Agricultural Information Worldwide

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Vol. 1, no. 3 ▪ 2008

From the Editor's Desk

It seems that I have come full circle. In 1990 I accepted the editorship of the *Quarterly Bulletin* and that began my involvement in IAALD. Here I am 18 years later once again editing an issue of the journal. I had forgotten how time consuming but rewarding the process is. It takes about 50 hours of the editor's time to complete the entire process. Add in the time of the type-setter (about 40 hours) and the proof reader (about 15 hours) you can see that a lot of effort goes into each issue of the journal. It is truly a labor of love.

This issue was an exciting issue for me to work on. As I began reviewing the manuscripts a definite theme emerged. In this age of high technology it is important that we continue to use appropriate technology to provide information. It is not always the latest and greatest technology that provides the best vehicle to transfer information but at times the old "tried and true" technologies meet the needs. This issue of *Agricultural Information Worldwide* covers a wide range of technologies providing information around the world. Two of the three articles and all of the *AgInfo Dispatches* were papers presented at the IAALD World Conference held at Tokyo University in August. The complete citation for the full paper appears at the end of each article or dispatch.

The issue provides insight into enhanced websites, people-to-people exchanges, using videos, and a system that uses the web to find information but printing it out and giving it to people who do not have web access. The issue highlights that information continues to be distributed in many packages in our world. Our *AgInfo Dispatches* also focus a variety of topics. The first dispatch details the impact that electronic journals have had on a research center and how they do business. The second discusses a joint web product and the complexity of offering such a product while the third highlights a product that provides events from around the world at your fingertips.

This is an exciting time for our profession. There are many new products but we still need to be reminded that at times, the technology developed in the past works best. Above all this issue illustrates that people are still the most important part of the equation. It takes an army of people to create and maintain websites, create videos, and provide information. The products may have changed but the need for people has not. The future is bright for the information professional. We are the ones who will be able to guide the information producer as to what technology is appropriate and then promote the product to our users. The information industry is a true partnership and there is a place for all of the players.

I want to wish each and every one of you a peaceful and fruitful 2009.

Antoinette Paris Greider
Guest Editor

ATTENTION IAALD MEMBERS —
We need your correct e-mail address as
IAALD is Moving Toward e-Voting!

The IAALD members in attendance at the
general membership meeting voted to conduct an e-vote
of the entire membership establishing an e-voting procedure to
allow us to conduct elections, do general organizational business, and
anything that requires a vote by the membership via electronic means.

To make sure we have your correct address, please do the following:

- Send an e-mail to Toni.Greider@iaald.org
  from the e-mail account where you wish to receive your e-ballot.

- Use the subject "e-voting for IAALD" in the subject line.

- Send the e-mail by April 15, 2009.

THANK YOU FOR YOUR HELP.

GFIS – The Global Forest Information Service: Gateway Development Through Global Partnership

Eero Mikkola and Roger Mills

abstract: The Global Forest Information Service (GFIS) provides a framework for sharing forest-related data and information through a single gateway. It promotes the dissemination and sharing of forest and tree-related information and knowledge among the global forestry community by developing common information exchange standards, building capacity and enhancing partnerships among the entire forest community of practice—both information providers and information users. GFIS has been developed over the past decade in an iterative process informed by major stakeholders, under the leadership of the International Union of Forest Research Organizations (IUFRO). This article describes the history, organizational structure and technical requirements for GFIS, and plans for its future development.

resumé: Le Service mondial d'information en science forestière (GFIS) fournit un cadre de travail pour partager les données et l'information en science forestière à travers un portail unique. Il promeut parmi la communauté globale en foresterie, la diffusion et le partage de l'information et de la connaissance dans le domaine de la foresterie en développant des standards pour l'échange d'information, en développant les capacités, et en améliorant les partenariats entre les communautés de pratique forestière—aussi bien les fournisseurs que les utilisateurs d'infor-

mation. Le GFIS a été développé ces dix dernières années, à travers un processus interactif nourri par les principaux actionnaires, sous la direction de l'International Union of Forest Research Organizations/IUFRO. Cet article décrit l'histoire du GFIS, sa structure organisationnelle, les conditions techniques requises, et les plans pour son développement futur.

resumen: El Servicio Mundial de Información Forestal (GFIS, sus siglas en inglés) proporciona un marco para compartir datos e información relacionados con bosques a través de un solo portal. El GFIS promueve la difusión y participación de información y conocimientos relacionados con bosques y especies arbóreas entre la comunidad forestal mundial al desarrollar estándares comunes para el intercambio de información, el fortalecimiento de capacidades y el mejoramiento de las asociaciones colaborativas entre toda la comunidad de práctica forestal tanto los proveedores de información como los usuarios de información. En la última década, el GFIS se ha desarrollado dentro de un proceso iterativo informado por importantes grupos de interesados directos, bajo el liderazgo de la Unión Internacional de Organizaciones de Investigación Forestal (IUFRO, sus siglas en inglés). Este artículo describe la historia, la estructura organizacional y los requerimientos técnicos del GFIS, al igual que los planes para su desarrollo futuro.

Background

Improving access to forest information was formally recognised as a priority by the United Nations Conference on Environment and Development in 1992 when it stated in Agenda 21, Chapter 40: *Existing national and international mechanisms of information processing and exchange, and of related technical assistance, should be strengthened to ensure effective and equitable availability of information generated at the local, provincial, national and international levels …"* (UNCED, 1992).

The initiative was taken forward in 1998 when the International Consultation on Research and Information Systems in Forestry (ICRIS) held in Gmunden, Austria, recommended that the Intergovernmental Forum on Forests (IFF) should "endorse and promote the development of a Global Forest Information Service to enhance access to all forest-related information, ensuring that it is accessible to all stakeholders including policy-makers, forest managers, non-governmental organizations (NGOs), community groups and the public at large" (ICRIS, 1998). As a consequence, the Intergovernmental Forum on Forests (IFF) called for promoting the provision and efficient sharing of existing information and the strengthening of networks, and specifically "requested ITFF (Inter-agency

Task Force on Forests) member organizations to work with IUFRO (International Union of Forest Research Organizations) in exploring possibilities for a global forest information service" (IFF, 1999).

In implementing the request of IFF, IUFRO initiated various activities to establish a Global Forest Information Service—GFIS. These included the establishment of a GFIS Task Force, the development of a GFIS information server, the development of a web interface as well as the implementation of the "GFIS Africa" project (Sraku-Lartey, 2006) to strengthen institutional capacities in developing countries. In order to develop the GFIS prototype significant investments were made by IUFRO and IUFRO members. Substantial in-kind contributions have been made since 1998 by key partners, including CIFOR (Center for International Forestry Research), FAO (Food and Agriculture Organization of the United Nations), EFI (European Forest Institute), Metla (Finnish Forest Research Institute), CABI, Oxford University, the USDA Forest Service, NBII (National Biological Information Infrastructure), the Canadian Forest Service and WCMC (UNEP World Conservation Monitoring Centre). See Table 1 for the 2008 contributors.

The first version of GFIS was presented at the IUFRO European Conference in Copenhagen, Denmark, in August

TABLE 1 – Contributors to GFIS Funding for 2008

Bundesministerium für Land-und Forstwirschaft, Umwelt und Wasserwirtschaft (BMLFUW) –
http://www.ebensministerium/at/en

International Tropical Timber Organization (ITTO) – http://www.itto.or.jp

Korean Forest Research Institute (KFRI) – http://www.kfri.go.kr
(has provided US$100,000 yearly during last five years)

In-Kind Contributors

Center for International Forestry Research (CIFOR) – http://www.cifor.cgiar.org

Finnish Forest Research Institute (METLA) – http://www.metla.fi/index-en.html
(providing 10 months of staff time as an administrator)

Food and Agricultural Organization of the United Nations (FAO) – http://www.fao.org

International Union of Forest Research Organizations (IUFRO) – http://www.iufro.org

The Biological Informatics Office of the United States Geological Survey – http://biology.usgs.gov

United Nations Forum on Forests (UNFF) Secretariat – http://www.un.org/esa/forests/

2002. The GFIS prototype was also successfully demonstrated at the XII World Forestry Congress in Quebec, Canada, in September 2003. It included contributions from about 60 forestry institutions from all regions of the world.

In May 2004, the Collaborative Partnership on Forests (CPF), successor to the ITFF, agreed that the Global Forest Information Service should become a joint CPF initiative. CPF is an innovative interagency partnership of 14 major forest-related international organizations, institutions and convention secretariats. Its objectives are to support the work of the United Nations Forum on Forests (UNFF) and its member countries and to enhance cooperation and coordination on forest issues for the promotion of sustainable management of all types of forests. The UNFF6 resolution (UNFF, 2006) explicitly mentions the support by the UNFF process for the continuation and development of GFIS as a means to promote the exchange of forest management-related experience and good practice. Like other CPF initiatives, GFIS builds on contributions from CPF members under its overall guidance.

In response to the request of the CPF, IUFRO in close collaboration with FAO and CIFOR, prepared a concept paper for the further development of GFIS as a joint CPF initiative. Based on this concept paper the initiative was approved at the 13th Meeting of the CPF on 6th September 2004 in New York (CPF, 2004). Today, the initiative is led by IUFRO, together with FAO, CIFOR, the UNFF Secretariat and the USGS/BIO (Biological Informatics Office of the United States Geological Survey).

The new GFIS search service at http://www.gfis.net was originally launched at the XXII IUFRO World Congress in Brisbane, Australia, 8–13 August 2005. The GFIS gateway catalogued key information resources, such as news, events, publications and job vacancies supplied by information providers. An upgraded version of the gateway was launched in early 2007. An improved search tool

and windows to the latest news, events, publications and job opportunities gives more visibility to GFIS information providers. The technical development and maintenance of the current GFIS gateway is being carried out by the Finnish Forest Research Institute (Metla).

Information Resources

The information resources accessible through GFIS are freely available, and provide direct access to the original information. GFIS offers information exchange and dissemination tools for partners to share their information resources easily through the gateway; it is an open system to which information providers, using agreed information exchange standards, may contribute content. GFIS defines metadata elements that are intended to assist contributors in increasing access to their materials.

Currently, GFIS supports the following types of information: *News*, *Events*, *Recent Publications*, *Library and Document Collections*, *Datasets and Databases* and *Job vacancies*, providing a powerful search tool and browsing capability.

GFIS as a Partnership

GFIS is built as a global partnership, across sectors and institutions, and aims to maximize the value of all forest information resources and providers worldwide. Through a bottom-up approach, partners determine the volume, coverage and type of information they would like to share through GFIS. Partnership arrangements assist in identifying key information resources and in using common formats, means and methods by which the information is made available to GFIS. The underlying assumption behind the development of GFIS is that its partners have a common need for information sharing that can be addressed most effectively through col-

laboration. Towards this end, GFIS seeks to develop a system of partnership with a variety of organizations and levels of participation that form the GFIS community, including both information providers and users through appropriate capacity building measures.

Information providers benefit in many ways, including better visibility and recognition of their information products and an increased number of potential users. Organizing information for external use will also often help to improve internal information management and build related capacity. Closer cooperation and networking with other information providers and partners around the world maximises the value of their work and brings new opportunities for collaboration. For information users, the gateway increasingly affords a 'one-stop shop' for a wide variety of forest-related information which would otherwise be retrievable only by searching many different resources and of which much, in all probability, would never be found. The audience for individual items is thus significantly widened, and penetration into other disciplines enabled. The private sector will be provided with quality information and educators will retrieve relevant and stimulating training resources.

Organizational Structure

The development and enhancement of GFIS follows an iterative and incremental approach whereby partners contribute to system and partnership enhancements, as well as capacity building efforts to strengthen developing countries' participation in GFIS. Participating in GFIS is voluntary, but it implies a certain commitment in terms of data provision and support and promotion of the service. Continuous system development and maintenance will ensure that GFIS takes advantage of new innovations in web services.

A Steering Committee (SC) has been established to provide strategic guidance to GFIS; this is chaired by IUFRO and has members representing CIFOR, FAO and the UNFF Secretariat. Its responsibilities include the formulation of policy and strategic directives; review and approval of work plans and budgets; formulation of fund raising objectives and assistance in mobilising financial resources; monitoring of progress; communication with CPF members; and building of political support among donors and key partners.

At the operational level, GFIS is led by the Implementation Group (IG) which is responsible for developing, implementing and maintaining GFIS. Its major tasks include the development of work plans and budgets; development of technical solutions for metadata standards, exchange protocols, thesauri etc.; mobilising appropriate personnel for implementation of tasks; identification of and engagement with potential GFIS partners; monitoring of progress of work; and reporting to the Steering Committee.

Membership of this group is drawn from CIFOR, FAO, IUFRO, and NBII. Papers of both groups are available at http://www.gfis.net/gfis/documentation.faces.

Organisations providing pivotal contributions for the maintenance and further development of GFIS are called *GFIS Partners*; these are listed at http://www.gfis.net/gfis/contributors.faces. They belong to the core group of organisations within the GFIS community that steers, manages and operates the system. Partners have a major interest in forestry information dissemination and sharing, and seek to invest into a coordinated approach so that all partners receive greater benefit than they would without this collaborative effort. Each Partner will identify their goals for participation in GFIS, including an explanation of how GFIS fits within their business plan or initiative, and how they can contribute to the GFIS goals.

A network of national/regional Support Organisations with expertise in information management and dissemination helps new information providers in using the GFIS tools and developing metadata. In addition to generating and organising their own forest-related metadata for uploading to GFIS, these partners also assist other information providers in their country or region in mobilising information resources. This role is particularly important in developing regions where many of the potential GFIS Information Providers do not have the capacity and infrastructure to create quality metadata and upload them directly to GFIS. While being Information Providers themselves, these organisations provide additional contributions to GFIS in terms of personnel, expertise and/or financial resources.

Organizations that collect and maintain forest-related information and make it available to GFIS are known as Information Providers; there are currently over one hundred of these. It is the responsibility of the information provider to supply, update and upload metadata records onto the system on a regular basis. All organizations providing and maintaining forest information resources are GFIS Information Providers (Table 2).

Table 2 – GFIS Partnership by Region

Region	Number of Organizations
Africa	5
Asia	22
Europe	43
North America	13
Oceania	7
South America	15
Global	4
Total	109

For a current and complete list of GFIS Partners, Support Organizations and Information Providers see http:/www.gfis.net/gfis/partners.faces

Technical Structure

The GFIS gateway is a web application for searching and indexing forest related information from different information categories. GFIS gathers metadata from its Information Providers. The technical process of providing information is as follows:

Step 1: An Information Provider prepares an electronic document containing forest-related information and makes it available on the Internet.

Step 2: At the Information Provider's website an XML feed is created which is a file containing metadata of individual information resources. Once a new information resource has been described with the help of the required metadata elements (e.g. title, link, date of publication, etc.) these data are added into the XML feed.

Step 3: In order to register the XML feed(s), the Information Provider needs to access the GFIS website and fill in the respective account registration form, sign into the system and then add the URL of the XML feed to the registered account by using the Feed Settings available on the website.

Step 4: GFIS harvests the feeds linked to the harvester regularly by collecting the elements contained in the feeds and stores them locally in a search index.

GFIS users search for information by entering keywords into the GFIS search box on the screen. GFIS identifies those records that match the keyword and then presents the results in a tabular form. Results contain links to the original documents. In addition, the latest news items, events, publications and job vacancies available in the system are displayed on the home page. Records are continuously updated based on the latest incoming available information resources.

The information types used by GFIS and their information exchange schemata are maintained by the GFIS Implementation Group. Four of the current information types (News, Events, Recent publications and Job vacancies) are supplied via RSS feeds. The exchange formats are based on the RSS 2.0 Specification (http://www.rssboard.org/rss-specification) and the DCMI Element Set (http://dublincore.org/documents/dces/) using the UTF-8 character set. Providers set up their own feeds following the specifica-

tion (examples are provided on http://www.gfis.net/gfis/exchange.faces) and enter the url(s) in their GFIS account. GFIS is then able to harvest the feeds periodically and store new information for searching. All items in a feed must be of the same information type and in the same language; so for example, for creating feeds for news and events in two languages, four different feeds need to be prepared, namely one news feed in English and one in Spanish, and one event feed in English and one in Spanish. The language used in the feed must match the language used on the target resource (Figure 1).

As an international service, GFIS provides the option to select different languages for the interface: at present, English, French, and Spanish (the GFIS 'official' languages), plus German and Finnish; results are presented in all languages, but can optionally be filtered so that the user sees only results in his chosen language, though this may lead to zero hits in some cases.

The News feed specification is very simple, requiring

FIGURE 1 – GFIS Home Page

only title, link, description and publication date. News as defined in the GFIS context concerns any information about recent events or happenings in the field of international forestry. This can include, but is not limited to, information about forest resources, their users and institutions that are involved in forestry.

The Events Feed adds, as a minimum, a 'coverage' element including the dates and location of the event, and possibly also responsible agents, links to related meetings and resources of the meeting. The AG-Event Application profile developed jointly by GFIS and AgriFeeds aggregator (http://www.agrifeeds.org/) can be used. GFIS defines an event as "an activity where participants come together physically or in cyberspace and discuss one or several pre-set issues. An event is open for participants outside the hosting organization. The event may or may not be open to anyone interested. Events include, but are not limited to, exhibitions, on-line meetings, conferences and workshops".

The Recent Publications feed adds creator and subject elements to the basic News template and is intended for syndication of the "content alert" type of feeds provided by various publishers of forestry journals and organizations publishing important policy documents.

The Job Vacancies feed is similar to the Events feed and the AG-Event AP is also applicable. A job vacancy announcement in the GFIS context is a brief description of a post with specific terms of reference within the information provider institution. The announcement includes details of the closing date for applications.

The other two information types currently supported, datasets and databases and Library and document collections differ somewhat from RSS based information types, in that information providers add their information to external systems rather than direct to GFIS. datasets and databases are based on the NBII Clearinghouse information system (http://far.nbii.gov/portal/community/Communities/Toolkit/Metadata/FGDC_Metadata/Clearinghouse/) using the USGS/BIO/FGDC Application Profile, and the Library and Document Collections are based on FAO's AGRIS information system (http://www.fao.org/agris/) using the USGS/BIO/FGDC biological data profile. Forest-related information added to these systems is searchable through GFIS.

GFIS defines datasets and databases as follows: A dataset is information encoded in a defined structure (for example, lists, tables, databases), intended to be useful for direct machine processing. It is any resource that is a collection of pieces of data (raw or statistically analyzed). Also, a multi-dimensional array of data elements that is logically related, and arranged in a prescribed format. Datasets may be spatial (a collection of logically related features arranged in a prescribed manner, such as water features), or tabular/relational (a file, a spreadsheet, data in a table or relational database). Elements in a dataset may include values, measures, points, coordinates, conditions, qualities, frequencies or attributes that

are a result of an observational study. GFIS accesses its datasets from the NBII (www.nbii.gov) and has adopted the USGS/BIO/FGDC biological data profile.

A database is a collection of related information, organized and presented to serve a specific purpose, and which allows for rapid query and retrieval. It is a large collection of data in a computer, organized so that it can be expanded, updated, and retrieved rapidly for various uses. A database allows a user to search records that are stored on a server. These records are created by some type of back-end software solution (examples are Access, SQL, and Oracle). Users can query against one or more record elements. Results are usually displayed as dynamic output. By comparison, a search engine is searching only Web pages (not database records) that match your query.

GFIS Searchable Content

GFIS currently has over 10,000 RSS items

(6,000 news, 150 coming events, 4,000

recent publications, 2–5 job ads);

1000 data sets/databases and

200,000 library document collections.

Library and document collections, as a specific resource type in GFIS, means books (textual material that is monographic in nature) and continuing resources (textual items with a recurring pattern of publication often referred to as "serials", e.g., periodicals, newspapers, yearbooks, etc.). These can be print or electronic publications. Data exchange specifications are built on Dublin Core Metadata Element Set, Version 1.1: Reference Description. Where applicable, refinements and qualifiers based on the Agricultural Metadata Element Set (AgMES) have been applied. For further details see http://www.gfis.net/gfis/pdf/AGRIS_guidelines.pdf.

Vocabularies and Code Lists

GFIS supports the use of controlled vocabularies and numerical classification to improve precision in searching; however, much work remains to be done in implementing this. At an early stage in GFIS development it was clear that no existing vocabulary would satisfactorily cover the subject area at an appropriate level of granularity and in sufficient languages; and that the IUFRO *Forest Decimal Classification*, although covering the required subjects was in need of updating. Work on the latter is now in progress and the first version of the new *Global Forest Decimal Classification* (GFDC) (Holder, 2006) has been published; the Implementation Group has agreed to its use in GFIS. For the controlled vocabulary, a new *Multilingual Forestry Thesaurus (MFT)* is to

be produced (see http://www.gfis.net/gfis/pdf/GFIS_WP13.pdf, pp.13–14).

Capacity Building

Training is considered a key strategy in promoting GFIS among information providers and users. Depending on the target audience, training courses offer general information about GFIS and its use in information resource discovery and access as well as more in-depth training for Information Providers, focusing on the GFIS information exchange standards and dissemination of forest information resources. It is important that each information provider maintains its own staff trained in GFIS approaches and methods, who can organise their information resources and create and submit metadata.

Examples of training-related activities include:

- Developing a GFIS annual training plan;
- Compilation of training material for a course on "Use of information and communication technology tools in dissemination of forest information";
- Seeking financial resources for training of potential information providers from developing countries (in close cooperation with IUFRO-SPDC and others);
- Implementing regular training courses for Information Providers and users, (e.g. in conjunction with forest-related meetings of IUFRO and other international expert institutions).

Monitoring and Evaluation

The GFIS Coordination Unit follows usage of the gateway monthly and reports to the Implementation Group regularly. The usage statistics show duration of visits and last visits, authenticated users, and last authenticated visits, days of week and rush hours, domains/countries of visitors, etc.

A GFIS user needs assessment will be carried out regularly to identify current and potential GFIS Information Providers and users; to determine those customers' information needs, sources, and behaviours; and to assess their view of existing and potential GFIS services.

The Future

The immediate task for GFIS is to build content in the information types currently covered, but others will be added in due course and those under consideration include Contacts, Country Data, Courses/Education, Dictionaries & Terminology, Images, Interactive Resources, Projects/Programmes, Site Data, Software, Sound, Species Data and Web Pages. In order to keep the GFIS information exchange standard user-friendly for information providers, however, the number of different metadata specifications/schemas needs to be limited. Experience has shown that complexity inhibits participation.

Additional language variants will be added to the interface as content in that language warrants; South Korean, Russian and Chinese providers are particularly keen to have interfaces in their own languages. Quality control issues also need to be addressed, including the implementation of a GFIS RSS generator application. GFIS RSS feeds will be generated from content provided by information provider partners. A customizable home page will be introduced allowing users to tailor its design to their own interests, and an event planning function implemented.

Join Us!

Gateways only have value if they are used, so if you have an interest in forest-related information do visit www.gfis.net regularly and if you have relevant information to contribute, please consider becoming an Information Provider; you can register on-site, and ongoing help and support is readily available. We look forward to your participation!

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UNFF. 2006. Report of the United Nations Forum on Forests Sixth Session. E/CN.18/2006/18 E/2006/42(SUPP) Resolution 22(b), p.8

Acronyms and URLs of organisations involved in GFIS

Austrian Government – http://www.austria.gv.at/

BMLFUW – *Bundesministerium für Land-und Forstwirtschaft, Umwelt und Wasserwirtschaft* – http://www.lebensministerium.at/en/

CABI – http://www.cabi.org

CFS – *Canadian Forest Service* – http://cfs.nrcan.gc.ca/?lang=en

CIFOR – *Center for International Forestry Research* – http://www.cifor.cgiar.org/

CPF – *Collaborative Partnership on Forests* – http://www.fao.org/forestry/cpf/en/

FAO – *Food and Agriculture Organization of the United Nations* – http://www.fao.org/forestry/home/en/

FGDC – Biological Metadata Profile, Federal Geographic Data Committee – http://www.fgdc.gov/library/factsheets/documents/metaprof.pdf

FOEN – *Federal Office for the Environment* – http://www.bafu.admin.ch/index.html?lang=en

GFIS – *Global Forest Information Service* – http://www.gfis.net

ICRIS – *International Consultation on Research and Information Systems in Forestry* – http://www.iisd.ca/sd/iufro.html

IFF – *International Forum on Forests* – http://www.un.org/esa/forests/documents-iff.html

ITFF – *Interagency Task Force on Forests*

ITTO – *International Tropical Timber Organization* – http://www.itto.or.jp/

IUFRO – *International Union of Forest Research Organizations* – http://www.iufro.org/

IUFRO-SPDC – *International Union of Forest Research Organizations Special Programme for Developing Countries*

KFRI – *Korea Forest Research Institute* – http://www.kfri.go.kr/

Metla – *Finnish Forest Research Institute* – http://www.metla.fi/index-en.html

NBII – *National Biological Information Infrastructure* – http://www.nbii.gov/

OFIS – *Oxford Forest Information Service* – http://www.ouls.ox.ac.uk/isbes/ofis

OULS – *Oxford University Library Services* – http://www.ouls.ox.ac.uk/

UNCED – *United Nations Conference on Environment and Development* – http://www.un.org/geninfo/bp/enviro.html

UNFF – *United Nations Forum on Forests Secretariat* – http://www.un.org/esa/forests/

USFS – *United States Forest Service* – http://www.fs.fed.us/

USGS/BIO – *Biological Informatics Office of the United States Geological Survey* – http://biology.usgs.gov/

WCMC – *United Nations Environment Programme World Conservation Monitoring Centre* – http://www.unep-wcmc.org/

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Information Seeking and Use Among Urban Farmers in Kampala District, Uganda

Helen M. Byamugisha, Robert Ikoja-Odongo, George William Nasinyama, Shuaib Lwasa

ABSTRACT: This paper presents preliminary findings on information searching and acquisition strategies that contribute to the urban food insecurity among urban farmers in the Kampala district of Uganda. Although useful agricultural information is constantly generated and is available in agricultural research institutions, public research and university libraries, and nongovernmental organizations, urban farmers in Kampala district do not readily access these information resources for better agricultural production. This is partly because much of this information is only available in printed documents or in machine-readable formats. Preliminary findings of the study indicate that farmers use different strategies for seeking information and mainly depend on oral sources of information. They prefer local languages and the extension service in accessing information, and encounter various problems when searching for and using information.

RESUME: Cet article présente les résultats préliminaires sur les stratégies de la recherche et d'acquisition qui contribuent à l'insécurité alimentaire urbaine parmi les agriculteurs urbains du district de Kampala en Ouganda. Même si l'information agricole utile est générée constamment et est disponible dans les institutions de recherche agricole et de recherche publique, ainsi que dans les bibliothèques universitaires et les ONGs, les agriculteurs urbains du district de Kampala n'accèdent pas facilement à ces sources d'information pour une meilleure production agricole, parce qu'en partie, cette information est seulement disponible sous forme de documents imprimés ou sous format lisible par la machine. Les résultats préliminaires de cette étude indiquent que les agriculteurs utilisent différentes stratégies pour chercher l'information et dépendent principalement des sources d'information orales. Ils préfèrent utiliser les langues locales ou les services de vulgarisation pour accéder à l'information, et ont des problèmes quand ils cherchent et utilisent l'information.

RESUMEN: Este artículo presenta los hallazgos preliminares sobre estrategias de búsqueda y adquisición de información que contribuyen a la inseguridad alimentaria en zonas urbanas entre los agricultores urbanos del distrito de Kampala, Uganda. A pesar de que constantemente se genera información agrícola útil y que esta información se encuentra disponible en las instituciones de investigación agrícola, en las bibliotecas públicas de investigación y bibliotecas universitarias, así como en las organizaciones no gubernamentales, los agricultores urbanos del distrito de Kampala no tienen acceso fácil a estos recursos de información para mejorar su producción agrícola. Esta situación se debe, en parte, al hecho de que gran parte de esta información solamente está disponible en documentos impresos o en formatos legibles por máquina. Los resultados preliminares del estudio indican que los agricultores utilizan diferentes estrategias para buscar información y dependen principalmente de fuentes orales de información. Para acceder a información, prefieren dialectos locales y el servicio de extensión, pero enfrentan diversos problemas en la búsqueda y n el uso de información.

Introduction

Information is a critical resource for socio-economic development as it enables people to make informed choices towards improving their livelihoods (Matovero, 2006). The importance of information for transforming agriculture has been demonstrated in some of the rapidly growing economies such as China (Xu, 2001) and others such as Malawi and Tanzania (Mchombu, 2003). Major benefits accruing from using current agricultural information are the improvement in farming techniques including the use of manure or fertilizers, knowledge about controlling crop and animal diseases and irrigation.

Aguolu (1997) observed that the availability of information does not necessarily mean it is accessible. The author noted that the wealth of information in existence in the world today is tremendous. The sheer volume of it, in a myriad formats as well as obstacles of illiteracy and lack of awareness of the need for information, distance, and poverty make complete access impossible. Muyepa (2002) observed that lack of access to agricultural information was one cause of low agricultural productivity in Malawi, contributing to deepening poverty. In the same way, Semwanga (2005) reported lack of access to information on existing technologies as one of the causes of low urban agricultural production and consequently, food insecurity in Kampala City. It is against this background that this pilot study sought to understand how urban farmers in Kampala seek and use information to improve production and fight against food insecurity. The insights gained from the pilot study helped to refine and improve the validity and reliability of research instruments before embarking on a broader study.

Context

The urban population in Uganda is growing rapidly due to a range of economic, political, social, cultural, and environmental factors. Rural to urban migration is by far the most significant cause of urban expansion (Dhihendra, 2002). The 2002 Census indicated that nearly 3 million people were living in urban areas. Kampala district alone had an influx of people with 1.2 million

(40%) of the urban population living in the city (Uganda Bureau of Statistics (UBOS), 2002). The rapid urbanization manifested into a rapid increase in social inequality, urban poverty and food insecurity. Kiguli (2005) estimated that 12.2% of the population in Kampala city depended on subsistence, lived below the poverty line, and over half of their income was spent on food and other basic necessities. As lack of food increases and life for the urban dwellers becomes more complex, urban agriculture (UA) is viewed as one of the alternative survival strategies. Although urban agriculture in Kampala has been practiced in the city since the 1890s, it only became legal in 2005 (Kampala City Council (KCC), 2007). Many of the residents practice agricultural activities ranging from horticultural crops (fruits, vegetables and flowers); root tubers (cassava, yams, sweet potatoes), legumes and cereals; livestock farming (cattle, poultry, pigs and goats) and some paddy rice fields in the swampy areas (Semwanga, 2000).

Urban agriculture plays an important role in mitigating the effects of poverty, hunger and malnutrition. The practice facilitates the social inclusion of marginalized populations, and contributes to reducing poverty particularly among the urban poor in several ways including food security, nutrition, health, cash saving, income generation and creates urban job opportunities that extend well beyond the urban agriculture sector especially for women (Kaweesa, 2000; Atekyereza *et al.*, 2006). Urban agriculture is a valuable tool for managing the urban environment through the greening of the city, carbon fixation and the productive reuse of urban organic wastes (KCC, 2007). Increasingly, urban agriculture is now seen as an important component of urban development and urban environmental management (Sawio, 1994; Armar-Klemesu, 2000) with the potential of being an important strategy for addressing the Millennium Development Goals (MDGs) that include eradicating extreme poverty and hunger among others (Kampala City Council, 2007).

Urban agriculture in Kampala takes place within heterogeneous resources situations such as scarce to abundant land and/or water resources and under a range of policy environments from prohibitive to supportive to urban agriculture's existence and development (Dubelling and deZeeuw, 2006) but all areas are characterized by low production. Although Mchombu (2003) regards information and knowledge as the new factor of production playing as critical a role as the traditional factors of production (such as land, labor and capital), Aina (1995) observed that farmers lack access to such information and that agricultural extension officers are unable to disseminate relevant information to farmers due to their inadequate number.

Statement of the Problem

Despite health, economic, and environmental benefits, and a supportive legal framework in place, lack of access to adequate information on innovative agricul-

tural technologies and inputs by urban farmers have led to continued low agricultural production and food insecurity in Kampala city (Semwanga, 2007). Although agricultural information is constantly generated and is available in agricultural research institutions (like Kawanda and Namulonge Research Institutes) as well as in research and university libraries, and in civil society organizations, urban farmers in Kampala cannot use the information resources for better agricultural production because most of this information is packaged in elitist formats (such as documents or in machine-readable formats) that urban farmers with low education cannot use. The study posits that if urban farmers in Kampala district were accessing, using and sharing agricultural information, they would make the best use of resources at their disposal thereby improving urban food production and reducing urban food insecurity and poverty.

Research Questions

The pilot study was guided by the following research questions:

- What are the information needs of urban farmers in Kampala district?
- How do urban farmers in Kampala district seek and use agricultural information?
- What sources do urban farmers in Kampala district currently use to access agricultural information?
- What barriers do urban farmers in Kampala district encounter when seeking and using information?
- What kind of information seeking and use model can be designed for urban farmers in Kampala district?

Methodology

This pilot study was conducted in Kawempe II parish which was randomly selected out of 22 parishes of Kawempe Division in Kampala district between August 2007 and March 2008. Methodological triangulation (multiple research methods of collecting data) was employed to collect both qualitative and quantitative data. Three methods used include in-depth household interview, focus group discussion, and key informant interviews. An in-depth household interview was used to obtain detailed information from 30 randomly selected urban farmers about how they seek and use information in their farming activities. This enabled the farmers to express their views, experiences, opinions, attitudes and reactions about access and use of information in their urban farming activities. One focus group discussion was later conducted with 12 participants (3 male and 9 female) who had initially participated in the pilot household survey. The aim of the focus group discussion was (according to Patton, 2002) to obtain consensus on urban farming issues common to the whole community.

The key informant interview was also employed as

noted by Busha and Harter (1980), to ascertain the key-informants' experiences, opinions, attitudes, reactions to trends and developments as well as their knowledge about information access and use among urban farmers in Kampala district. The respondents included three agricultural extension staff (Animal Production Officer, Fisheries' Officer, Urban agriculture/Environmental Officer), three Extension-link farmers from Kampala District Farmers' Association (KADFA), four technocrats (Community Development Officer, Commercial Officer, Physical Planner and Assistant Town Clerk) as well as one local councilor (politician) from Kawempe Division. Extension staffs were interviewed because of their role in providing farmers with integrated and technical information for making decisions on production, marketing and consumption, as well as information to help farmers manage their lives successfully, cope with everyday problems and realize opportunities (Kaniki, 1989). Technocrats were interviewed because of the role they play in issues related to urban planning and management, health, environment production, as well as marketing and community development.

Data Management, Analysis and Assessment

Iinterview responses were recorded and summarized immediately after each interview in order to keep track of useful insights. The data was then edited, coded and entered into a computer and analysed using the Statistical Package for the Social Sciences (SPSS) software. Version 12. This software was used because of its capability to handle a diverse number of variables and its ability to test them simultaneously and it was readily available. Household interview data on socio-economic and demographic characteristics like age, educational level, sex, marital status and occupation was analysed quantitatively using descriptive statistics to establish the relationship between different variables. Qualitative data was handled manually and analyzed based on the themes reflected by the three instruments. Some direct quotations were reported verbatim.

Assessment of Validity and Reliability

The aim of the pilot study was to find out how urban farmers in Kampala seek out and use information and to test the research instruments. Assessment involved checking and correcting the sequence, phrasing, grammar, spelling, repetitions, omissions, relevancy and the length of the questions. The questions that needed correction were amended accordingly. Using different research methods (in-depth interview, focus group discussion and key-informant interview) the same questions were put to different groups of respondents and the responses were found to be corroborative throughout. Content validity was assured by seeking expert advice while reliability was achieved through the use of different research methods.

TABLE 1 – Demographic data of the respondents (N = 30)

	Frequency	Percent
Respondent's sex		
Male	9	30
Female	21	70
Respondent's age group		
Between 18–30 years	6	20
Between 31–45 years	9	30
Above 45 years	15	50
Respondent's marital status		
Married	19	63.3
Single	1	3.3
Divorced/Separated	2	6.7
Widowed	8	26.7
Respondent's level of Education		
Tertiary (Degree/Diploma)	4	13.3
Secondary	13	43.3
Primary	11	36.7
None	2	6.7

Profile of Respondents

Sex, age group, marital status and educational level of respondents – Table 1 shows the demographic data of the urban farmers who participated in the pilot study. A total of 30 farmers were interviewed in Kawempe II Parish. These represented 33.3% of all urban farmers participating in the main study. The interviews were conducted in morning hours with 70% of the respondents in the pilot being women (supporting the views of Atukunda *et al…* (2003)) that most of the women especially of the low and middle income classes remain at home and engage in urban farming to ensure availability of food in the household and to others and to supplement household income while their husbands go to the city to work in formal or informal jobs. All of the respondents were adults (over 18 years old) indicating that urban children attend school rather than working the land, and a majority of the respondents were married (63.3%). Over 93% of the urban farmers had varying degrees of educational levels while only 6.7% of the group had no formal education. This indicated the potential for seeking and using information to improve food production and security. (Table 1). Contrary to the widely held belief that urban farming is done by recent migrants (Maxwell, 1995), the preliminary findings indicated that 63% of the respondents had lived in Kawempe II for over ten years.

Type(s) of Farming Practiced

Preliminary findings indicate that urban farming in Kawempe II is of a heterogeneous nature.

Almost half (47%) of the farmers practiced both crop and livestock farming with 30% practicing livestock farming only while 23% of the respondents practiced crop farming only. The types of crops grown include bananas, cassava, sweet potatoes, beans, vegetables, maize and vanilla while livestock included zero-grazing cattle, poultry (both exotic and local breeds), piggery, goats, sheep, turkeys and ducks. Sixty percent of the respondents carried out their farming activities around the house or compound because according to Muwanga (2001), most of the urban farmers in Kampala live on plots of less than one acre of land. Urban farming is largely practiced to provide food for families (43.3%) while 26.7% use it as a source of income. Some respondents either practiced urban farming as a tradition or did it as a curiosity. About half (53.3%) of the respondents practiced urban farming as their only occupation, while 46.7% supplemented it with petty trading like hawking merchandise, attending shops, handcrafts, tailoring, teaching and machine repairing.

Key Indicators from the Pilot Survey

Urban agricultural information needs – The information needs of urban farmers seem to vary and range from improving soil for improved production to how to treat and look after animals (Figure 1). The findings are in line with Ozowa (1995) who observed that no one can categorically claim to know all the information needs of farmers especially in an information dependent sector like agriculture where there are new and rather complex problems facing farmers every day. Although the finding indicated a possibility to define significant groups of urban farmers that share common information needs, it also seems evident that approaches to dissemination and management of urban agricultural information in Kampala may require an understanding of urban farmers'

information needs. The situations in which the information was needed seemed to be as varied as the information needs and included mostly when animals were sick (33.3%), either before beginning pig rearing, when trying to improve farming techniques, or when cows delivered and failed to produce enough milk (10%). The findings were in line with Starasts (2004) who observed that farmers see their information needs as highly specific in terms of their physical, social, personal and environmental contexts.
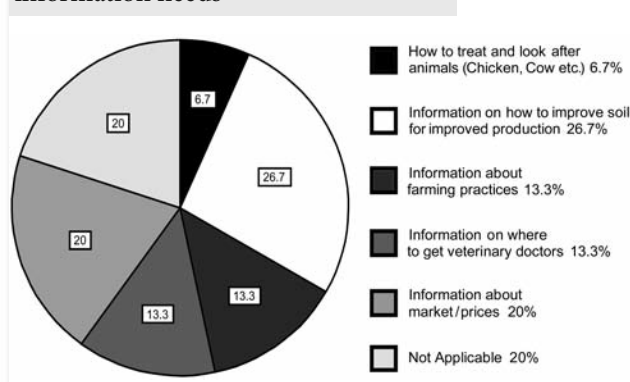
Urban Farmers' Information Seeking Strategies and Information Sources

Table 2 shows the different strategies employed by farmers when seeking information and the sources used. Attending seminars organized by extension staff (36.7%), talking to friends, neighbours, relatives or opinion leaders (20%) and listening to radio (16.7%) in that order

TABLE 2 – Farmers' information seeking strategies and information sources

	Frequency	Percent
Farmers' information seeking practices (N=30)		
REASON		
Attending seminars	11	36.7
Social Networks (talking to fellow farmers, friends, neighbours, relatives or opinion leaders)	6	20.0
Listening to radio	5	16.7
Watching television	2	6.6
Personal Experience	2	6.7
Not Applicable	4	13.3
Source of information (N=30)		
SOURCES		
None	11	36.7
Seminars	3	10.0
Women development initiative	3	10.0
KCC	2	6.7
Plan international	2	6.7
Radio	2	6.7
Farmers	1	3.3
letters	1	3.3
Ministry of agriculture	1	3.3
NAADS	1	3.3
Ttula Church of Uganda Primary School	1	3.3
Veterinary doctors	1	3.3

FIGURE 1 – Urban farmers' agricultural information needs

- How to treat and look after animals (Chicken, Cow etc.) 6.7%
- Information on how to improve soil for improved production 26.7%
- Information about farming practices 13.3%
- Information on where to get veterinary doctors 13.3%
- Information about market/prices 20%
- Not Applicable 20%

seemed to be the most prominent strategies of information seeking for information. The indication is that different urban farmers engage different strategies when seeking agricultural information. Seminars, Women Development Initiative (a non-governmental organization), radio, Plan International (another non-governmental organization) and other farmers in that order appeared to be the most popular sources of information for the farmers. However, views from the focus group discussion indicated that the most reliable source of information for most people was fellow farmers, friends, relatives, neighbours, and opinion leaders, an indication of quick ways of obtaining oral information. The key informants complemented these responses and in addition mentioned on-farm demonstrations, agricultural exhibitions, written materials (magazines, newspapers, brochures and posters) and the Internet as other sources of agricultural information. Most responses appeared to imply that informal sources of information were predominant.

Seminars, field demonstrations, and verbal messages were the most preferred forms in which farmers obtained information because the farmers regarded these as the simplest and credible forms of communication. Oral methods (field demonstrations and radio messages) seemed to be the most pronounced channels through which the farmers received information. Majority of the respondents obtained the information in Luganda because it was the language the farmers knew, understood best, and was widely used in the area, and to others, it was their mother tongue.

Information Use Among Urban Farmers

Table 3 shows the purposes for which information was used. The responses show that information use was as varied as the farmers' information needs and ranged from learning how to manage a farm effectively to starting a poultry project. Benefits that accrued from using information included improved food production, improved quality of output, and improved health of animals. Some of the respondents indicated either expanded business or employment creation while others indicated either increased income or balanced diet. Bust as Moore (2002) found, the response does not indicate that availability of information is a guarantee that it will be used.

Problems Faced in Seeking for and Using Agricultural Information

Data from the pilot indicates that a greater proportion of the respondents encountered problems when searching for agricultural information. The problems encountered were related to the lack of cooperation from fellow farmers (10%), high transport costs, or lack of understanding the language (10%) in which information was disseminated. Other problems included high cost of animal drugs, concealing of information by some veterinary staff, or lack of knowledge about existing information. In the household survey, the farmers also re-

ported problems encountered when using information that included dubious "veterinary doctors" (10%) who provided inaccurate information, inadequate human resources to offer information (10%), inadequate facilities in applying information obtained (6.7%), and insufficient information (6.7%).

Responses from the focus group cited problems related to lack of information on accessibility to credit and loans as well as lack of information on urban agricultural ordinances. The farmers complained about extension personnel and trainers who stopped at the sub-county and delegated other people to visit the farmers even when these people did not have time for the farmers. The focus group respondents also overwhelmingly stressed that because the extension staff and trainers appeared once in a while and talked to the farmers verbally, the farmers tended to forget what they were taught; and because the trainers did not return to monitor the farmers' performance, some farmers did not use the information they got because of their negative attitude and work ethic. Extension farmers and technocrats' views concurred that there was lack of adequate funding in Kawempe Division to facilitate various personnel reaching the urban farming communities, supervise and monitor urban farming activities as well as conduct seminars and workshops to sensitize the farmers. Most farmers had not been sensitized about urban farming and were hence unable to access agricultural information because of inadequate human, financial and other resources needed. Lack of materials including urban

TABLE 3 – How urban farmers use the information they obtain

Information Use (N=30)	Frequency	Percent
Not applicable	7	23.3
Learned how to manage my farm effectively	3	10.0
Learned about other varieties of sweet potatoes (OFSP)	3	10.0
Improved on food security	3	10.0
Improved production techniques	3	10.0
Helped me to use local fertilizers e.g. urine + ash	2	6.7
Helped put up nursery beds for different crops	2	6.7
Learned laws about animals	2	6.7
Looked for market for food	2	6.7
Improved on crop farming because I plant the right seeds	2	6.7
Help by starting up a poultry project	1	3.3

FIGURE 2 – Suggestions on improving access to and use of agricultural information
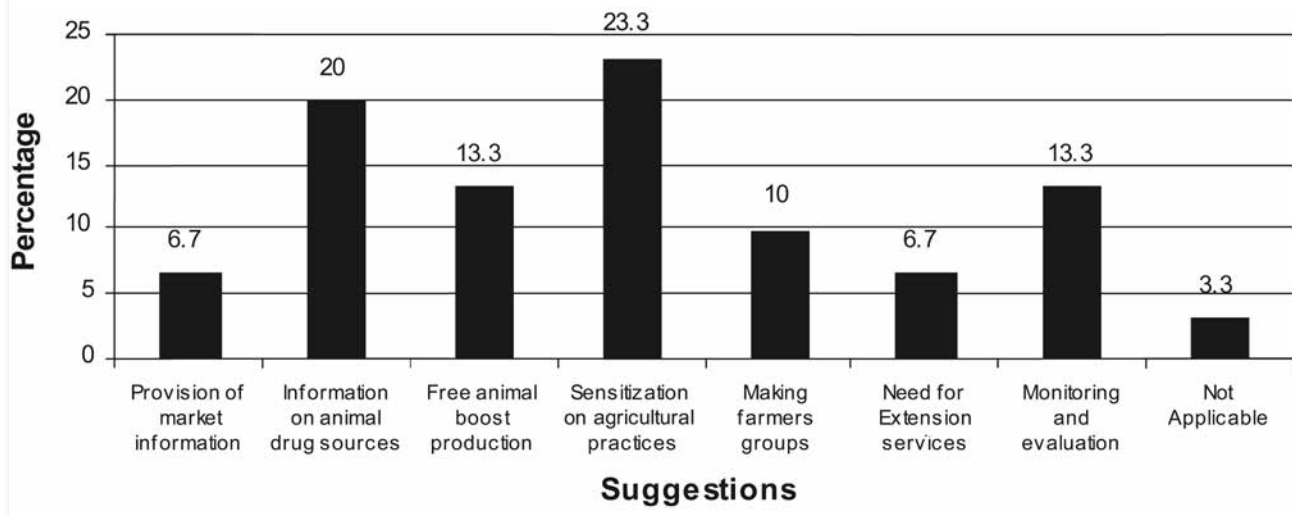
agricultural ordinances printed in local languages hampered information use by many farmers. Most of the available brochures, like the Banana Bacterial Wilt were printed in English and yet many farmers prefer reading in local languages.

To overcome problems of accessing and using information, some of the farmers used indigenous methods of farming practices such as using cow urine and soap to kill pests, or past experience that had yielded good results despite the fact that these are not approved farming practices. Looking for private veterinary practitioners, borrowing seeds and funds from fellow farmers and "Gift Circles" were other ways of fulfilling some of their agricultural information needs. An insignificant number (3.3%) of the respondents got help from their school-going children in applying information learned.

The responses seemed to tally with Blake (1983) who identified some of the factors that prevent farmers from accessing and using information to be lack of information, lack of knowledge, physical isolation, information overload, inadequate information systems, cultural differences or stereotypes, lack of information skills, work pressures, cultural environment and professional roles.

Suggestions to Improve Access To and Use of Agricultural Information

Figure 2 shows the suggestions made towards improving access and use of agricultural information. The suggestions included sensitization on agricultural practices/training programs by extension workers, knowledge on where to buy animal drugs and inputs. Some respondents suggested that the non-governmental organizations which had previously given them free animals should provide them with more in order to boost production. Forming farmer groups, monitoring and evaluation of farmers' agricultural activities by extension staff seemed to be the most pronounced suggestions. The focus group respon-

dents overwhelmingly suggested that if the farmers formed groups and elected a representative, it would improve their access to agricultural information. Exchanging visits with other farmer groups and having an office for extension workers in the community were other suggestions. Most technocrats and extension staff emphasized the need for financial facilitation and for farmers to form special interest farmer groups and to join functional literacy classes. Sensitizing farmers through media like the radio, television and printing documents written in local languages were also suggested. The government, through the Ministry of Agriculture Animal Industry and Fisheries, National Agricultural Information Services (NAADS) and NGOs dominated as organizations suggested to introduce urban agriculture information services. Agricultural demonstrations, regular seminars, workshops and written materials in that order were the services preferred.

The pilot findings indicated that most urban farmers interviewed were more interested in extension services. This was not surprising because Kaniki (1989) also intimated that agricultural extension officers are supposed to provide farmers with integrated and technical information for making decisions on production, marketing and consumption as well as information to help them manage their lives successfully by coping with everyday problems and realize opportunities.

Field Work Key Findings

The key findings of the pilot study suggest that the instruments were well designed because only minor modifications had to be made. The information needs of the urban farmers' in Kawempe II seemed to be as varied as the farming activities and also appeared to vary from one urban farmer to another. However, there was an indication of a possibility to define significant groups of urban farmers that share common information needs.

Secondly, the information seeking and use strategies seemed to be associated with different situations or contexts in which different farmers found themselves.

Conclusions

The pilot indicated that women appear to dominate urban farming in Kampala district. Urban farming activities are heterogeneous in nature and information needs vary according to the farming activities. Farmers use different strategies for seeking information and mainly use oral sources of information. They prefer local languages in accessing information, prefer extension services, and encounter various problems when searching for and using information.

Way Forward

A model of information seeking and use for urban farmers is being tested using Atlas.ti (Software for generating/testing qualitative related models) and shall be presented when the main study is completed.

Citation for the unedited version of this paper:

Byamugisha, Helen M. et al. "Information Seeking and Use Among Urban Farmers in Kampala District, Uganda". *Agricultural Information and IT*. Proceedings of IAALD AFITA WCCA 2008 [conference], August 24–27, 2008, Tokyo University of Agriculture. Tokyo: n.p. pp. 571–581. [CD-ROM]

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The Good Seed Initiative: Improving Food Security for the Poorest Households in Bangladesh Through the Use of 'Women-to-Women' Videos

Sam L. J. Page, Harun-Ar-Rashid, A. K. M. Zakaria and Elizabeth Dodsworth

ABSTRACT: "Women to Women" training videos are being used to reach women from poor households in Bangladesh. A series of Women-toWomen videos explain and demonstrate best practice for the production, selection, processing and storage of rice seed have been shown to thousands of poor women in their own villages, with the help of local service providers with the access to VCD operating equipment, such as shops, cable TV Operators, NGOs, schools, tea-stalls and richer farmers. Women who have watched the videos twice or more have reported that as a result of implementing the best practices, they save an average of 4kg (18%) seed per acre and have increased their *boro* rice yields by an average of 6% and *t-aman* yields by an average of 3%. This provides an overall gain increase of 103 kg per household and represents more than 20 extra days' food security, at no extra cost for food insecure farming families. Many of the women reported that they had gained respect from their husbands, and been rewarded with new saris as a result of this increased productivity.

RESUME: Les vidéos «De femme à femme» sont utilisés pour atteindre les femmes de familles pauvres au Bengladesh. Une série de vidéos «De femme à femme» qui explique et démontre les meilleures pratiques pour la production, la sélection, le traitement et le stockage des semences de riz, a été montrée à des milliers de femmes pauvres dans leurs propres villages, avec l'aide de fournisseurs de services locaux ayant accès à un équipement opérationnel de vidéo tels que des: magasins, opérateurs de câble TV, ONGs, écoles, stands de thé et riches agriculteurs. Les femmes qui ont vu ces vidéos deux fois ou plus, ont indiqué qu'après application de ces meilleures pratiques, elles ont, comme résultat, économisé en moyenne 4 kg (18%) de semence par 40

ares, et augmenté en moyenne leur production du riz *boro* de 6%, et du riz *t-aman* de 3%. Ceci fournit une augmentation générale de 103 kg par famille et représente plus de 20 jours de nourriture supplémentaires, sans extra coût pour les familles dans l'insécurité alimentaire. Beaucoup de ces femmes ont rapporté qu'elles ont gagné le respect de leur mari, et ont été récompensées par de nouveaux saris à la suite de cette augmentation de productivité.

RESUMEN: Se están utilizando los videos de capacitación "Mujeres-a-Mujeres" para llegar a las mujeres de hogares de escasos recursos de Bangladesh. Se ha mostrado una serie de videos Mujeres-a-Mujeres que explican y muestran las mejores prácticas de producción, selección, procesamiento y almacenamiento de semilla de arroz a miles de mujeres de escasos recursos en sus propias aldeas, con la ayuda de proveedores locales de servicios que tienen acceso a equipo operativo VCD, tales como almacenes, operadores de televisión por cable, ONG, escuelas, puestos de venta de té y los agricultores más adinerados. Las mujeres que han visto los videos dos o más veces han informado que, como resultado de ejecutar mejores prácticas, ahorran un promedio de 4 kg (18%) de semilla por acre y han aumentado sus rendimientos de arroz *boro* en un promedio de 6% y los rendimientos de arroz '*t-aman*' (cultivo de arroz en la época de monzones) en 3%, en promedio. Esto da un incremento general de 103 kg por hogar y representa más de 20 días adicionales de seguridad alimentaria, con ningún costo adicional para las familias agrícolas que padecen de inseguridad alimentaria. Muchas mujeres informaron que habían ganado el respeto de sus esposos y, como premio, había recibido nuevos saris como resultado de este aumento en la productividad.

Background

Millions of rice farmers in Bangladesh rely on seed that they have saved from a previous crop. Much of this seed is contaminated with disease and weed seed and this is leading to declining yields. Furthermore, farmers discovered that they must dry modern, *boro* rice varieties that are harvested at the end of the dry season during the succeeding rainy season. Drying seed during monsoon conditions presents a serious problem since rice seed and grain is normally dried by solar radiation, on bare earth within village compounds or on open roads.

In early 2002, CABI initiated several participatory activities as part of the 'Seed Health Improvement' sub-project, SHIP (under the DFID-funded 'Poverty Elimination Through Rice Research Assistance' or PETTRA project). Field officers from the Rural Development Academy

(RDA) and a local NGO, Agricultural Advisory Society (AAS) travelled from village to village collecting local women's innovations concerning the processing of rice seed. Simple technologies such as the use of portable seed drying tables, picking out spotted/diseased seeds, using teeth to determine seed moisture and a candle to eliminate oxygen from storage pots were validated scientifically. Following skills training provided by a UK-based communication company, field workers from RDA, AAS and a national women's NGO, TMSS, produced four short, stand alone training videos on seed spots and sorting, seed flotation, drying and storage technologies, Table 1.

Over the past two years, with the help of funding from the Swiss Agency for Development and Co-operation the videos have been re-edited with additional footage and extracts have been made as video-clips for use in Bangladesh TV's popular farming programme, *Mati-O-Manush*.

TABLE 1 – Post harvest interventions addressed in videos				
	SEED SORTING	**SEED FLOTATION**	**DRYING**	**STORAGE**
Brief description of technology	Manually remove diseased seed	Add salt or urea to a bucket of water until an egg floats; drop rice seed into the water and remove any seed that floats to the surface	Make a bamboo table or bench for drying rice; it can be quickly moved indoors in case of rain	Paint an earthen pot; fill it with rice seed do not leave a dead air space; add neem or bishkatali leaves and seal the pot. Store pot on raised platform
Origin of knowledge	Scientific principles; level of outside knowledge	Small modification of existing practise	First drying tables made through participatory technology development	Combined scientific and local knowledge and practise

(Van Mele, et al, 2004)

Spreading the Message to the Poorest Households

In order to reach many thousands of women with the information contained on the rice seed videos, AAS field workers identified several different 'service-providers' (organisations that have facilities for showing videos) in two districts. The service providers selected were village cable TV operators, local NGOs and schools. All were willing to show the videos free of charge. After a short awareness-raising training session the service-provider staff were given copies of all four videos, in a VCD format. Records were kept of the numbers of people who attended the shows: Between 2005 and 2007 the selected service-providers gave a total of 297 rice seed VCD shows which were attended by a total of 7,130 women and 8,000 men. AAS built on the success of this new approach to knowledge dissemination by distributing 223 more VCDs to groups of women who had come together in order identify suitable venues for showing the VCD within their own communities and to 32 more service-providers in nine districts, mainly road-side tea stalls but also schools, grocery shops and local NGOs. This led to an additional 8,600 more VCD shows, attended by a total of 157,861 mainly women farmers.

Figure 1 – Piara Begum demonstrating how she stores her rice seed since watching the video twice.

Assessing the Impact of Watching the Rice Seed VCDs on Household Food Security

In order to assess the impact of watching these VCDs on the amount of seed saved and any changes in rice yield, a total of 115 women from food insecure households were interviewed by AAS field staff in 10 villages and in four districts, during 2007, see Table 2. Seventy percent of the women interviewed had watched the VCDs twice, while 20% of them had watched them only once. The remaining 10% had watched the VCDs three or more times. The women said that they had watched the VCDs in houses of neighbouring, affluent farmers who own VCD players and other similarly resourced local meeting places, such as primary schools, tea stalls, village markets and grocer's shops. Each female respondent was asked about the size of her family's landholding and that of any leased land, the number and ages of her children as well as any differences in seed use and rice yield (transplant-aman and boro) before and after watching the VCDs. The data indicates that 97 out of 115 farming families were able to use 15% less rice seed per unit area after watching the VCDs twice or more and learned how to clean, select and improve the storage of their seed (Figure 1). There is also a strong possibility that the cleaned seed

TABLE 2 – Mean amount of seed saved and rice yield increase after watching the VCD							
Socio-economic group	**VCD: times seen**	**Land owned acres**	**Land rented acres**	**Rice deficit Kg/family**	**Seed saved Kg/acre**	**Yield increase Kg/family**	**% of rice deficit**	**Extra days' rice**
Landless (68)	2	0	0.4	−1,090	4	103	10	36
Marginal (47)	2	0.3	0	−419	4	88	20	22

produced higher yields during both the *boro* and *t-aman* seasons (notwithstanding seasonal variations in temperature, rainfall, input applications and management practises): Sixty-eight, ultra-poor landless farming families reported that they saved an average of 4 kg of rice seed per acre (σ = 3.0) and gained an average increase of 6% in *boro* production and 3% in *t-aman* production during the following seasons. This is a total average annual rice yield increase (*boro + t-aman*) of 103 kg per household. This represents 10% of their average household rice deficit of 1,090kg/year and an average of 32 extra days of food for an ultra-poor (food insecure) landless farming family. Forty-seven marginal (food insecure) farming families saved an average of 4 kg of rice seed per acre (σ = 2.4) and gained an average rice yield increase of 88 kg, which is 20% of their average rice deficit of 419 kg per household. This represents 22 extra days of food security for this socio-economic group, see Table 2. The women reported that they had gained increased respect from their husbands and been rewarded with new saris as a result of these seed savings and yield increases.

Conclusion

These results suggest that the poorest and most food insecure farming families can reduce their rice seed requirement and increase their food security by at least four weeks, at no extra financial cost, simply by implementing a series of improved practices concerning the selection and storage of rice seed, that they have watched twice on a VCD. Plans are being made to distribute these VCDs even more widely in Bangladesh and surrounding countries, while more follow-ups, focusing on the impacts of watching the VCDs on food insecure farming families, over several seasons, are needed.

Farmer-to-farmer videos offer a mechanism for the rapid dissemination of key extension messages amongst millions of poor and ultra-poor farming families in remote rural areas, either via self-help groups or as part of more formal training sessions. In the latter case, they ensure that the original high quality training is maintained no matter how many times the session is repeated. Where there is a group facilitator, his/her role is to guide farmers' discussions in order to answer any questions that may have arisen during the screening of the VCDs and to demonstrate any practises that require clarifica-

tion. However, this method of information transfer depends on the availability of hundreds of potential service-providers with access to reliable power supplies, within the community for its success.

Citation for the unedited version of this paper:

Page, Sam L. J. et al. "The Good Seed Initiative: Improving food security for the poorest households in Bangladesh through the use of 'Women-to-Women' videos". *Agricultural Information and IT.* Proceedings of IAALD AFITA WCCA 2008 [conference], August 24–27, 2008, Tokyo University of Agriculture. Tokyo: n.p. pp. 693–696. [CD-ROM]

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Page, S. L. J. et al. *Extending rice self-sufficiency for food insecure farmers. In: The Good Seed Initiative: Field Activities with Food Insecure Farmers in South Asia and East Africa*, D. 10-13 Final Technical Report to SDC, March 2008. [unpublished]

Rice Seed Preservation Technology; Seed Sorting by Flotation; Spotted Seeds Means Diseased Seeds; Well Dried Seed is Good Seed. 2007. Irrivideo, You Tube: www.youtube.com/user/irrivideo

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Bridging African Farmers' Access to the Internet—CTA's Question and Answer Service

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ABSTRACT: The Technical Centre for Agricultural and Rural Cooperation (CTA) and partners are providing an information service aimed at circumventing the problems that farmers face when accessing the Internet. The system is called the Question and Answer Service (QAS) Voucher System (VS). Each voucher entitles a farmer to receive an answer to a question. It employs a number of actors who act as a bridge between farmers and the global online knowledge community. Field Agents' (FAs) distribute vouchers to farmers. They collect the questions from the farmers and pass them on to Rural Information Brokers (RIBs) who have access to the Internet. These brokers publish farmer questions on the Internet and download answers when they are provided by experts. The Field Agents take the answers from the brokers to the farmers. All steps along a voucher's pathway are recorded and monitored on an online platform.

RESUME: Cet article présente les résultats préliminaires sur les stratégies de la recherche et d'acquisition qui contribuent à l'insécurité alimentaire urbaine parmi les agriculteurs urbains du district de Kampala en Ouganda. Même si l'information agricole utile est générée constamment et est disponible dans les institutions de recherche agricole et de recherche publique, ainsi que dans les bibliothèques universitaires et les ONGs, les agriculteurs urbains du district de Kampala n'accèdent pas facilement à ces sources d'information pour une meilleure production agricole, parce qu'en partie, cette information est seulement disponible sous forme de documents imprimés ou sous format lisible par la machine. Les résultats préliminaires de cette étude indiquent que les agriculteurs utilisent différentes stratégies pour chercher l'information et dépendent principalement des sources d'information orales. Ils préfèrent utiliser les langues locales ou les services de vulgarisation pour accéder à l'information, et ont des problèmes quand ils cherchent et utilisent l'information.

RESUMEN: El Centro Técnico para la Cooperación Agrícola y Rural (CTA) y sus socios colaboradores están prestando un servicio de información encaminado a abarcar los problemas que los agricultores afrontan cuando tratan de acceder a la Internet. El sistema se denomina Sistema de Comprobantes para el Servicio de Preguntas y Respuestas. Cada comprobante le da derecho al agricultor a que reciba respuesta a una pregunta de su elección. El servicio emplea a diversos actores que sirven como puente entre los agricultores y la comunidad mundial de conocimientos en línea. Los agentes de campo reparten los comprobantes entre los agricultores; luego recolectan las preguntas de los agricultores y las transmiten a intermediarios especializados en brindar servicios de información en zonas rurales, los cuales tienen acceso a la Internet. Estos intermediarios publican las preguntas de los agricultores en la Internet y luego bajan las respuestas una vez sean dadas por los expertos. Los agentes de campo llevan las respuestas recibidas por estos intermediarios especializados hasta los agricultores. En una plataforma en línea se registra y se hace seguimiento al recorrido que tiene cada comprobante.

Introduction

One of the most disadvantaged groups of people as far as access to online information is concerned is Africa's farmers. According to the International Telecommunication Union (ITU), about 800,000 villages globally representing one billion people still lack access to information and communication technologies (ITU, 2005). More than half of these villages are in Africa. This lack of Internet access is of concern as access to information is one of the factors that contributes to improved food security, rural livelihoods and incomes.

Presently, the World Wide Web provides a cheap and powerful medium for communication and access to information the world over. In Africa however, despite a one thousand and thirty percent (1030%) growth of Internet access between 2002 and 2008 (Internet World Stats), farmers are still left behind. This is due to the growth has largely been confined to major cities where a minority of Africa's total population lives. International Telecommunication Union (ITC) estimates that some 55 per cent of the total rural population of Sub-Saharan Africa remains without access to Information communication technologies (ICT) (ITU, 2007a).

Some of the factors that have led to limited penetration of the Internet in Africa's rural areas are:

- Different and sometimes inadequate ICT policies in relation to rural and remote areas
- High costs of connectivity
- Lack of access to electricity
- High risks for ICT investments projects in rural and remote areas
- High operational and maintenance costs that exceed possible revenues
- Poor infrastructure including geographical terrain challenges
- Lack of competition in access networks
- Limited ICT technical and management skills

In spite of these challenges that hamper access to Internet based information, rural Africa cannot afford to wait to reap the benefits — economic, political, cultural and educational.

In relation to agricultural information, being able to access it quickly and easily over the Internet contributes towards better farming practices and leads to improved food security and rural livelihoods. It is thus essential that information providers come up with innovative approaches to bridge the digital divide facing Africa's farmers. Towards this end, The Technical Centre for Agricultural and Rural Cooperation (CTA) in the Netherlands is collaborating with ISICAD[1] and partners in Africa through its Question and Answer (QAS) project to implement a voucher system (VS) that uses a number of actors to bridge the digital divide and bring modern day benefits of Internet access to African villages.

What is the QAS

In the course of their daily agricultural activities, farmers face all kinds of challenges that need solutions. These challenges may be called "Questions" and the required solutions may be called "Answers". The provision of information in itself does not necessarily guarantee that its recipient will understand it nor find it useful. Information needs to be repackaged and information providers need to take into account the characteristics of the recipient. User characteristics include their education level, financial capacities to implement suggested solutions, and language proficiency, for example.

The QAS provided by CTA and its partners to farmers and other agricultural information users in Africa, the Caribbean and Pacific regions takes these issues into consideration as it serves them. Information is repackaged (the Answer) according to the characteristics of the user and channelled through the most appropriate means to the person who expressed an information need (the Question). Some channels used include face-to-face receipt of questions and answers, receipt of questions through e-mail and the traditional postal services, and the voucher system.

The QAS Voucher System (VS)

Within the QAS VS, vouchers are the means by which questions are collected from farmers and answers given back to them. A voucher is a request form which is handed out to a farmer. Each voucher, in Uganda for example, entitles a farmer to ask a new question that corresponds to his or her information need and receive an answer.

The QAS VS uses a number of information channels/actors including the Internet to complete the process of receiving farmers' questions and answering them. The Internet platform underpinning the QAS VS project was developed by ISICAD in collaboration with partners in Jamaica, South Africa and Benin. This was done within

the framework of the Rural Universe Network (RUN — www.runetwork.de) project that aims to give rural people a voice on the Internet. RUN was one of the first Internet websites that made use of interactive web technologies to facilitate communication between providers of information and those seeking information. Initially, when using the Internet the trend was towards a one way flow of information. However, today, the Internet is used interactively and the orientation is less on technology and more towards the people using the technology.

Collaboration between CTA and ISICAD through CTA's QAS project, has led to the introduction of the VS to more communities and the improvement of the software behind the RUN platform. CTA has also supported the development of a controlling and accounting module that tracks the different steps undertaken by the various actors involved in the process of question asking and answering.

The Uganda QAS VS Project

The ongoing QAS VS project in Uganda is benefiting from experience gained during the CTA supported projects in Benin, Ethiopia, Kenya, Tanzania and Uganda between 2004 and 2006. During the pilot phase of the QAS VS in Uganda, CTA supported its implementation in 2 districts in Central Uganda: Kayunga and Mukono[2].

The Rural Empowerment Network (REN), also known as the project coordinating (PC) unit, is a Non Governmental Organisation coordinating the project in Uganda. REN worked with farmers within its network to test the VS during its introduction to Uganda in 2006. This phase of the project aims to benefit 300 farmers who will be targeted directly in 3 districts (Kayunga, Kyenjojo and Nebbi). Two counties will be served in each district. Each of the 6 communities participating in the project has a dedicated web space called a journal. ISICAD has designed and maintains the project website — http://cta.isicad.org/ — where each project has information on:

- The project (title, purpose, target group, available funds, project duration)
- Registration of project actors and their tasks
- Task lists
- E-spaces for each participating community and the number of vouchers that will be distributed within the community
- Questionnaires for information requests, forms for answers and evaluation forms for answers.

Together with CTA, ISICAD also provides technical support to the local actors implementing the project. Local actors that form the components that make up the chain that bridges farmers and the Internet are: the Controlling Agent (CA), agricultural experts (EX), 6 farmer field agents (FAs), the project coordinating unit (PC) and 3 rural information brokers (RIBs). Each of these actors has different roles and responsibilities which are critical towards the success of the initiative.

The Role of the Farmer Field Agents (FA) – Field Agents (FAs) are farmers or people who reside in the project's farming communities and understand both English and the local language. They are responsible for distributing vouchers to farmers and do not need to have computer skills to carry out their important function. The FA captures the farmer's information request using a standard form. The FA also takes photographs that match the information request and photographs of the farmer and the environment he/she lives in. A minimum of three photographs are taken and used when publishing the request online. The FA hands over the farmers questions to the RIB to publish online. When questions are answered, the RIB prints the answer and gives it to the FA. Answers to questions are provided in English. The FA has the responsibility of going back to the farmer and explaining the response to him/her in the local language. FAs also help farmers to complete evaluation forms related to the appropriateness of the answer.

The Role of the Rural Information Broker (RIB) – Farmers' information requests are published online by Rural Information Brokers (RIBs). Each request is published in the e-space (or e-journal) dedicated to each participating district. RIBs are usually people who own cybercafés in the rural towns of the districts where the project is being implemented. They are identified in advance and trained how to publish the farmers' questions on the project website. This can either be done using an online form or an off-line publication form. Once a question has been answered and the answer has been published online, the RIB is alerted by e-mail. They then go online and download the answer which they give to the relevant FA. They also publish evaluations made by farmers and captured by FAs on the project website.

The Roles of the Answering Service (AS) and Agricultural Experts (EX) – Once the question is published online, the project's information centre or Answering Service (AS) is alerted by e-mail that a new information request has been published. They then access the Internet and download the question. Should the question be one they can provide a suitable response to using information resources at their centre, they are free to do so. However, if the question requires a technical response, the AS seeks an expert to respond to the question. It is also the responsibility of the AS to ensure that answers provided by experts they identify are simplified to a level in which they can be understood by the FA and the farmers.

A special aspect of the project is that when questions are published online, the interactive nature of the project's website allows any global expert in any part of the World with Internet access to give a response to the question. Given that experts in all parts of the world can respond to the farmers' questions creates a powerful and interactive medium which provides the farmer with valuable information and experiences from all parts of the globe. In this way, Africa's farmers are indirectly en-

Additional Merits of the QAS VS

- *The generation of Africa related content on the Internet*

- *Providing experts from around the world the opportunity to respond to or peer review responses given by other experts*

- *The remote monitoring/tracking of project activities by project managers within and without Uganda*

- *The possibility of real time and distance collaboration of partners within Uganda, the Netherlands and Germany*

- *Overcoming the Internet's language barrier for Africa's farmers by using FAs*

- *Creation of employment, skills and economy which did not exist previously*

joying the benefits of the global online knowledge community through the QAS VS.

The publication of questions and answers online also contributes to the development of African content on the Internet. In the area of Internet content development, Africa is still behind but catching up. The African web-space is expanding rapidly and almost all countries have some form of local or internationally hosted web server, unofficially or officially representing the country with varying degrees of comprehensiveness. However, there are still few institutions that are using the Web to deliver significant quantities of local information. While increasing numbers of organisations have a 'brochure' Web site with basic descriptive and contact information, many are hosted by international development agency sites, and very few actually use the Web for their activities. This is partly explained by the limited number of local people that have access to the Internet (and thus the limited importance of a web presence to the institution), the limited skills available for digitising and coding pages, and also by the high costs of local web hosting services.

The Controlling Agent (CA) and the Project Coordinating Unit (PC) – Once a question is published on a project website, all steps undertaken by the RIB, AS, EXs and FAs are monitored by the Controlling Agent (CA) at the project coordinating unit (PC) at REN (in the case of Uganda). This is done through the back end of the project website in closed access. Once a question has been successfully answered, the CA makes the evaluation form related to the question available for downloading by the RIB. The RIB is then able to access the form and

print it out and give it to the FA. The FA takes the evaluation form with the answer and helps the farmer to complete it. As part of the evaluation process, the FA is required to take a photograph of the farmer receiving the response. This picture is then used when publishing the evaluation form online. Once all these processes are completed and the farmer gives his approval, the CA approves the payments that are to be made to the different actors involved in the process. Project accounts are also updated in the backend of the online accounting system.

Sharing Answers with Other Farmers – Once answers have been provided and approved by farmers, RIBs in conjunction with FAs identify suitable places within the participating communities where copies of the answers are made available. These local archives are places where farmers have unrestricted access. Answers in the local language are printed and made available here.

To further increase the outreach of questions and their answers, depending upon the frequency by which questions are asked, topics are selected and radio programs may also be developed. These are developed by journalists who work in collaboration with the project's coordinating unit, REN, to develop the programmes. They will be translated into the local languages spoken by farmers in the 3 districts (Luo, Luganda and Runyakitara). They will then be broadcasted through local stations that cover the project area. English versions will also be broadcasted through radio stations with wider national coverage. In all 12, fifteen minute radio programmes will be produced. The MP3 files will also be uploaded on the project website. In this way, other farmers who did not ask the questions but face similar problems, will also benefit from the answers provided.

Conclusions

Bridging the digital divide and using the Internet as a medium to benefit farmers in Africa and other developing countries requires innovation and is fraught with challenges. Surmounting these challenges and developing innovative approaches is what will contribute to improved food security in Africa and other regions of the world.

The QAS VS described here is a small response to this challenge and provides a tool and approach that can be developed further to address the needs of farmers in the field. Farmers in the project's implementing region in Uganda are already beginning to enjoy the benefits of the Internet as they receive the information that they need. The QAS VS is thus a present day solution that builds a bridge between African farmers and the Internet. The various actors involved in the process all form vital links in the chain that makes up the bridge.

In addition to bridging the digital divide, the QAS VS can also be described as a method of providing extension services. The ultimate aim of an extension service is to transfer information "from the global knowledge base

and from local research to farmers" (Anderson and Feder, 2004) just as the QAS VS does. It also gives farmers a voice and enables them to provide feed back to the QAS VS as was advocated when re-structuring Africa's extension service (Mikkelsen, 1995). By working with the private sector (RIBs) and civil society (FA's & REN), the QAS VS also conforms to the principle of involving them more in extension services (Anderson and Feder, 2004).

Notes

1. ISICAD—Information Systems for International Cooperation in Agricultural Research and Rural Development—is based at the German Federal Agency for Agriculture and Food, in Bonn.

2. The Uganda project web site is at http://www.kitabu.info/REN_Uganda/

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Document Delivery Services of the Japanese Agriculture, Forestry and Fisheries Research Institute, 2001 to 2008

Takanori Hayashi

A RECENT STUDY compared the number of document delivery requests from more than 4000 forestry researchers before and after the implementation of a link resolver. The data covered a six year period with researchers located in 57 research units in the Agricultural Experiment Station and in the six independent administrative agencies of the Ministry of Agriculture, Forestry, and Fisheries (MAFF). The study found that the change in the delivery of the materials changed the information practices of the researchers in how they acquired their literature.

Background

Japan has more than a century of history in agriculture, forestry and fishery research and research with the establishment of the Agricultural Experiment Station in 1893. Japan is narrow, it is long from north and south, and agriculture varies according to differences in weather and the environment. Currently, there are 57 research units in one national institute and six independent administrative agencies under the MAFF. The research institutes are of two kinds: 14 special research institutes for domains such as horticulture, agricultural environment, biology, zoology, engineering, forestry, fishery, and 5 regional research centers that cover all of Japan.

Each research institute has its own library and library services. In the past, the library services were problematic as indicated in the "books data use survey" of 1961 that found only 40% of a researcher's needs were being satisfied by their own library and 70% of researchers did not use their library to find articles.

To address these problems and to strengthen library service in each research institute and in the Agriculture, Forestry and Fisheries Research Information Center (AFFRIC-established in 1978) the following measures were taken:

- Each library would make a catalog of its own library collection (1960–)
- The "Japan Agricultural Science Index" (JASI) was published by the Agriculture, Forestry and Fisheries Research Council Secretariat, 1970– (beginning in 1984, by the AFFRIC)
- A union catalog of current foreign journals was established (1984–)
- A contents service was shared between the research institutes (1984–)
- Collaborative collecting with each library selected journals according to its research area and established sharing arrangements (1984–)
- Online information retrieval service of AGRIS started (AFFRIC, 1984–)
- Online information retrieval service of JASI started (AFFRIC, 1985–)
- Depository Library Program started (AFFRIC, 1989–)

In particular, the collection of journals that related to an institute's specialized field was strengthened. The core journals in any agriculture, forestry or fishery field were available in all institutes.

Macro Changes, 1990–2007

We first compared changes in document delivery in academic organizations and MAFF research institutes in Japan. Figure 1 shows statistics from 1992 through 2006 for inter-library loan (ILL) and document delivery services In 2007, 1049 universities and research institutes were using the National Institute of Informatics ILL system, the standard system in the academic and

FIGURE 1 – NACSIS-ILL Statistics (NII, 2008)
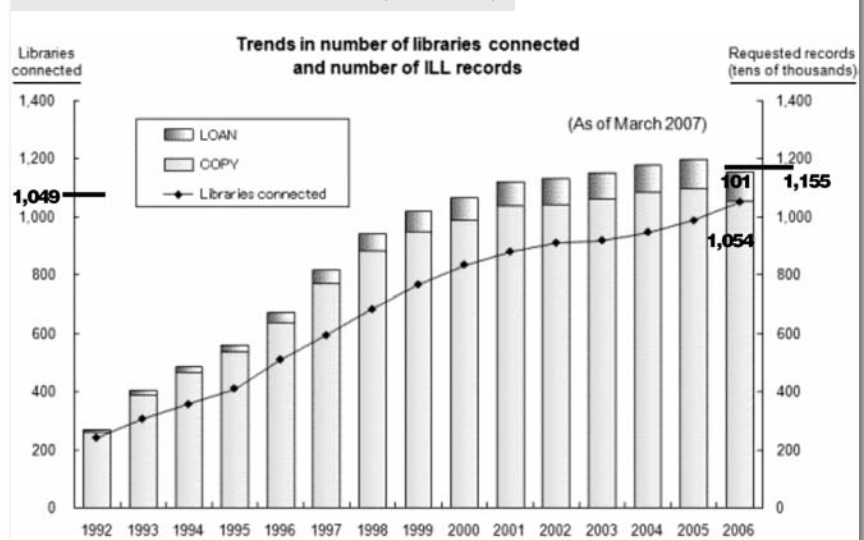
National Institute of Informatics. 2008. NACSIS-ILL Statatics. [online]. Accessed: http://www.nii.ac.jp/CAT-ILL/en/archive — accessed May 2008.

AgInfo Dispatches… 🌐 … AgInfo Dispatches… 🌐 … AgInfo Dispatches… 🌐 … AgInfo Dispatches…

scientific field in Japan. Figure 2 shows statistics from FY1989 to FY2007 for the MAFF research institutes and AFFRIC. (There were no statistics for FY1999 and FY2000.)

In the late 1990s, when Japanese research libraries suffered what might be called a "serials crisis" most research libraries canceled many of their foreign journal subscriptions, MAFF institute libraries included. The need for ILL and document delivery service grew steadily up until 1999 and more slowly from 2001. (Figures 1 and 2). In the case of universities, Tutiya et al. (2007) identified three major factors:

FIGURE 2 – Statistics of foreign journal and document delivery service usage at MAFF Research Institutes. (Data pre-FY1998 comes from paper records and after FY2001 from the library information systems.)

- The growth in photocopy requests between 1992 and 1999 for articles published in foreign journals reflects the decrease in the numbers of titles subscribed to from 1988 to 2000 across Japanese university libraries, which tended to concentrate their collection efforts on "core" journals due to steep rise of unit costs of international journals.

- The decrease of requests after 2000 for articles published in foreign journals can be attributed to the increase in accessibility to journal contents in titles published by major "foreign" publishers, including Elsevier Science, John Wiley and Sons, then Academic Press, Blackwell Publishing, and then Springer Verlag, with which the consortium of national university libraries began to negotiate in pursuit of the "Big Deal," that included access to an entire collection. This resulted in successful agreements with publishers beginning in 2002.

- The increase of requests after 2000 on for articles published in "domestic" journals is largely explained by the increase in request for articles in such fields as nursing, genontology, clinical psychology, and school counseling. Publishing in such fields has not fully matured in spite of the current focus in higher education on starting new schools and departments in response to national demands to cope with the ageing society and the problems in elementary and secondary schools.

MAFF was not associated with a "Big Deal" like the universities. In MAFF's case the number of foreign journals being used continued to decrease. (Figure 2) This is considered to be one of the factors that contributed to the change in number of the document delivery requests. In FY1997–98 and FY2001–03, the use of doc-

ument delivery services did increase. This may be explained by the following changes in the MAFF electronic library services:
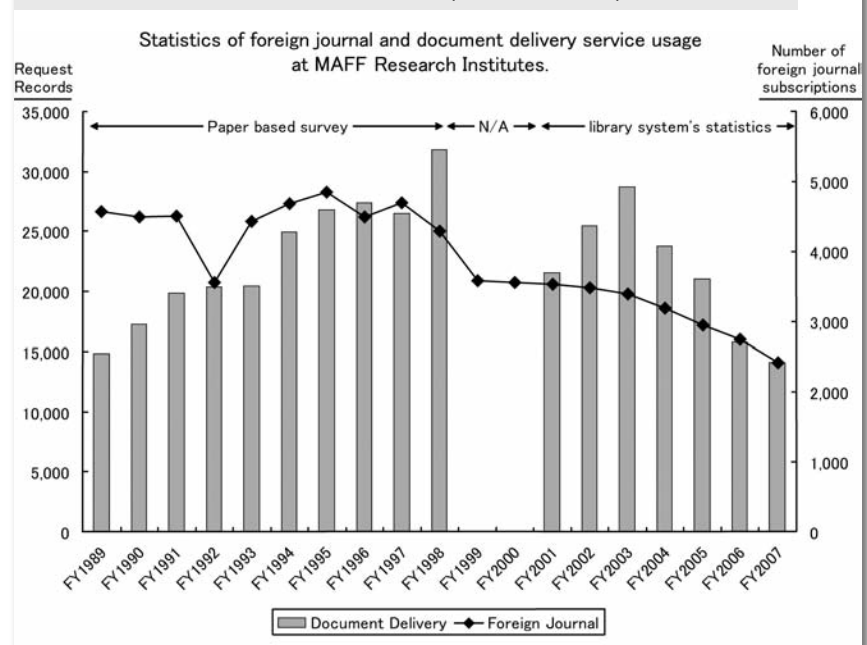
- Introduction of new electronic library system and catalog (1996)

- Creation of an OPAC service for all MAFF research institutes (1998)

- The use of e-mail for the document delivery service (1998)

- Introduction of e-mail contents service (2000)

- Use web-forms in the document delivery service request system (2001)

After FY2004, the use of document delivery services decreased.

MAFF first subscribed to electronic journals in FY2000. In FY2001–4, some independent administrative agencies formed a consortium to subscribe to electronic journals. The consortium agreed to a contract that required them to also subscribe to paper versions. One agency failed to conform, with the result that the contract was canceled by the publisher in FY2004. Figure 2 shows that in the period FY2001 to FY2004, the number of foreign titles requests was relatively stable. In the same period, some other research institutes formed an electronic journal consortium and used a library agency to subscribe to electronic journals.

Micro Changes, 2001–2007

In this section, we investigate changes in the use of the MAFF document delivery service. In general, the

number of document delivery re-
quests decreased each year in all the
institutes, especially in the last five
years, when it was reduced by a half
(Figure 2).

Table 1 shows the distribution of
document delivery requests across
different types of MAFF research cen-
ters. In regional research centers, 30%
of requests went to four regional
research centers (excluding Tsukuba
area), 31% to special research insti-
tutes and 21% to AFFRIC. About half
of the requests(45%) were for docu-
ment delivery between special re-
search institutes (including Forestry
research institutes). In particular,
this was the case for the fishery re-
search institutes. AFFRIC supports
institutes with general collections
and archived materials. At the MAFF level, an environ-
ment had been created where required articles are
sharable between research institutes.

TABLE 1 – Number of requests and accepts for document delivery services in FY2007

| | | Accept | | | | | |
		Regional Research Center (Tsukuba)	Regional Research Center	Special Institutes	Forestry	Fishery	AFFRIC
* % is based on request							
Request	Regional Research Center (Tsukuba)	0%	4%	54%	15%	1%	26%
	Regional Research Center	8%	30%	31%	10%	2%	21%
	Special Institutes	7%	11%	39%	20%	4%	19%
	Forestry	8%	9%	52%	6%	7%	19%
	Fishery	1%	3%	25%	9%	53%	8%
	AFFRIC	10%	0%	5%	25%	9%	50%

Note: Request of AFFRIC include the order from non-research section
(ex. Administrative section, plant quarantine stations, etc.)

In FY2006, AFFRIC started a link resolver service to
connect the electronic journals to various research
databases. In FY2005, many of the research institutes

FIGURE 3 – MAFF Research Institutes:
SFX Resources
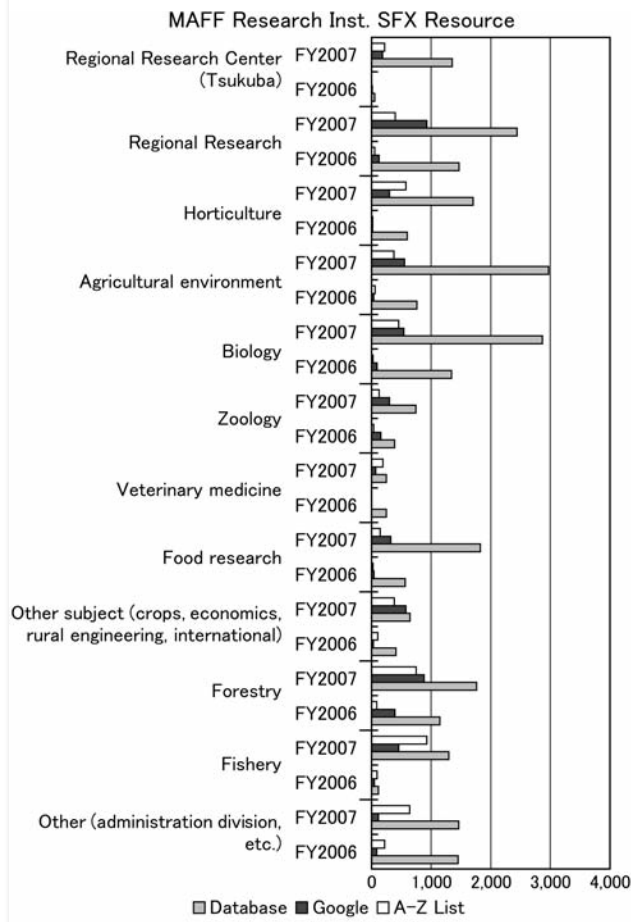
FIGURE 4 – MAFF Research Institutes:
SFX Target and Document Delivery (DDS)

AgInfo Dispatches… 🌐 … AgInfo Dispatches… 🌐 … AgInfo Dispatches… 🌐 … AgInfo Dispatches…
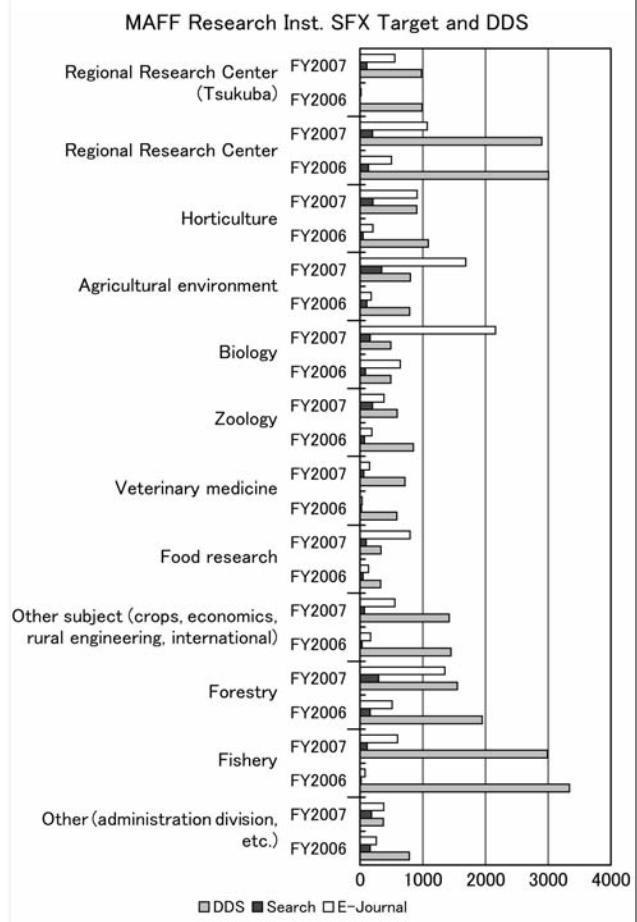
subscribed to electronic journals. The journals were not integrated in the library catalogs so librarians used web page to link to the journals. Many researchers, who wanted to use electronic journals didn't know how to. The link resolver changed this situation. AFFRIC provided training in how to connect to the link resolver because while it looked easy, it only required a click of the [SFX] button, many researchers did not discover the button.

In recent years, the researchers have started to use this link service, as shown in Figures 3 and 4. Figure 3 shows the increasing use of databases (Web of Science, BIOSIS Previews, CAB Abstract, etc. what is called "SFX Resource"), and in FY2007, the increased use of the electronic journal A to Z list.

Figure 4 shows use of the SFX button (the "SFX Target"). Like Figure 2, this shows a decrease in the use of the document delivery service (DDS) in the same period that access to the electronic journals by SFX increased.

Conclusions

We investigated changes in reference acquisitions and found some macro and micro trends.

The macro trends are;

- Although still working independently, the libraries of the MAFF institutes strengthened their services by cooperating from the 1980s.
- Unlike other academic organizations, MAFF did not have access to the "Big Deal".
- MAFF, one national institute, six independent administrative agencies and AFFRIC was too small to form an effective consortium. In the future, to strengthen its information service, MAFF needs to cooperate with other research institutes and independent agencies.

The micro trends are:

- Combining cooperation from the 1980s with today's information services, the MAFF libraries and AFFRIC can sustain specialized collections.

- It is proving efficient that special research institute libraries provide document delivery services to regional research centers based on the shared collection of each library.
- In general, the use of document delivery services is decreasing and this is expected to continue in the future.
- Moving towards a more electronic library and information service has worked well for MAFF 's research activity.
- Electronic information services, such as the pathway to electronic journals, the A to Z list, and the link resolver, will be important services in the future.

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Overview of AgroWeb Networking in the Countries of Central and Eastern Europe

Tomaz Bartol, Karmen Stopar

AgroWeb Development

AgroWeb (AW) was initiated by different groups and associations to establish common web portals to identify, collect and organize the scattered and diverse agricultural information in Central and Eastern Europe. Key supports of AW include the International Association of Agricultural Information Specialists (IAALD) and the Food and Agricultural Organization of the United Nations Sub-regional Office for Central and

Eastern Europe (FAO SEUR) and Regional Office for Europe and Central Asia (FAO REU). The first workshop was organized by FAO SEUR, NitraNet and the Central and Eastern European Chapter of IAALD and was held in Nitra, Slovakia, in 1998. A number of workshops have been held since then and information about these workshops can be found in Appendix I.

Structure of the AW network

The AW network currently consists of national portals, sub-regional portals, and thematic knowledge networks. It also links with several other partners in the area of agriculture and the environment. The home page is available at http://www.agrowebcee.net/ (Figure 1).

National portals – The preferred structure of the national portals can be seen in Table 1. Each national portal offers access through two languages. The basic entry point includes several top categories. The national language pages may differ from the English pages. They may include local documents that are written only in a local language and have less relevance to the general audience (Figure 2). The national sites are managed by local information professionals at the host organisations that provide space on their servers. These sites assume responsibility for the particular local contents on their pages.

The AW portal also includes a country scheme or country groups. This scheme, however, has become increasingly obsolete due to the gradual process of AW countries becoming members of the European Union.

The national AW pages are maintained by local experts, also known as AW authors. The input policy of AW authors is most often governed individually on a voluntary basis. Some AW authors are not only coordinators but they also produce their own Web documents or publications, such as glossaries or thesauri. The support of the host institutions or host countries for the AW vary. In some cases the national portals are hosted by agricultural ministries, in other cases the pages are managed by an agricultural educational or research institution. There are also temporary arrangements. In general, the national input costs are covered by participating national portals or countries. The AgroWeb Central and Eastern European (AW CEE) net-

FIGURE 1 – Home page of AgroWeb CEE — http://www.agrowebcee.net/
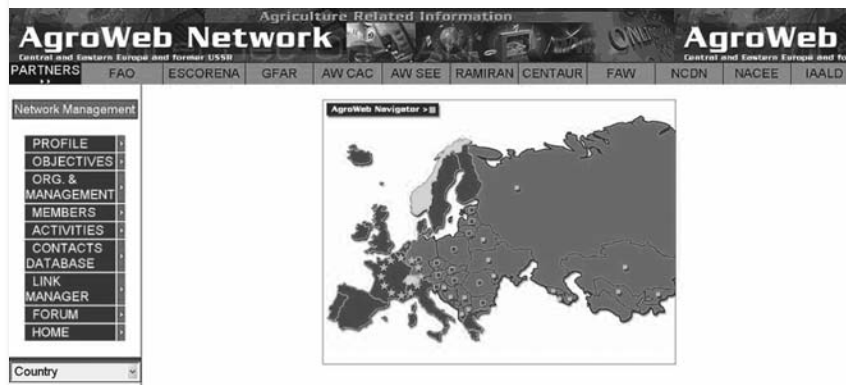
FIGURE 2 – Examples of national pages of AW Georgia and AW Slovenia.
URLs: Georgia — http://www.agrowebcac.org/farm/awgeo/index_g.php
Slovenia — http://www.agroweb.bf.uni-lj.si/indexslo.html

AgInfo Dispatches… 🌍 …AgInfo Dispatches… 🌍 …AgInfo Dispatches… 🌍 …AgInfo Dispatches…
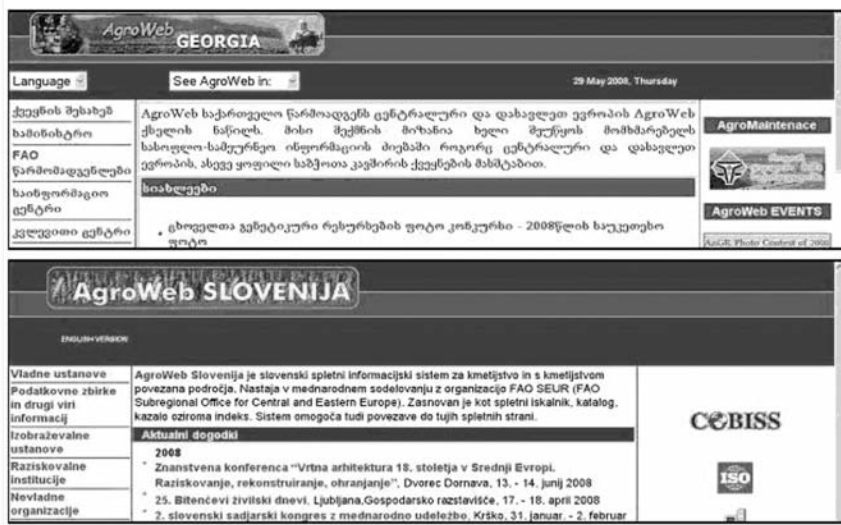
work as a whole is technically supported by an IT Working Group, with central support provided by the FAO staff in Budapest. On certain coordinating occasions, such as expert meetings, additional support is provided by the FAO staff in Rome.

Sub-regional portals – The accomplishments of the AW group soon prompted the establishment of two separate sub-regional portals, AgroWeb Central Asia and Caucasus (AW CAC) and AgroWeb South Eastern Europe (AW SEE), in order to facilitate sub-regional information exchange (Figure 3). These two sub-regional portals exhibit different levels of development. The SEE group was quite active in the beginning but the ongoing political disturbances in the south-eastern part of the former Yugoslavia have impeded the stable development of this sub-network. Some national networks are updated on more consistent principles, some other national networks show activity only within certain categories, such as that of Food and Nutrition at the AW Serbia. The AW CAC also exhibits various levels of activity with the Caucasus section, but with particular strengths being found on the Armenian and Georgian pages. The Central Asian section is currently not updated on a regular basis.

Thematic Knowledge Networks – Thematic or expert networks (Table 2) began to be developed to complement the existing national or sub-regional portals. Some thematic networks are active in their own right and organise international meetings. These networks, which also serve as specialised regional focal points, are coordinated by representatives of the national AW portals.

These networks cover the relevant issues in the entire broader region and may link to global associations, as is the case with the Farm Animal Welfare Network (Figure 4).

Other Partners

AW is constantly looking for possibilities to link to and exchange information with other networks that are active in the area of agricultural and environmental sciences, especially under the auspices of the FAO. AW information professionals have established good contacts with some other associations, most notably the ESCORENA (European System of Cooperative Research Networks in Agriculture). Within the frame of ESCORENA activities, two specialised networks are active in their links with AW: RAMIRAN (Research Network on Recycling of Agricultural and Industrial Residues in Agriculture) and CENTAUR (Veterinary

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TABLE 1. The categories and countries of the national AgroWeb portals.

Country Profile	Research Centres	EU Integration	Animal Welfare
Government Institutions	Education	Food and Nutrition	FarmNet
FAO NC	NGOs	Veterinary Medicine	Forestry
Information Centres	Agromarketing	Animal Genetics	Fishery

Central Europe: Austria, Czech Republic, Hungary, Poland, Slovak Republic, Slovenia

South East Europe: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia (FYR), Romania, Serbia, Montenegro

New Independents States: Belarus, Moldova, Russian Federation, Ukraine

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FIGURE 3 – Example of sub-regional portal AW SEE (South Eastern Europe) — http://agrowebcee.net/subnetwork/awsee/
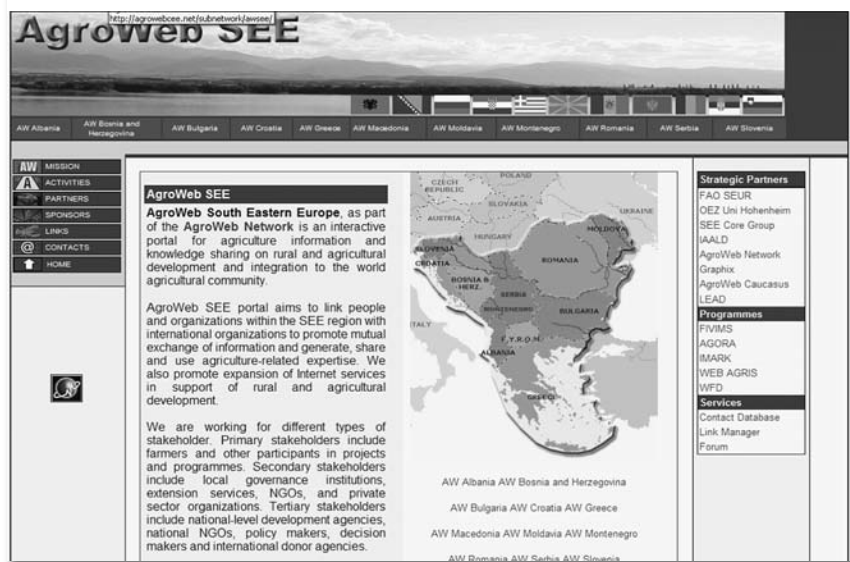
TABLE 2. Thematic knowledge networks of the AgroWeb.

Education	FarmNet
Veterinary Medicine	Library and Information Centres
Animal Welfare	Fishery
Food and Nutrition	Animal Genetic Resources
Forestry	Fisheries and Aquaculture

Biotechnology, Epidemiology and Food Safety Network). Links are maintained with the NACEE (Network of Aquaculture Centres in Central-Eastern Europe) and links can be accessed from the AW CEE home page.

Discussion

AW CEE began as a network of former socialist Central and Eastern European Countries. It was subsequently joined by partners in the contiguous regions of the SEE (South Eastern Europe) and CAC (Central Asia and Caucasus). It soon became necessary to organise distinct regional networks and this led to the creation of AW SEE and AW CAC. These sub-portals became active in their own right. Overall AW development is coordinated by the AW CAC. (Manukyan, 2005).

AW is a voluntary association of information professionals and some national portals receive varying levels of support so different national pages show different levels of activity. But the AW is an ever changing regional and international endeavour which aims to create synergy in the area of web-based agricultural information. It also promotes information competencies and information literacy, thus enhancing national agricultural research.

Many countries in the region share common socioeconomic problems due to sharing a similar recent history. The level of progress, is quite different and some countries have already achieved full integration into the EU. In some other AW regions the once well developed research and education network is decaying in an unstable economic environment. A systematic collection of agricultural information in the wider region of CEE, SEE, and CAC deserves support, especially as the library and information professionals frequently seem to be left on their own. It is the hope of the authors that the wider global community will recognize the importance of the agricultural information that exists in these regions and support efforts to make it more widely available. The AW network stands ready to contribute to this end in any way it can.

Citation for the unedited version of this paper:

Bartol, Tomaz and Karmen Stopar. "Overview of AgroWeb networking in the countries of Central and Eastern Europe." *Agricultural Information and IT.* Proceedings of IAALD AFITA WCCA 2008 [conference], August 24–27, 2008, Tokyo University of Agriculture. Tokyo: n.p. pp. 777–784. [CD-ROM]

FIGURE 4 – Example of a thematic knowledge network: Farm Animal Welfare — http://agrowebcee.net/cms/subnetwork/320/

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APPENDIX I:
Additional Readings about AgroWeb.

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Sharing Agricultural Events Information:
When and Where is That Workshop?

Gauri Salokhe, Valeria Pesce, Magnus Grylle,
Eero Mikkola, Johannes Keizer and Ajit Maru

The Food and Agriculture Organization of the United Nations (FAO) has been participating in creation of standards and application profiles (APs) for agricultural information exchange from early 2000, especially in the area of document-like information objects. An *Application Profile* is defined as a schema which consists of data elements drawn from one or more namespaces, combined together and optimized for a particular local application. In the last couple of years, a strong need has emerged for a standard way to interchange other types of information (on organizations, projects, experts, events, news) in the agricultural community. This need was reiterated by the Expert Consultation of October 2005, which stressed the need for an "intervention point on interlinking different information types". During the consultation, the Content Management Taskforce (CMTF) was set in place to focus on coherent content management and information sharing. One of the areas of work the CMTF was asked to concentrate on was the "exchange of news and event feeds". The CMTF Terms of Reference iterated that it should consider this as an area of importance in which the community could benefit from collaboration with relatively simple means, i.e. the application of freely available Web 2.0 tools. On the long run, the idea was to provide, for example, filtering to produce custom-made feeds, such as those for an "early

warning system" on topics such as "avian influenza" or "desert locusts".

Basic requirements for the event metadata

The identification of the object entity (event) and the essential elements for its description was the first requirement. We defined an event as "something that happens at a given place and time." Some ambiguity can arise with respect to recurrence and serial nature of an event. An event can be broken into different 'subsets', for example by day or session. In the application profile, we addressed the larger of the two entities. For example, some of the events in FAO are:

- 26th Session of Committee on Fisheries (COFI), Rome, Italy. 7 March 2005–11 March 2005
- 17th Committee on Forestry (COFO), Rome, Italy. 15 March 2005–19 March 2005.

As for the description, there are many ways of describing an event, ranging from simple announcement to detailed description with session breakdowns, so we had to define the goal of this metadata set and we identified it in providing just enough information to allow users to 'know' about an upcoming event and guide them to the event Web site which provides further detailed information.

Once the object and the scope were clearly defined, the main requirements for the metadata set were dictated by the context in which information was to be shared.

Institutional and social context

As technologies emerged for sharing and interlinking different types of information, there was a real business-case for creating a standard schema to disseminate information about events among organizations in the agricultural sector. However, harmonizing procedures in view of this was going to face some constraints like limited resources and capacities for some of the partners involved and also concerns about copyright issues and real reciprocal benefits. Therefore, it was

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Many websites publish new content regularly and provide a list of news headline style links to their latest content. In addition to displaying these headlines on their own websites, it is very common for publishers to make them available for syndication, so that other websites or applications can also include their headlines. Headline syndication via web feeds does not deal with the full text of articles; it is simply about syndicating an automatically updating list of headlines, with each headline being a link to the item that it refers to on the publishers' website.

RSS is sometimes called "Rich Site Summary", "RDF Site Summary", or "Really Simple Syndication". RSS is the name given to an XML (Extensible Markup Language) format used to syndicate headlines. Atom is also an XML-based document format and HTTP-based protocol designed for the syndication of Web content.

Web feeds (RSS and Atom) are XML-based formats, where the site's information is described in a format that is simplified to a few key elements. Web feeds are gathered by what are known as 'Aggregators', such as AgriFeeds and GFIS in the agricultural sector, which collect information. The aggregators then render the information, using for example XSLT, as monthly calendars, browseable lists by topic or location so that the user can have one-stop access. Normally, the aggregator will add no new information and is viewed as a 'gatherer'.

important that the interchange standard met the following criteria:

- it remained simple to create and apply: it must be easily adoptable by different agricultural partners; the complexity should be minimized to promote wide adoption yet maintain a satisfactory level of richness in the exchanged metadata;

- it captured enough information, i.e. provide enough 'mandatory' elements to get satisfactory information about an event;

- it minimized the risk of conflicts with standards already adopted by some of the parties involved, therefore it should take elements, where possible, from existing standards such as RSS, DC and AgMES;

- it addressed the issue of multilingual information, as many partners have one or more official languages;

- it ensured that data ownership was retained by the publisher; and

- it showed benefits of establishing such a standard to all the participants.

Technological context

Over the last years, site-syndication has been adopted by most Web sites and the RSS and Atom formats are universally used to make Web sites contents known and reachable through other Web sites. News and events are a type of content which is particularly suitable for syndication and the dissemination of news through RSS feeds has become a common practice for all Web sites and information services. Consequently, several information services, especially in the form of News Aggregators, have been developed based on the RSS metadata set. This is why the Ag-Event AP has been developed essentially as an extension of the RSS format.

The RSS format is extensible by definition, by means of the addition of other namespaces. Since event feeds are a specific type of news feeds, the Ag-Event AP indicates which additional namespaces, and which elements from those namespaces, must be added in order to describe an event in its essential aspects. The standard RSS formats require only minimum information such as *<item>*, *<link>* and *<description>* but for event information to be comprehensive and standardised across many applications there was a need to have new pieces of information such as dates and location expressed following same definition.

The sharing of information on events through RSS feeds has already been done in several different ways. But until now it has been done in an ad-hoc manner, leading to over specialized formats and incompatible

Figure 1 – Example of Event Metadata Record in RSS from a specialised system

```
<item ID="38119">
  <title>Special Session of the Agricultural Ontology Service Initiative</title>
  <link>http://afita.ac.affrc.go.jp/wcca2008/index.htm</link>
  <description>A "Special Session of the Agricultural Ontology Service Initiative: semantic problems and
    semantic solutions in agricultural knowledge and information products" will take place as part of the
    IAALD-AFITA-WCCA Conference. The aim of this session is to showcase practical applications of
    semantic tools. The contributions will be of specific relation and relevance to agriculture and related
    subject areas and are not expected to be generic papers about semantic tools.</description>
  <year>2008</year>
  <dc:dateStart>Tue, 26 Aug 2008</dc:dateStart>
  <dc:dateEnd>Tue, 26 Aug 2008</dc:dateEnd>
  <country>Japan</country>
  <region>Asia</region>
  <pubdate>Thu, 17 Apr 2008 12:00:00 +0100</pubdate>
</item>
```

exchange models. For example, the News and Events Management System (NEMS) in FAO stores and provides possibilities to access information using RSS feeds. However, the exports are done using a specific version of RSS and localised set of metadata elements as illustrated by the example in Figure 1.

To resolve these issues of format and structure, it was important to create a schema that would be used by multiple partners.

Existing metadata sets for describing events

Metadata for event information are important to facilitate search, access and reuse. It is also important to provide useful services such as searching by location, dates etc. To enable interoperability and easy sharing of event information the use of common standards and specifications becomes essential. This section describes some of the common standards used in event description and explains why we could not simply reuse one of them.

The International Press Telecommunications Council (IPTC) released Events Metadata Language to share event information in a news industry environment. The standard is useful for detailed description of events information but in the context of a publishing environment. Events ML is extremely comprehensive as well as extensible and allows for exchange in both XML and Resource Description Framework (RDF) formats (Figure 2). Although this set is expansive in its coverage, it would have been too complex for the simple information that the requirements had put forward.

Dublin Core also provides elements such as coverage to provide "the spatial or temporal topic of the resource, the spatial applicability of the resource, or the jurisdiction under which the resource is relevant." The DC Coverage element was conceived for documents and in that case the spatial and temporal coverage just add to the further description of the resource. However, if the resource is an "event" then start date, end date and country are the essential information for filtering and providing services (for example, show events starting from a certain date, taking place in a certain region) and these pieces of

information needed to be structured in a more granular set of elements and to be encoded using controlled vocabularies.

The RDF Site Summary 1.0 Module on Events also provides elements for description of events. In this schema, the location information or the place where the event is taking place is provided as either short description or by giving URL to the place. Given the requirement that the country information should be provided using a controlled vocabulary to ensure that it could be further exploited to provide automated services such as search of events by region, this standard was insufficient as it put together both city and country in the same field.

FIGURE 2 – Example of Event Metadata Record in RSS

Application Profile for Event information exchange

The needs analysis and the evaluation of existing standards resulted in the creation of the Agricultural Events AP (Ag-Events AP) which is created by taking elements from the following namespaces: Dublin Core Metadata Element Set (DCMES), RDF Site Summary (RSS) and Agricultural Metadata Element Set (AgMES). One of the requirements of describing events was also to use standard terminologies such as FAO's multilingual agricultural thesaurus: the AGROVOC. AGROVOC is used by FAO and its member countries and partner organizations to describe agricultural resources. Therefore, elements from the AgMES, namely subject refinements and the possibility to explicitly indicate AGROVOC (or any other agricultural thesaurus) were included in the AP. The resulting set of proposed elements as well as an example of an event described and displayed using the AP is provided below.

Overview of the proposed elements – An overview of the proposed elements to be included in the AP is provided in Table 1. The table also includes brief information about the controlled vocabularies used, the cardinality, and if it is mandatory or not. The details of each element and guidelines for adding content are available from the Agricultural Information Management Standards (AIMS) Web site.

AgriFeeds is a freely available online aggregator of Agriculture related news and events. The scope

TABLE 1 – The elements of FAO Ag-LR AP with information about controlled vocabularies used, the cardinality and if it is required.

Proposed Elements	Namespace[1]	Controlled Vocabulary/Format	Requirement	Cardinality
Title	RSS	No	M	R
Link	RSS	No	M	R
Description	RSS	No	M	R
startDate	AGS	Yes: W3CDTF	M	N-R
endDate	AGS	Yes: W3CDTF	M	N-R
pubDate	RSS	Yes: RFC 822	M	N-R
locationCity	AGS	No	M	N-R
locationCountry	AGS	Yes: ISO3166	M	N-R
Category	RSS	No	O	R
Subject	AGS	Yes: AGROVOC	O	R
Organizer	AGS	No	O	R
Type	DC	No	O	N-R

	Key:	RSS	Really Simple Syndication
		DC	Dublin Core
		AGS	Agricultural Data Set
		M	Mandatory
		O	Optional
		R	Repeatable
		N	Non repeatable

[1]Namespaces: Dublin Core (DC, Agricultural Metadata Element Set (AGS)

of the aggregator makes it specifically helpful to users interested in agriculture, forestry, fisheries, food security and related domains (e.g. sustainable development, nutrition, etc.) to find information on news and upcoming events. It provides an aggregated view of news and events in the area of agriculture, harvested from several sources, and provides an easy way to customise and re-use the aggregated information. In terms of Events, thanks to the adoption of the Ag-Events AP, it provides various functionalities:

- Browse upcoming events (list of events or as part of a calendar)
- Filtering of events by geographic location (country level and region level)
- Possibility to add events to Outlook Calendar (iCal support)
- Browse Events by subjects (covering agriculture, forestry, fisheries, sustainable development, etc.)
- List of past events

AgriFeeds provides the possibility to Agricultural Organizations to register their own news and events feeds. It also allows users to produce customized feeds using various filtering functionalities (Figures 3, 4, and 5). AgriFeeds is more an application to serve webmasters and information specialists than a Web tool for the end users. (*Editor's note:* A more in-depth article on AgriFeeds appeared in *AIW*, v. 1, no. 2, pp. 61–64.)

Application Example 2: Global Forest Information Service (GFIS) – The Global Forest Information Service (GFIS) provides the framework to share forest-related data and information through a single gateway. It promotes the dissemination and sharing of forest and tree-related information and knowledge among the global forestry community by developing common information exchange standards, building capacity and enhancing partnerships among forestry information providers and users. The GFIS gateway (http://www.gfis.net/) uses the Ag-Events AP to aggregate forestry related events information from partner institutions. (*Editor's note:* See a more in-depth article on GFIS in this issue, pp. 87–93.)

Lessons learned and future plans

The Ag-Events AP presented above meets the needs of sharing basic information about upcoming events in agriculture and related domains using RSS. It allows for timely delivery and search of events related to Agriculture. The next steps in ensuring easy adoption and creation of events feeds using this AP will be to provide a tool that is customised to generate feeds (RSS and Atom).

FIGURE 3 – Browsing events by Region in AgriFeeds

FIGURE 4 – Examples of feeds filters being used on a partner website (www.apaari.org)

References

Agricultural Metadata Element Set (AgMES) – http://www.fao.org/aims/

AgriFeeds Website – http://www.AgriFeeds.org/

AGROVOC Thesaurus – http://www.fao.org/aims/ag_intro.htm

Dublin Core Metadata Element Set (DCMES) – http://dublincore.org/documents/2006/12/18/dces/

Events ML-G2 Standard from the International Press Telecommunications Council (2008) – http://www.iptc.org/EventsML/ and http://www.iptc.org/std/EventsML-G2/1.0/specification/EventsML-G2_1.0-spec-NoSchemaDocs.zip

Expert Consultation of October 2005 – ftp://ftp.fao.org/gi/gil/consultations/final_report_10-02-06.pdf

FAO Technical Knowledge Classification Scheme – http://www.fao.org/aims/ag_classifschemes.jsp?myLangTerms=EN&mySchemeID=5

Global Forest Information Service – http://www.gfis.net/

Guidelines for exchanging event metadata: The Ag-Event Application Profile – ftp://ftp.fao.org/docrep/fao/010/ai255e/ai255e00.pdf

ISO 3166 Codes for the representation of names of countries – http://en.wikipedia.org/wiki/ISO_3166-1_alpha-3

RFC 822 Standard for the Format of ARPA Internet Text Messages – http://www.faqs.org/rfcs/rfc822.html

Søren Roug. RDF Site Summary 1.0 Modules: Event (2001) – http://web.resource.org/rss/1.0/modules/event/

W3C-DTF-W3C Encoding rules for dates and times—a profile based on ISO 8601 – http://www.w3.org/TR/NOTE-datetime

FIGURE 5 – Browsing events in a GFIS Calendar (hovering over an event provides detailed information about the event and link to the original information taken from the metadata set).
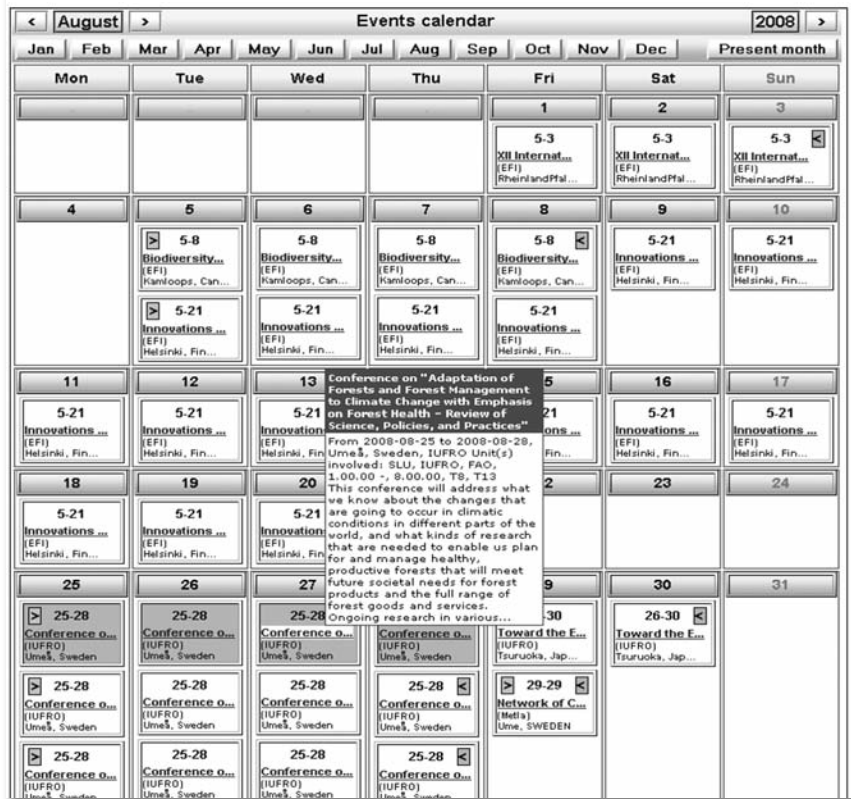
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🌐🌾 News from IAALD

IAALD, AFITA, and the WCCA Come Together to Organize a Successful Conference

The IAALD XIIth World Conference was a first for IAALD, it was the first time that information providers and information technology professionals came together to organize a world conference. The World Conference on Agricultural Information Technology and IT was held in Atsugi City, a city of 286,000 people located just outside of Tokyo. The conference was organized by seven organizations and locally hosted by the Japanese Association of Agricultural Information Specialists (JAALD), Japanese Society of Agricultural Informatics (JSAI), Tokyo University of Agriculture, and the National Agriculture and Food Research Organization, Japan (NARO). The conference was efficiently organized by IAALD Board Member, Takashi Nagatsuka and Seishi Ninomiya and was held from August 24-August 27, 2008. The conference was actually three conferences in one and over 250 people from 50 countries attended.

Sunday, August 24th was a packed day with pre conference workshops and board meetings. The workshops included all day sessions on Designing Food Management and Security Systems, Adoption of ICT Enabled Information Systems for Development, and Geo-ICT Sensor Network Technology and Application and a one half-day session on Image Management Finding and Using Images on the Web. The JSAI Board, AFITA Board, IAALD Board, and the JSAI general assembly were also held on Sunday.

The conference programming began on Monday, August 25th with the opening ceremonies. Takashi Nagatsuka took the podium and expressed his gratitude to Tokyo University and Atsugi City s well as the exhibitors and sponsors for their support of the event. He wished attendees a very fruitful experience and hoped that they had an opportunity to enjoy the Japanese culture.

This began a series of welcomes from various dignitaries wishing each attendee an excellent conference. The first to take the podium was Kanju Ohsawa, President of the

THREE CONFERENCES IN ONE

▶ XIIth World Congress of the International Association of Agricultural Information Specialists (IAALD)

▶ 6th Conference of the Asian Federation of Information Technology in Agriculture (AFITA)

▶ 6th World Congress on Computers in Agriculture (WCCA)

IAALD GENERAL ASSEMBLY VOTES TO GO E!

The IAALD General Assembly at the XIIth World Congress voted to allow an electronic vote be put to the General membership on adopting e-voting as an official membership vote by members of the organization.

The rationale was to speed up the business end of the organization since the General Assembly meets only at the World Congress and a very low percentage of members ever vote on any issue.

Tokyo Agricultural University who provided the excellent conference arrangements. Dr. Ohsawa gave the group a brief history of the University. Founded in 1891, the University is home to six faculties on three campuses. It has two graduate schools and promotes the exchange of students in 18 countries. Dr. Ohsawa hoped the conference would be the basis for agricultural information and information technology to come together.

The next welcome was from Tsuneyoshi Kobayashi, Mayor of Atsugi City (founded in 1955) who welcomed the attendees and wished the conference a great success. Mayor Kobayashi was followed by IAALD President Peter Ballantyne who warmly welcomed attendees and called the conference a "step forward for the IT and information communities". He thanked both Dr. Ohsawa and Mayor Kobayashi for their warm welcome and the conference organizers for their excellent work. He also thanked the participants for coming and encouraged them to share openly. He ended by posing a question: How can we make agricultural information and information technology truly accessible?

The final welcome was from Dr. V. C. Patil, President of AFITA. Unfortunately, Dr. Patil could not attend at the last minute so his address was read to the group. He wished attendees great success as they interacted at the conference.

Thus began three days of an exciting and packed conference. The keynotes by Dr. Fedro Zazueta, Dr. Fanquan Mei, set the tone for the multiple papers and multiple sessions. The conference also marked the tenth anniversary of the JSAI and the attendees were treated to two additional keynotes by Ehud Gelb and Hideo Shimazu to mark that occasion. Japanese social events

were also featured and attendees were treated to a Japanese Classical Puppet Play, traditional music and the Japanese Radish Dance. The food featured traditional western fare but also a great many Japanese dishes. The Japanese box lunch was beautifully presented and had a good variety of delicious Japanese dishes. We also managed to squeeze the IAALD General Assembly into the venue and it was well attended.

The conference ended on Wednesday with another action packed day and a wrap up session at the end of the day. During the course of our three days we had attended numerous papers and poster sessions, visited the exhibits and saw old friends and made many new friends. On Thursday, several of us made our way to Mount Fuji to see some of the country and then to Tokyo. We all left Japan exhilarated and someone what tired.

This conference was a number of firsts for IAALD. It was the first time for IAALD to partner with IT organizations to bring an exciting conference. It was also the first time that the "virtual IAALD" was so prominent. In order to bring the conference to as many people as possible, IAALD formed a Web 2.0 group who used the

IAALD General Assembly meeting August 27, 2008

Valeria Pesce, Barbara Hutchinson, and Gauri Salokhe launch AgriFeeds.

IAALD members Barbara Hutchinson and Kevin Painting pose with Daikon radishes that they received from the "Japanese Radish Dancers" as Chris Addison looks on.

Scene from the Classical Japanese Puppet Theater

Peter Ballantyne reports to the IAALD membership.

Congress attendees enjoy sampling Japanese food at the conference dinner.

social networking tools to bring the conference to your doorstep. The conference was reported in "real time", making use of a range of free and low cost web applications. The tools and how to get to them is explained by IAALD President, Peter Ballantyne below.

The primary vehicle for news reports and stories was the IAALD blog where the group made sure each story had a label 'aginfo8' – http://iaald.blogspot.com/search/label/aginfo8. Three FAO colleagues—Gauri Salokhe, Michael Riggs, and Valeria Pesce also blogged on the congress. You can find all the stories tagged online at http://delicious.com/iaald/aginfo8. Michael and Gauri also used the 'micro-blogging' facilities of Twitter to share their thoughts and reactions (http://search.twitter.com/search?q=aginfo8).

In order to bring the conference to you, short video interviews were recorded with many speakers and participants, publishing them on Blip TV. See them at http://iaald.blip.tv/. Before and during the congress, the team and some other attendees took photos—they are online at http://www.flickr.com/groups/749287@N20/. During the meeting, we uploaded some powerpoint presentations to slideshare – http://www.slideshare.net/tag/aginfo8. All this content is open and we hope you will re-use it, with appropriate citation of course.

For the general assembly of IAALD members, we benefited from Gauri's blogging—she shared her notes at this address: http://gaurisalokhe.blogspot.com/2008/08/iaald-management-reports-on-its.htm. You can also view the powerpoint used by the Board to report on IAALD's progress: www.slideshare.net/iaald/iaald-general-assembly-2008-presentation.

Where else can you find information on the congress? We are also experimenting with social network platforms:

Facebook: http://www.facebook.com/group.php?gid=6891832398

Plaxo: http://iaald.plaxogroups.com

Linkedin: http://www.linkedin.com/groupInvitation?groupID=35687

All of the congress materials are linked from the IAALD web site – www.iaald.org/ the congress web site is at http://iaald-afita-wcca2008.org

The XIIth World Congress was a resounding success and at the close of the conference, Odile Bedu of INRA invited the group to France. Even as our wonderful memories of Japan begin to fade we look forward to the XIIIth World Congress in Montpellier in 2010.

■ *Toni Greider, IAALD Secretary/Treasurer*

Roger Mills (England) and Chris Addison (Belgium) enjoy a traditional Japanese restaurant.

Toni Greider (IAALD 2005 Conference organizer) and Odile Bedu (2010 Conference organizer) enjoy Japanese hospitality.

JOIN US!

The XIIIth IAALD World Congress is going to France!

Join us April 26–29, 2010 in Montpellier, France for an exciting venue. Mark your calendar now and we hope to see you there!

Wouter Duijnstee (nephew of Peter Ballantyne); Peter Ballantyne; Barbara Hutchinson; and Toni Greider enjoy traditional noodles in Kawaguchiko, a village near Mount Fuji.

Beautifully presented Japanese box lunches

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CONFERENCE ANNOUNCEMENT

SECOND IAALD AFRICA CHAPTER CONFERENCE
13 - 17 July 2009
Accra, Ghana

Towards Opening Access to Information & Knowledge in the Agricultural Sciences and Technology in Africa

Although the Open Access Initiative and Open Archives Initiative have great potential to open up and enhance the visibility of the outputs of research from Africa, this has not happened for a number of reasons, among which is the lack of a clear understanding of the concepts and principles of open access/archives. The general concern based on the history of exploitation of indigenous knowledge from Africa by the West and in some cases the absence of a culture of information and knowledge sharing within research and academic institutions on the continent, have to a large extent contributed to the inability of academic and research communities, governments and other stakeholders, to enthusiastically embrace open access and open archives initiatives on the continent. This conference aims to initiate meaningful discussions and debate among the participants and exact commitment to action around open access to information and knowledge in agricultural sciences and technology generated in public research institutes and academic institutions in Africa.

Sub-themes that will be covered by the conference include:

- ∞ Access and dissemination of knowledge in agricultural sciences and technology in Africa – mapping the landscape
- ∞ Open Access to publicly funded research
- ∞ Intellectual Property Rights/Copyright and Open Access to knowledge in agricultural sciences and technology
- ∞ Open Access initiatives to knowledge in agricultural sciences and technology in Africa and from around the world
- ∞ Advocating for Open Access to knowledge in agricultural sciences and technology in Africa – the way forward

Important Dates
Early bird conference registration   : 30 April 2009
Pre-conference events/seminars   : 12 - 13 July 2009
Main Conference   : 14 - 17 July 2009
Tours & professional visits   : 16 July 2009

Detailed information on final paper submission, guidelines for authors, conference programme, pre-conference workshops and seminars, registration information and fees, conference venue, hotel accommodation, travel, and excursions will be posted on the Chapter's web site: **http://www.iaald-africa.org**.

Instructions for Authors

Agricultural Information Worldwide: An International Journal for Information Specialists in Agriculture, Natural Resources, and the Environment (*AgInfo World*) is the official journal of the International Association of Agricultural Information Specialists (IAALD). *AgInfo World* provides an international forum for high quality articles on information, knowledge and communication activities related to the applied life sciences, including agriculture, food from production to marketing, natural resources, fish and wildlife, environment, and agricultural extension and education. Priority will be given to practical and applied topics, such as but not limited to best practices. Research articles with practical applications will also be considered for publication.

Articles submitted will go through a blind review process with an independent reviewer and will be returned to the author for corrections and modifications if necessary. Research should be statistically valid and replicable with the results of broad applicability. English, French, and Spanish language articles will be considered for publication. Generally, full articles should not exceed 5000 words, but longer articles will be considered on a case-by-case basis.

All *AgInfo World* articles are published with a specific tabular style and follow bibliographic conventions as listed in the *Chicago Manual of Style* 15th edition. References should be complete and tables should comply with the editorial style represented in *AgInfo World.* Notes and references should be presented at the end of an article, not as footnotes. An English language abstract of 150 words or less is required at the time of submission. Additional abstracts in French and Spanish are welcome. Articles submitted should be accompanied with the institutional affiliation and address of each author as well as a brief biography.

In addition to full articles, *AgInfo World* also publishes short reports and updates on projects, tools, and organizations in its *AgInfo Dispatches* section. Dispatches will be less formal in nature and will be reviewed for acceptance by the Editor. Dispatch submissions do not require abstracts and should not exceed 1500 words.

As of January 1, 2008, *AgInfo World* will only accept manuscripts submitted in standard electronic formats, either on disk (accompanied by a hard copy) or as e-mail attachments. MS Word (.doc) or Rich Text Format (.rtf) documents are preferred; please contact the Editor regarding other acceptable formats. Graphics may be embedded in the native word processor file, but for optimum layout efficiency and reproduction it is best to also submit them separately on disk or by e-mail.

To learn more about publishing in *AgInfo World*, please contact the Editor:

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International Association of Agricultural Information Specialists (IAALD) — www.iaald.org

IAALD's mission is to enable its members to create, capture, access and disseminate information to achieve a more productive and sustainable use of the world's land, water, and renewable natural resources and contribute to improved livelihoods of rural communities.

To further this mission:

IAALD **connects** agricultural information specialists worldwide, providing platforms and spaces for information dissemination, exchange and knowledge sharing;

IAALD **convenes** agricultural information specialists worldwide, organising meetings and catalyzing dialogue among all agricultural information stakeholders;

IAALD **communicates** and advocates the value of knowledge and information to its members and others, improving the status and practice of agricultural information management and dissemination;

IAALD **collaborates** with members and other partner organisations, facilitating educational and other opportunities across agricultural information communities.

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