1. The need?

The explosion in the use of the internet over that past ten years has meant that anyone who wishes to keep the public informed about their activities has to have a website. Whether it is an expert working group or a large institution, the first point of information is often a website.

Furthermore, websites now serve not only as a way of publishing information but also as ‘communities’, providing their users with the facility to collaborate and discuss online and keeping them informed of new developments.

One of the major challenges faced by the IODE Secretariat has always been to keep the IODE community informed about programme progress both in terms of execution of the IODE Session work plans and in enabling the IODE data and information centre community to share knowledge and expertise. Getting the community to regularly visit the IODE site has always been difficult and this often resulted in missed opportunities. It was therefore felt that a more pro-active and interactive technical solution needed to be found. In addition the IODE secretariat found that it was increasingly being asked to produce new web sites and offer the kinds of ‘community services’ described above. However, the resources required to design, build and maintain many such sites are extensive.

At the same time, it was clear that many other institutions had trouble setting up web pages and regularly updating them due to a similar lack of resources (human, infrastructural and financial). We therefore began the search for a tool that would enable us to:
- Quickly set up web sites that have a uniform structure and functionality;
- Enable the adding and updating of content to these sites by non-technical users;
- Provide ‘interactive community services’ to the users of those sites, including the ability to discuss online and submit their own material for publishing through an easy-to-use and platform independent GUI;
- Use ‘push’ technology (through email ‘content informer’ services) in order to inform people when the site is updated;
- Manage text, images, documents (Word, PDF), links (lists of web sites) and events (calendar);
- Utilize multiple languages (initially E, F, S);
- Be freely available to Member States at little or no cost;

2. The solution

Several commercial solutions were considered, however the cost (mostly thousands of dollars: US$ 30,000-US$300,000) and the fact that they could not be modified (adapted to specific needs) ruled them out.

Instead, it was decided to take an existing, open-source application and adapt it to the needs we had identified. ‘Open-source’ means that the application can be distributed freely and modified in whatever way the user sees fit. The result of this development is the BeeBox community content manager.

3. What does it do?

Makes site creation simple

Setting up a new installation of BeeBox takes less than half an hour, and can be done using simple ‘web’ forms.

Anyone can register to become a member of the site

A simple registration process enables a user to save his or her details and become a member of the site, thus encouraging community involvement and participation over the internet. A registered member will
also be able to (i) submit content; and (ii) receive ‘content informer’ messages.

**All members of the community can submit content**

Once a member has registered, he or she is able to submit content to the site for the approval of the site editor. This can be done from anywhere in the world using a web browser. Content submitted in this way is stored but not yet visible to other users; the site editor receives notification and can approve the content with one click of the mouse, instantly publishing it.

**Members are informed of additions to the site**

Whenever new content is added to the site, members can choose to receive an email. Such a message will include the title of the item and a link to the page. This means that they do not have to keep visiting the site to see if anything new has been added; they are always kept up to date. These messages are thus kept very short avoiding mailboxes getting flooded.

**Editors may take different responsibilities**

Members of the site may be assigned different responsibilities and become ‘writers’, so that each can edit his or her area of interest. For example, the site editor for an institution may decide that each member of staff should edit a category describing his or her work. In addition there are 5 levels of ‘administrator’ each with different levels of authority to carry out certain tasks on the site.

**Content can be added using a ‘What you see is what you get’ interface**

BeeBox uses a simplified version of the interfaces found in popular ‘WYSIWYG’ products such as Microsoft Word. This makes it easier for editors with no programming experience to format their text, create links and add pictures.
Knowledge object concept

BeeBox uses the ‘Knowledge Object’ concept: there are 5 different types of knowledge that can be used in BeeBox: (i) html pages with embedded imagery and hyperlinks (like an ordinary web page); (ii) documents (basically any file type) that can be uploaded to the server by the author and downloaded by users – mostly MS-Word and PDF files. This will constitute a searchable e-library; (iii) links to external web sites or web pages. This will constitute a searchable URL directory; (iv) events: a list of upcoming events that is displayed on the homepage and links to internal or external web sites or web pages; and (v) forum: these are discussion for an enabling web-based discussion threads on the relevant subject category. Every category of content (like a folder) will be displayed with its associated knowledge types.

Easily navigable tree structure

Navigation throughout the site is based on a tree-style menu structure, dynamically created based on the content in the site. Each ‘category’ contains a grouping of relevant articles and related ‘knowledge types’ for that subject and also useful links and documents, along with forums to discuss the topic.

Automatically inform users about new content

Users can receive email (see Fig 3) whenever new content is added to the site, ensuring that they are always kept informed. New content is also displayed on the homepage: the summaries of the last 10 or 20 (this can be set by the administrator) newest items are displayed. In addition the system ‘memorizes’ when each registered user visited the site last and will display, when they have logged-on, only those items that were added since their last visit.
Multiple language capability

The nature of the IOC of UNESCO as an international organization requires provision of information in multiple languages. BeeBox is ‘language capable’: users can select their preferred language. Provided that content has been entered in multiple languages, the user will be able to view menus and content in their chosen language.

Low cost and flexible

BeeBox is based on the PHP programming language and the MySql database. Both are freely available and many copies are already installed on web servers around the world. The code for BeeBox can be downloaded freely from the BeeBox web site (http://ioc.unesco.org/beebox) and modified by anyone. Alternatively, IOC develops features and may undertake specific development contracts based on the BeeBox system and its technology. In addition a User and Editor Manual as well as Administrator manual are available from the BeeBox site as well.

4. Implementation report

The development of BeeBox started in February 2001 when the search for an affordable dynamic content management system was started. This resulted in the selection of the freeware ‘DCP’ developed in Turkey. A first version of the new IODE web site based upon DCP was released in June 2001 (fig 1)

It was felt that this version was acceptable but that more features needed to be added to respond to all requirements that had been defined. As the necessary expertise was not available at the level of the IOC Secretariat to support the informatics services it was decided to hire Mr. Benjamin Sims, who had the necessary programming and hardware expertise, as from September 2001.

A complete overhaul of the software was implemented resulting in the first release of BeeBox in April 2002. This is the version still being used today although many improvements and corrections have been made. The current release is 0.9. (See Fig 1).
5. **Future Developments**

The development of BeeBox is based on user requests and on the features required by IOC and its IODE. Updates currently under consideration for 2003 include:

- Sharing of information using ‘web-services’ technology, enabling content produced in one site to be shared with other BeeBox sites across a local network or the internet;
- Updating of the layout and display using a templating system, enabling web designers to design more ‘creative and unique’ templates;

6. **Budget requirements**

Currently all development is carried out by Benjamin Sims. He is hired on a supernumerary basis at an annual cost of US$ 40,000/year. This cost was not charged to IODE in 2001 and 2002. In 2002 US$ 20,000 will be paid through extra-budgetary funds (US$ 15,000 from the cross-cutting project Regional OceanPortal and US$ 5,000 from EurOcean), the remainder from general IOC staff cost. However, in view of the expected reduced income of the ‘traditional’ extra-budgetary sources alternative sources of income will need to be found to pay for consultants and supernumerary staff. In addition the coverage of Mr Sims’ salary by other projects reduces the time he can spend on the further development of BeeBox.

7. **Conclusion**

The BeeBox package offers an easy, non-technical way to quickly build a website and publish it on the internet. The community features mean that users do not have to be passive but we take an active role in the running of the site, engage in discussions and always know the latest news from the project of institution.

It is expected that the staff-time cost for further development will amount to approximately US$10,000/year.

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**Requested actions from the Committee**

**The Committee is requested to:**

- Comment on the BeeBox product
- Make recommendations for future development
- Recommend ways and means to further develop BeeBox (2003-2005)
8. Examples

http://www.iode.org
http://www.marinexml.net
http://www.jcomm.net
http://www.odinafrica.net

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