for:
  - An exporter to file an application for an SPS certificate online
  - Officials to schedule and carry out inspections filing their result online
  - Issue and manage certificates electronically (and in print where necessary)

Key Benefits
- Greater processing efficiency
- Balanced scheduling of inspections
- Consistent collection of information and real-time validation of applications
- Quick communication channel to importer/exporters
- Creation of central registry or exporters
- Searchable application for data mining
## Typical modules of an electronic SPS management system

**Apply**
- User/exporter registration
- Filing of applications
- Status of application
- Communication exporter/authority

**Manage**
- Registration of inspectors and other relevant personnel
- Scheduling of inspections
- Recording of inspection results

**Issue**
- Secure issuance of certificates
- Secure printing of certificate (where necessary)

**ePayment**

---

**Interfaces to other eBusiness systems**
Electronic SPS management – Apply Module

• Allow users/exporters to register as a pre-requisite for application for an SPS certificate:
  – Authorised company individuals
  – Exporting or importing company
  – Product handling sites

• Registration/Process:
  – Require identification documents (To be uploaded for inspection)
  – Ideally use of digital certificates for individual/entity identification

• Exporters can file an application for an SPS certificate
  – Requirements for the issuance of an SPS certificate will vary with the importing nation and that should be reflected in the application form
  – Upstream partners, growers, food processors and others can provide upstream information

• Importers can file for import license providing relevant documentation

• Payment of fees/dues

• Status
  – Should allow applicants to see the status of their application and receive relevant communications from the authority
• Addresses the internal management of the certification process within the Competent Authority

• Key functionality:
  – Manages identities of officers and other relevant personnel in order to associate each application process with the intervening officials
  – Provide officers with a list of open applications for their consideration.
  – Association of officers to applications can be done by product classification and geography
  – Once the initial documentary check is in order, an inspection has to be scheduled

• Ideally providing an efficient schedule to field inspectors by optimising schedules with respect to inspection locations

• Inspectors should have the possibility to upload inspection results and/or evidence
• A certificate is issued based on the inspection result.

• Ideally, certificates are stored in the eCERT format

• Certificates can then be rendered using language dependent stylesheets

• Certificates should be uniquely identified
  – Good practice to provide a hash code as a means to secure the certificate against transmission errors and fraud

• Until electronic certificates can be exchanged with importing nations:
  – Printed copies of the certificates need to be generated securely
  – Many nations employ security paper for this process and require designated points where certificates can be printed

Hash codes

A hash function is a function that maps data of arbitrary size to data of fixed size. The values returned by a hash function are called hash codes.

For example, a 128 bit MD5 hash of the text on the left yields 903616022a221a45ea23ec663902f558

A hash can be encoded in a security code and printed on documents

Replacing eCERT with eCert yields: 8bfe54e61ed7a2b595726929ab381c4b
Component 3

USING ELECTRONIC CERTIFICATES
Integration into border processes

Electronic Export

Integration with Border Control processes and systems
Integration with other export certificates

Key Benefits
• Greater processing efficiency
• Better export controls
• Risk based border processes
• Less Certificate fraud
• Quick communication channel to im/exports
Component 3: Integration with Border Control systems

- Border clearance processes can use a web view system or directly access/exchange electronic SPS certificates using the electronic border control management system.

- More efficient for the border clearance processes to control the information directly

- Allowing officers access to the electronic SPS certificates as part of the documentary check would be a good first step

- If there is an eCustoms system and resources available for integration work, a feasibility study should be conducted looking at a direct integration of the electronic SPS certificate management system and the eCustoms system

- The specifics of the integration will depend on the available systems and resources to interface with them.

<table>
<thead>
<tr>
<th>Status</th>
<th>Web view</th>
<th>Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper-based Border Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>eCustoms system implemented</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NSW implemented</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Risk Management

- **SPS certificates in risk management:**
  - If the implementing country has laws and regulations to use risk-based border inspections for products of animal or plant origin, the availability of a web view of electronic SPS certificates can direct validation efforts to the shipments requiring attention.
  - Typically, risk categories, based on the product imported and the history of the originating country and exporter, are assigned a percentage of shipments that will be physically inspected.
  - Risk categories and inspection coverage:

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Red Channel</th>
<th>Yellow Channel</th>
<th>Green Channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Risk Foods</td>
<td>80-100%</td>
<td>0-10%</td>
<td>0-10%</td>
</tr>
<tr>
<td>Medium Risk Foods</td>
<td>15-25%</td>
<td>15-25%</td>
<td>50-70%</td>
</tr>
<tr>
<td>Low Risk Food</td>
<td>5-10%</td>
<td>0-5%</td>
<td>85-90%</td>
</tr>
</tbody>
</table>

- **Shipment based by risk category:**
  - Product Risk
  - Environment and origin risk
  - Establishment risk
  - Production process risk

- **Risk category associated by channel:**
  - Green Channel: Health Documentation Review
  - Yellow Channel: Health Documentation Review and Cargo Examination.
  - Red Channel: Health Documentation Review, Cargo Examination, Samples collection and laboratory analysis

- Each combination of risk category and channel then receives a percentage of inspections.
Pre-validation process – lodging an export customs declaration

- Exporter enters the identification number of the (electronic) SPS certificate

- The eCustoms system then contacts the electronic SPS certificate management system providing a core data set
  - SPS certificate identifier, product identification, identification of the exporter, destination country

- The electronic SPS certificate system verifies the data against the information stored in the electronic SPS database and provides a status
  - No objection | Soft reject (Minor inconsistencies) | Hard reject (Major inconsistencies)

- eCustoms system decides on an appropriate course of action:
  - Continuing the process | Scheduling a documentary check | Rejection of the Customs declaration

- Documentary check Process:
  - Border Control officials retrieve the SAD and the contained electronic SPS certificate identifier
  - Connect to the electronic SPS certificate management system and retrieve either the core data set or a PDF copy of the certificate for validation
  - Information from the core data set or the PDF version of the certificate is then compared manually by the officer with the SAD

- Physical check (Paper documents required by Border Control officials):
  - Above described use of secure verification codes (embedded)
THE IMPLEMENTATION PROCESS
The implementation process

**Imports**
- **What**: Acceptance of eSPS certificates from exporting nations
- **Why**: Safety of imports
  - Proper control
  - Proper implementation of regulations
  - Risk-based import controls
  - Efficiency of import processes

**Exports**
- **What**: Issuance of eSPS certificates to importing nations
- **Why**: More robust export control
  - Efficiency of exports
  - Better reputation as trade partner
  - Fraud reduction
  - Increased revenue

**Import and Exports**
- Safe im/exports
- Efficient administrative processes
- Risk-based controls
- Shorter time to export
- Better trade statistics
The implementation process – two paths: exports or imports

- **SPS certificates for Imports:**
  - Improvement of import controls and better compliance with quarantine regulations are major arguments for the implementation of electronic SPS certificates

- **SPS certificates for Exports:**
  - The process efficiency and the reputation as a trade partner are the main motivations to implement electronic SPS certificates

- **Main area of improvement for imports and exports:**
  - Improvement of trade processes in following areas:
    - Increased efficiency for exporters, inspectors and other stakeholders involved in the issuance and verification of SPS certificates
    - Increased robustness of the certification process resulting in less fraud and increased collection of dues
    - Better reputation as a trade partner resulting in easier marketing of food products and potentially faster border processes

- **SPS for Imports or Exports?**
  - Countries often choose to implement electronic SPS certificates for imports first
    - Dependent on most pressing needs
    - Import/export balance
    - Buy-in of senior management of relevant government agencies
    - Availability of resources
• Electronic SPS for Exports (3 tiered implementation):
  – A system is established to apply electronically for an SPS certificate and to manage the in-country process of inspection and certificate issuance
  – The system is integrated with the Border Control process to increase the efficiency and the robustness of the export process
  – Certificates are exchanged directly with the importing nation, either G2G or G2B2B2G

• Electronic SPS for Imports (3 tiered implementation):
  – The integration of electronic SPS certificates issued by the exporting country into management systems of the Managing Authority of the certificates, often the Ministry of Agriculture and/or Health, in some countries the food safety authority
    • For phytosanitary certificates this would be the NPPO
  – The integration into border clearance processes (e.g. by providing access to the electronic SPS certificate) or eCustoms systems
CONTRIBUTION TO THE NATIONAL ECONOMY
Typical results chain

**Input**
- Feasibility
  - Stakeholder buy-in
  - Funding
  - Specification
- Legal/infrastructure
  - Legality of eDocs
  - SPS arrangements
  - PKI/identification
- Training
  - National awareness
  - Training of officers and inspectors

**Process**
- e-Certificate
  - Specification
  - Implementation
  - Piloting
  - Rollout
- eSPS in Customs
  - Customs buy-in
  - Joint specification
  - Implementation
- eSPS Exchange
  - Bilateral agreement
  - Implementation
  - Piloting
  - Rollout

**Output**
- e-Certificate
  - eApplication
  - eScheduling
  - eIssuance
- eSPS in Customs
  - eCert integrated
  - Risk-based inspections
- eSPS Exchange
  - Bilateral eCert exchange
  - Non-repudiation
  - Pre-arrival checks

**Outcome**
- Safe im/exports
  - Less health risks
  - Good Reputation as trading partner
  - No bio-terrorism
- Legal im/exports
  - Better collection of dues
  - Better reputation
- Less fraud
  - More market
  - Less damage
  - Less health/safety risks

**Impact**
- Improved trade
  - Reduction of poverty
  - Improved realisation of potential
  - Greater satisfaction of citizens
• Public information is not generally available

• New Zealand spent about 13-14m NZ$ from 1999 to 2002 for implementing a country internal system including traceability which amounts to 19-20m NZ$ or 12-13mUSD of today

• About 3.5m NZ$ of that amount was required for the export module, i.e. for secure web access and direct certificate exchange via SOAP

• New Zealand spends about 1m NZ$ annually on maintenance and functionality improvements for the whole system

• The general view was that the implementation cost of the IT system alone is about 600,000-800,000USD
  – Doesn’t include operation nor the cost of driving adoption in-country by importers or exporters, or making bi-lateral agreements with trading partners
Funding the costs

• New Zealand, Australia and other countries have funded the development

• Other countries have used public-private partnerships for the implementation, and in particular operation of electronic SPS certificate systems

• Philippines: the system is developed for the Department of Agriculture by a private partner at no cost to the government. The private partner then raises a transaction fee from traders
  – Typically less than 1 USD per transaction) to fund the development and the operation of the system

• The transaction fee or levy will not cover in all cases the full cost of past development and maintenance or the future evolution of the system
  – The public costs of certificate management, such as negotiations of SPS agreements, are usually not covered by transaction fees
Possible funding model

PUBLIC PRIVATE PARTNERSHIPS

- Taxes
- Levies

- Food safety
  - More trust
  - Avoidance of diseases and pests

- Improved market access
  - Access to high-value markets
  - Differentiation in the marketplace

- Increased export efficiency
  - Easier and faster exports

- Better market-ability
  - Improved reputation as trading partner

- Fraud avoidance
  - Greater total market
## SWOT analysis

<table>
<thead>
<tr>
<th><strong>Strengths</strong></th>
<th><strong>Opportunities</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increased processing efficiency</td>
<td>• Greater reputation as a trading partner</td>
</tr>
<tr>
<td>• Integrity of SPS certificates</td>
<td>• Increased food safety</td>
</tr>
<tr>
<td>• Non-repudiation of SPS certificates</td>
<td>• Less diseases and pests</td>
</tr>
<tr>
<td>• More robust SPS processes</td>
<td>• Less fraud and increased collection of dues</td>
</tr>
<tr>
<td>• Faster trade processes</td>
<td>• Compliance to laws/treaties</td>
</tr>
<tr>
<td>• Compliance to laws/treaties</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Weaknesses</strong></th>
<th><strong>Threats</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Additional cost for IT infrastructure</td>
<td>• Lack of buy-in from senior government</td>
</tr>
<tr>
<td>• Technical capacity required</td>
<td>• Bilateral negotiations slow</td>
</tr>
<tr>
<td>• No off-the-shelf solutions available</td>
<td>• Funding for development and operation</td>
</tr>
<tr>
<td></td>
<td>• Technical threats</td>
</tr>
</tbody>
</table>

**eSPS certificates**
More information available on the eCERT website

The Netherlands Food and Consumer Product Safety Authority have created a website with short movies highlighting the different aspects of electronic SPS certification management systems

Training materials from UNNExT can be found on unnext.unescap.org

The eCERT schema is available from the UN/CEFACT website
ROUND TABLE DISCUSSION
• What are key issues?

• Are the major concerns on imported or on exported goods?

• Can they be addressed by implementing electronic business standards?

• How common is the use of electronic tools in B2G?

• Which nations would they consider exchanging certificates with first?

• Does your country have a National Single Window? If so, are SPS certificates part of that already?
Thank you for your attention!

DISCLAIMER: this presentation expresses the view of the presenter only. In particular, it does not express necessarily the views of cited international bodies and firms.