Sharing experience in the Network of Aquaculture Centres in Asia-Pacific

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About NACA

The Network of Aquaculture Centres in Asia-Pacific (NACA) is an intergovernmental organisation that promotes rural development through sustainable aquaculture. Our main activities include facilitation of collaborative aquaculture research and development programmes, capacity building through education and training, and sharing of knowledge and experience. NACA's eighteen member states collectively produce more than 90% of global aquaculture production by volume, or nearly 50% of the global foodfish supply.

The knowledge sharing dream

As a networking agency, NACA facilitates technical cooperation between member states. Member governments share their technical expertise and facilities, thereby gaining access to a larger pool of technical resources and infrastructure, and allowing them to avoid duplication of effort and build on one another's strengths.

NACA works with a broad range of stakeholders including small scale farmers, scientists and government officials. Much of our activities concern the development of improved farming practices for aquaculture commodities through collaboration of scientists and farmers. We also facilitate the organisation of small scale farmers into cooperatives to share experience, improve their practices and gain the economies of scale they need to remain competitive.

As NACA is a highly distributed organisation with limited resources, we place a lot of emphasis on using the web to share information and communicate with our stakeholders. NACA has been online since 2001. We introduced an open access policy in 2003 and started making all of our publications available for free download, mainly in PDF format. We expect the number of downloaded publications to exceed one million sometime this year.

The knowledge sharing reality

Most of our stakeholders have limited IT skills. Non-electronic forms of communication such as printed publications, practical training courses and face to face meetings are very important, and for some stakeholder groups absolutely necessary.

Most institutions do not have electronic information systems beyond a simple website, and have yet to establish the internal policies and technical skills to maintain them. Much of the research they do is not captured in a form that is available to the external world. Some institutions still do not have basic internet access. Network scientists often face severe restrictions in access to scientific literature, due to funding constraints. Due to the international nature of the network, language is also major barrier to sharing experience.

The web has enabled NACA to communicate with more people than ever before, but to a large extent this is a new and different audience to our traditional stakeholders. A large proportion of people that use our website are not from NACA member states. Of our stakeholders, some groups have better access and capacity to use internet resources than others, for example scientists are better represented than farmers, and countries where English is widely spoken are better represented than countries where it is not. Despite these disparities, the absolute number of stakeholders who access NACA's services via the web is much larger than the number of people the organisation can interact with by "traditional" means, and so well worth pursuing.

Looking ahead

The growth of internet useage in Asia is above the global average. While the per capita penetration of internet usage in Asia is about half of the global average, Asia has about 40% of the world's internet users. These figures are skewed towards urban populations and young people, but rapid advances in mobile computing are bringing the internet to rural areas as well.

Mobile phones have finally reached a level of competence where they are actually useful as internet devices. Todays 'smartphone' functionality and touch interface looks set to become mainstream, affordable and ubiquitous in the near term. Internet access via mobile phones is forecast to overtake conventional computers sometime around 2013. For many people a mobile phone is likely to become their primary, and perhaps only, entry point to the internet. Android in particular is worth investigating as an opportunity for networking agricultural knowledge.

Hosted web publishing platforms such as Facebook, Blogger, Youtube, Flickr, Squarespace and similar allow individuals or institutions to start sharing their content without need for sophisticated IT skills and at little or no cost. Such services offer a useful way for institutions to 'get online' while developing their internal capacity. They represent an opportunity to lower barriers to entry and address issues of standardisation, if tools appropriate to agriculture could be developed.

The web is expanding from its original 'document-centric' focus to encompass a web of data, services and devices. In 2003, PDFs were a very convenient way to share documents with people but today, we also need to consider sharing data with machines. NACA has begun exploring mechanisms to make our website content interoperable with other systems and more accessible by mobile devices.

Moving towards standards and interoperability

The NACA website is based on an open source content management system (ImpressCMS). Like most such tools, it has been primarily designed to publish content

for online viewing by people. Little consideration has been given to issues of interoperability with other machines/systems or of mobile access.

To address these issues we have started writing our own software modules for the system. Our first release is a module called "Podcast", which is focussed on the publication of audio records. Podcast is designed to publish audio recordings of workshop presentations and to facilitate their distribution to mobile devices and to external libraries and publication catalogues:

- Internally, the module uses Unqualified Dublin Core fields to describe each programme or soundtrack that is added to the database.
- The module provides a minimal implementation of the Open Archives Initiative Protocol for Metadata Harvesting (OAIPMH), which is used to share the soundtrack records with external partners such as Avano, a marine and aquatic sciences OAI harvester operated by IFREMER.
- The module generates an RSS feed with enclosures, which allows soundtracks to be automatically discovered and downloaded by podcasting clients, including mobile devices.
- As you would expect, the module allows soundtrack metadata to be viewed on the website and recordings can be downloaded or streamed online.
- The module is deliberately designed to "just work". Installation is a simple two-click process. The module sets up a functioning OAI repository without any further action on the part of the user.

We intend to offer a set of OAIPMH-compliant modules covering essential CMS content functionality for this system. We hope this will enable ImpressCMS users to share their content more broadly and stimulate further interest by other developers. A more generic 'library' module, geared towards a broader range of content types is in public beta and a news module and several others are in development. Development of OAI harvester functionality to enable ImpressCMS sites to consume OAIPMH content is planned.

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