

Quality information on SPS issues – A pre-requisite for capacity building (STDF 79)**End of Project Report**

This report is the end of project report for STDF Project 79 to record the delivery of the project against planned milestones, and describe ongoing and future developments in the FAO-hosted International Portal on Food Safety, Animal and Plant Health, www.ipfsaph.org

Project name	“Quality information on SPS issues - a pre-requisite for capacity building; support to the International Portal on Food Safety, Animal and Plant Health (IPFSAPH)”
Implementation Agency	FAO - with subcontracted arrangements to OIE and WTO to systematically upgrade their websites to allow integration with other databases
Project supervisor	Mike Robson (AGPP)
Date of Working Group approval	September 2005
Date of start of implementation/ supervision activities	June 2006 ¹ Completed following extension to accommodate OIE work to develop RSS ² feeds, May 2009.
Project description	<p>Access to information relating to standards, regulations and supporting technical documentation is often a critical factor affecting countries’ ability to trade in food and agricultural products. This is factor is particularly relevant for developing countries. Many suffer from a form of “information asymmetry” which can restrict opportunities to trade whereby those without access to information can be systematically disadvantaged through lack of access to trade related information resources on quality and safety standards, associated risk analyses, regulations, certification/documentation, etc.</p> <p>The internet has enabled a radical change in the way information is accessed for use in trade – and some sectors are moving towards electronic certification to facilitate trade³ - but reliable internet access is not available</p>

¹ This was the first project implemented by FAO which required a full project proposal – given the funding amount, this resulted in some administrative delay in becoming operational (NB previous smaller projects had been done as fast track Letters of Agreement).

² RSS – Really Simple Syndication is a means of exporting data systematically from a website for use by other sites and is particularly useful where sites are frequently updated (such as the OIE weekly disease informatio - see <http://en.wikipedia.org/wiki/RSS> for more background

³ See for instance the UN trade facilitation initiatives under UN/CEFACT

	<p>worldwide. In addition, the majority of material published on the internet is in English. Also, tools to identify valuable and definitive sources of data are not always available, with useful material sometimes lost in the sheer volume of information available. To illustrate the latter, search engines such as Google are excellent if the user is searching for a topic which they already know quite well – say material on the implementation of the International Plant Protection Commission (IPPC)’s standard ISPM 15 on wood packaging. However; for generic topic searches - such as “food safety”, “residue limits” or “pest risks” - the user needs to take care in their construction of search strategies if they are to find useful information, in the thousands of pages returned by the search engines. Care is also needed to sort and eliminate material which is outdated or not official, being an interpretation or an unofficial version of an official text.</p> <p>FAO’s International Portal on Food Safety Animal and Plant Health (www.ipfsaph.org), a collaboration between the three standard-setting bodies and the WTO, launched in 2004, provides one comprehensive means of accessing science-based information and data, decisions and guidelines of an intergovernmental nature, as well as an increasing body of national official information relating to food safety, animal or plant health. The majority of the records include metadata in three languages (English, French and Spanish)</p> <p>This project (STDF 79) was designed to make changes to the system underlying the International Portal on Food Safety, Animal and Plant Health to ensure that the system can be easily maintained at minimum cost once significant project funding is no longer available for system development activities, and the system is brought under the regular programme activities of the Codex Alimentarius, the IPPC and the FAO Animal Health Service.</p> <p>The main <i>objective</i> of the project was to reinforce the infrastructure used by the portal. The main <i>output</i> was therefore a modified system for collecting data more efficiently (and with improved quality in terms of accuracy and timeliness) from source sites, and which requires less maintenance effort. At the same time, steps were taken to verify the usability of the existing system with users and make adjustments where needed.</p> <p>A secondary <i>objective</i> was to further enhance the coverage of the system with the inclusion of new data sets as these become available. Here, another <i>output</i> has been a small number of additional new data sets accessible through the portal</p> <p>The work on STDF 79 to minimise long-term system maintenance costs on the portal is now complete.</p>
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Principal achievements, STDF 79**1. Cost reduction through simplification of maintenance**

The previous maintenance cost for the system (programmer time and content manager) was around \$180,000 a year. This figure has now been reduced to around \$80,000, with tasks previously undertaken by the programmer (to update data periodically, by running searches on source sites and importing and checking data) being semi-automated and responsibility largely taken over by the system's content manager with some limited programming back up.

Over 40 pools are now maintained in this way – a pool being defined as a set of records from a source site having the same structure (such as contact point information; standards; SPS notifications, etc). Each feeder system (WTO, Codex, IPPC, OIE, etc) might generate 5 or more pools of data for incorporation in the portal. For reference, pools are of different size with some smaller than 200 records while others are larger than 5,000. Clearly, automation of this process and frequent running of updates where data change frequently has the potential to significantly improve portal content quality.

The maintenance cost figures above are an estimate, given that consultants/programmers continue to be periodically employed to further improve system usability, check data consistency, enhance language coverage, incorporate new material from new countries or associated with projects (such the case of the STDF 127 project in Benin), and to include data from other sources (the most active area being related to food safety assessments of GM products). These tasks would all constitute development rather than maintenance of the system.

However, one indication that the work has had an effect on the maintainability of the system is that when a new content manager was appointed part time to work on the portal in April 2009 (using other funds, in this case through FAO's partnership programme on Biosecurity), she was rapidly able to update the full set of pools with minimal training and some limited programmer support.

It is important to note that not all data maintenance has been automated. Some sites do not yet publish metadata which would allow data to be aggregated systematically.

European Food Safety Authority (EFSA) opinions are the principal data set still maintained manually within the portal (900+ records). Here, the system content manager, with some support, has been provided with tools to be able to create the necessary record description in XML⁴ (essentially the catalogue record for each formal text or regulation, describing subject, commodity, source of document, date, etc, which allows records to be integrated with other portal records for search and navigation purposes) including the URL link to the document on the source site.

The launch of a new EFSA website in 2007 required a rebuilding of the portal's EFSA data pool to fix broken links. Unfortunately, the automation of a data feed for EFSA scientific opinions was not implemented at that time. EFSA have indicated interest in provision of RSS feeds/XML output for their published opinions, but this has apparently not yet been programmed into their work plans.

⁴ The use of XML – extensible markup language is explained succinctly in the attached presentation – <http://www.mulberrytech.com/papers/WhatIsXML-at-XplorMA/>

2. More general improvement in information sharing

Efforts have been made to encourage webmasters and data owners to publish their data with associated metadata to facilitate access by other sites. This is in the general interest – by doing so webmasters will be making data more generally accessible to web users (and not just to IPFSAPH!). Rather than see this as losing control of their on data, web publishers have come to realise that making this information available – along with URLs for documents or reports from their site - is a means of generating new traffic in terms of visitors.

One anticipated benefit of the project, not originally included in the project justification, was that the project would act as a spur to some of the important data owners relevant to food safety, animal health and plant health standards and regulations to modernise their sites in the interests of improved systematic sharing of information.

Two major modernisation projects with WTO and OIE took place during the period of the project (in addition to work within the FAO standard setting bodies). In both cases, the IPFSAPH team (content manager and programmer) helped in the early stages to develop requirements for new external users to access data more systematically. The project also provided limited funds to enable subsequent programming work to take place.

In fact, it was to accommodate the completion of the second of these (the work on the OIE website) that the final project end date was delayed on a couple of occasions. The essential component was not finished until May 2009 with the launch of the OIE RSS feeds from the main OIE website – with work to incorporate this data subsequently required on IPFSAPH.

3. Improved system usability

A new interface design and additional functionality was completed and rolled out at the start of July 2008. This had been preceded by usability studies with users (relevant individuals attending FAO HQ meetings) being interviewed while using the portal, and an online survey, building on some innovative earlier work by B. Richards. A key feature of the 2008 re-design included the development of clearer XML-based interoperability services so external, third-party, databases can set up direct feeds from the portal via RSS.

This aspect of the portal development is constantly under review, and a quality review conducted in October 2009 highlighted a number of areas where apparent inconsistencies need to be addressed, and where the user interface could be further improved. These will be implemented over the coming months.

Detailed activities

The core activities involved in this project have been to work with programmers to analyse the precise requirements for data uploading routines for the various pools. The task of programming and testing then falls to programmer, with the user (or content manager) finally verifying results. Once requirements have been tested, new routines have been transferred to the production environment of the portal and used for maintenance.

The portal is one of a set of systems developed for content management by FAO's in-house Information Systems team from around 2001 onwards. Given that 10-12 systems shared the same system architecture, this was a cost-effective decision. The portal uses a standard set of open source tools (Java programming language; MySQL as database).

It is not proposed here to document the detail of the system development process, or describe the various interim system releases and testing which took place (largely between 2006 and 2008). What is worth noting is that - as with many system projects - although programming is a significant component in the cost, an equal or even larger proportion of the resources used have been devoted to content management activities (defining requirements and testing for data loading routines, as well as identifying new source sites, data quality analysis, usability testing and usage analysis). During the period of the project (from 2006), the content management role was played ably by A. Poulos, then J. Jackson (with support from M. Robson) and is now discharged by J. Crews.

An additional factor in portal maintenance has been redesign work on source sites. Already mentioned with regard to the EFSA pool of scientific opinions, such redesigns can cause links to break. Where sites are closely related, this is easier to manage – and work has been done with the Codex Secretariat to enable improved interoperability with the portal as the Codex website has been updated. At the same time, the IPPC website, the “International Phytosanitary Portal” has also evolved considerably during the course of the project, mainly with its own funding, which in turn has entailed work on the IPFSAPH portal.

In summary, as of 27 November 2009 IPFSAPH contains 41,902 records (representing a 60% increase since January 2007), derived from 56 data pools. Specific work on the different pools has included the following:

- **WTO Specific Trade Concerns, Notifications, Documents, Enquiry Points and National Notification Authorities (NNAs)** – WTO launched its new SPS Information Management System in October 2007. Working closely with WTO, the IPFSAPH team successfully completed mapping to and automatic harvesting of data from the WTO system, with full integration and publication into IPFSAPH of nine new WTO related data pools in April 2008.
- **OIE Weekly Disease Reports** – A key original project activity was for OIE to develop a web service utility to enable automated and systematic access to specific metadata on OIE official weekly disease reports. Ongoing dialogue with OIE in 2007 and 2008 (a period where the organisation continued to be heavily committed to globally combating Highly Pathogenic Avian Influenza) eventually resulted in a Letter of Agreement between FAO and OIE being drawn up, and submitted to OIE for signature in early September 2008. The work was finally completed by the time of the annual OIE meeting in May 2009 when the RSS feed was finally launched.
- **General Standard on Food Additives & Joint Expert Committee on Food Additives (JECFA) Online Databases** – All current JECFA specifications for food additives, flavouring agents, and residues of some veterinary drugs in animals and foods, and the Codex General Standard for Food Additives database, have been incorporated into the portal since late 2007.
- **International Atomic Energy Agency (IAEA) Clearance of Irradiated Foods Database** – New data set added via automated web services linkage with IAEA’s Nuclear Clearance of Irradiated Foods Database completed in January 2008.
- **Food Safety Assessment of Foods Derived from r-DNA Plant Material** – In September 2007, FAO/IPFSAPH was requested by the Codex *ad hoc* Intergovernmental Task Force on Foods Derived from Modern Biotechnology to design, develop and host a publicly accessible information and data sharing mechanism for food safety assessments in

situations of low-level presence of recombinant-DNA plant material in food. In close collaboration with OECD BioTrack, and via semi-automated and automated data linkages to the CBD Biosafety Clearing House, Food Standards Australia and New Zealand and the EC Register of GM Food and Feed this was successfully put into production in July 2008. This additional task highlights the flexibility and scope of IPFSAPH, as well as its ongoing utility. This data set will continue to be maintained and reinforces the commitment of Codex to the portal.

- **Biosafety Clearing House National Focal Points** – New data set added via automated web services arrangement from August 2008 with the Cartagena Protocol of the Convention on Biodiversity.
- **Keyword Ontology** - This has recently been revised and corrected to take account of new subjects (e.g. ‘nanotechnology’ and ‘cloning’) and to expand the scope of subject issue keywords used by IPFSAPH.

In addition, the www.ipfsaph.org interface has been completely redesigned to make it more user-friendly and to give it a more inviting visual identity. Most importantly, the redesign has ensured that the IPFSAPH’s core role, as a search engine for SPS related official information has been brought to the fore. The design places far more emphasis on search rather than navigation to find content, which in a data set of over 40,000 records is really the most practical option

A number of related promotional and training materials have also been produced:

- A downloadable user guide in English, French and Spanish has been updated;
- Information display stands for use at international meetings;
- A general information brochure/leaflet in English, French and Spanish.

Finally, the International Phytosanitary Portal (IPP), with which IPFSAPH has automated feeds for plant health related reports, standards, notifications etc., recently confirmed that it is expecting to automate data feeds from various regional Plant Protection Commissions including the Asia and Pacific Region Plant Protection Commission (APPPC), the European and Mediterranean Plant Protection Organization (EPPO) and the North American Plant Protection Organization (NAPPO, including www.pestalert.org). This will facilitate IPFSAPH’s automated access to the same data, via the IPP, and without any significant additional programming work.

Impact

The main purpose of this project has been to make IPFSAPH more easily maintainable and less reliant on manual updating, thus reducing resource costs.

These fundamental objectives have now largely been achieved through system architecture enhancements, and via increased use of automated web services arrangements developed in close collaboration with various international organizations including WTO, OECD and IAEA.

The benefits of using web services technology to enhance information exchange mechanisms and support applications such as IPFSAPH have been clearly demonstrated. Ongoing running costs have been reduced by around half, and data quality and consistency have been improved.

Portal promotion has been limited during the period 2008-09, and so inevitably usage figures have fallen 50% from the 2008 norm. However, data still indicates around 25,000 unique external visitors are still requesting around 100,000 page views⁵ per month. Visitor demographics show OECD countries as the main user base, although countries such as Argentina, Brazil, Chile, China, Colombia, Ecuador, Nepal, Peru and South Africa have increased their usage, and each now accounts for between 0.5% and 1% of the monthly user base.⁶

It is anticipated that with renewed funding which has now been received, and the additional data sets and features which are currently being developed and launched, that traffic will recover to nearer the 50,000 level for users and 200,000 for page views, which were normal earlier in 2008.

Recommendations

Maintaining a database over a period of time requires constant attention to users' changing needs. This is particularly so in the case of a fast moving topic such as trade regulations and standards.

For a portal to continue to be a useful resource it must provide something more than what is already published by the source sites. Searching must allow users to juxtapose records from different sources, and/or identify relevant texts in different languages.

The following are worth noting::

- new sites continue to become available relevant to standards and regulations affecting trade – one such is the Expanding Exports Help Desk of the EU – and which complement the data sets in the portal.
- private standards play an increasing role in trade – how can the portal facilitate access to these in an appropriate manner?
- private sector producers are increasingly keen to ensure that the supporting science which effectively endorses their products as safe or nutritious is highlighted – this must be handled sensitively if the whole data set is to retain the integrity implicitly associated with being hosted by an intergovernmental body (FAO)
- opportunities continue to arise for the portal in STDF projects – this may as a tool to be used during project activities, or as a repository for information related to national standards and regulations generated as a result of the projects. An example of this would be the information component of the project work in Bénin.
- efforts continue to ensure that the portal is included in training courses, diplomas, university courses, etc. as an information resource alongside Codex, IPPC and OIE websites.

As indicated above a number of actions are now ongoing, beyond the conclusion of the project. The portal enjoys the attention of an enthusiastic new content manager, and supplementary funding from the FAO Partnership Programme (\$90,000 during 2009), and Trust Fund contributions by the International Life Sciences Institute (\$40,000), as well as a

⁵ This figure excludes web crawlers, spiders and robots and internal FAO page views.

⁶ It should be noted that on average ~25% of pages viewed cannot be identified by source country.

limited amount from FAO regular programme (as a small proportion of time of a P-3 technical officer).

Following the first five years of operation, the first quarter of 2010 would provide a good opportunity to take stock and review the usefulness of the system with key stakeholders (perhaps on the margins of a scheduled SPS or STDF meeting), preceded by some work to survey users (already in workplans submitted by J. Crews, Sept-Dec 2009). This would be an opportunity to confirm directions or re-orient the system to ensure that it continues to deliver a useful service. In this context, a user group (of the main data owners and end users) could be assembled to facilitate discussion and ongoing dialogue could continue online without the need for additional costly meetings.