Sharing Agricultural Events Information: When and where is that workshop?

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Abstract

In the last few years a strong need has emerged for a standard way to interchange various types of information, such as on organizations, projects, experts, events and news, in the agricultural community. This paper focuses on the metadata set for events, the Agricultural Events Application Profile (Ag-Events AP), created specifically to enhance description, exchange and reuse of information on events. The Ag-Events AP provides a minimum interoperability layer through which information about upcoming events related to agriculture can be described, shared and reused. The Ag-Events AP was developed by FAO, in collaboration with its partners, the Global Forum on Agricultural Research (GFAR) and Global Forest Information Service (GFIS), to offer a "minimum" set of metadata elements necessary to share quality descriptions about events. This paper talks about the work done on creating the AP, its use in various applications and the next steps.

Keywords: event metadata, application profiles, information management, information exchange

Background

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 "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 Web2.0 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".

This paper describes the work done on creating the AP, its use in various applications and the lessons learned in implementing the standard.

Basic requirements for the event metadata

First of all, we had to clearly identify our object entity, the event, and the essential elements for its description.

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 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[1] has been adopted by most Web sites and the RSS and Atom formats[2] 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[3] 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 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.

```
<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>
```

Fig. 1. Example of Event Metadata Record in RSS from a specialised system

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1 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.
2 RSS is sometimes called "Rich Site Summary", "RDF Site Summary", or "Really Simple Syndication". RSS is the name given to a 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.
3 Web feeds (RSSand 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 a monthly calendars, browseable lists by topic or location so that the user can have a one-stop access. Normally, aggregator will add no new information and is viewed as a 'gatherer'.

   Thus, 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. 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.

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.

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

Proposed Elements	*Namespace4*	*Controlled Vocabulary/ Format*	*Requirement5*	*Cardinality6*
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

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4 Namespaces: Dublin Core (DC, Agricultural Metadata Element Set (AGS)
5 Mandatory (M) / Optional (O)
6 Repeatable (R) / Not-Repeatable (N-R)

Example Event Metadata in RSS

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<item>
  <title xml:lang="eng">Special Session of the Agricultural Ontology Service Initiative: semantic problems and semantic
    solutions in agricultural knowledge and information products</title>
  <description xml:lang="eng">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>
  <link>http://afita.ac.affrc.go.jp/wcca2008/index.htm</link>
  <guid>http://afita.ac.affrc.go.jp/wcca2008/index.htm</guid>
  <pubDate>Tue, 01 Apr 2008 13:54:00 +0200</pubDate>
  <category>Information Management</category>
  <ags:dateStart xsi:type="dcterms:W3CDTF">2008-08-25</ags:dateStart>
  <ags:dateEnd xsi:type="dcterms:W3CDTF">2008-08-25</ags:dateEnd>
- <ags:location>
    <ags:locationCity>Tokyo</ags:locationCity>
    <ags:locationCountry xsi:type="dcterms:ISO3166">JPN</ags:locationCountry>
  </ags:location>
  <dc:type>Special Session</dc:type>
  <ags:organizer>Food and Agriculture Organization</ags:organizer>
  <dc:subject xsi:type="ags:AGROVOC">agriculture</dc:subject>
  <dc:subject xsi:type="ags:AGROVOC">metadata standard</dc:subject>
  <dc:subject xsi:type="ags:AGROVOC">ontology</dc:subject>
  <dc:subject xsi:type="ags:AGROVOC">semantic web</dc:subject>
  <dc:subject xsi:type="ags:AGROVOC">semantic standard</dc:subject>
  <dc:subject xsi:type="ags:AGROVOC">application ontology</dc:subject>
  <dc:subject xsi:type="ags:AGROVOC">Knowledge and information systems</dc:subject>
  <dc:subject xsi:type="ags:AGROVOC">information management</dc:subject>
</item>
```

Fig. 2. Example of Event Metadata Record in RSS.

Application Example 1: AgriFeeds

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

Fig. 3. Browsing events by region in AgriFeeds.

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.

Fig. 3. Example of feeds filtered being used on a partner website (www.apaari.org)

AgriFeeds is more an application to serve webmasters and information specialists than a Web tool for the end users.

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.
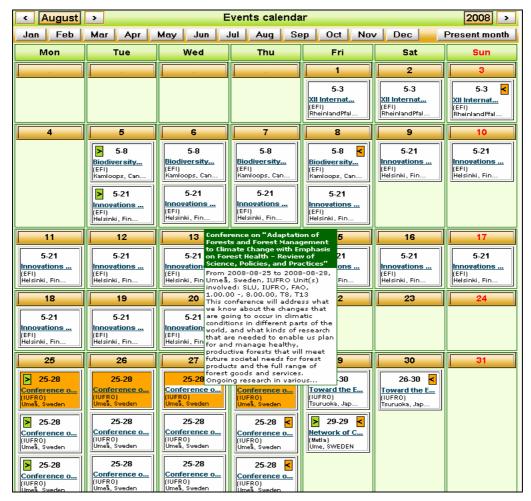

Fig. 4. Browsing events in a GFIS Calendar (hovering over an event provides detailed information about the event and link to the original information taken from the metadata set).

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).

References

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http://www.AgriFeeds.org/

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http://www.fao.org/aims/ag_intro.htm

Dublin Core Metadata Element Set (DCMES)
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Guidelines for exchanging event metadata: The Ag-Event Application Profile
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