First Progress Report of Implementation Phase

Information Context for Biodiversity Conservation

info 2000

Project No. 5052

Submitted to

European Commission Directorate-General XIII

by

Union of International Associations
World Conservation Monitoring Centre
Nordic Center for Innovation
AIDEnvironment

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WORLD CONSERVATION MONITORING CENTRE

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1. Introduction

This is the first Progress Report for the Implementation Phase of the project called *Information Context for Biodiversity Conservation.* It entails development of the integrated information package for biodiversity conservation using a variety of software for Internet and CD-ROM delivery; search, translation, visualisation and mapping techniques; user workshops and feedback programmes; product testing and marketing; and long-term project financing and commercialisation.

The project is of 24 months duration, commencing 1 January 1998. This is the report of the six months of work January to June 1998, inclusive. The report is available online at http://www.uia.org/projects/i2000rep2.htm

The project partners are:
- Union of International Associations, Brussels, Belgium (UIA)
- World Conservation Monitoring Centre, Cambridge, UK (WCMC)
- Nordic Innovation Centre, Norwegian School of Management, Oslo, Norway (NSM)
- AIDEnvironment, Amsterdam, Netherlands (AIDE)

The project is co-funded by the European Commission's INFO2000 programme, (Directorate-General XIII). It is Contract No INFMM5052 – 22895/0.

For further information on the project achievements during its Definition Phase in 1997, see *FINAL REPORT OF DEFINITION PHASE, Information Context for Biodiversity Conservation*, INFO2000 Project No. 5052. The report is available online at http://www.uia.org/projects/i2000rep.htm

2. Project Deliverables

This report is intended to satisfy the contract requirements for the following deliverables, as specified in Form INF4 of the contract:

Unique ID No.	WP No.	Description	Status	Expected Date of Delivery	Revised Date of Delivery	Actual Date of Delivery
5052-1	I	Progress Report No 1 on Implementation Phase	Restricted	31-08-98	30-06-98	30-06-98
5052-5	II(v)	Draft Report: Product Design and Development Plan	Restricted	30-06-98	30-06-98	30-06-98
	VI(I)	Draft Report on multimedia visualization	Internal	29-02-98	draft 23-04-98	30-06-98
	VI(iii)	Draft Report on virtual reality (VRML) 3-D displays	Internal	29-02-98	draft 23-04-98	30-06-98
5052-19	VII(ii)	Report on upgrading CD-ROM software	Public	31-03-98	draft 23-04-98	30-06-98
	VIII(I)	Guided tour of product/service using HTML facilities	Public	Renewed periodically		05-06-98
	VIII(iv)	Revised draft marketing plan	Internal	30-05-98		25-03-98

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3. Progress on scheduled tasks

Development of an outline of the major conventions and programmes

WCMC has drawn up diagrams illustrating the major conventions and programmes that should be covered by the INFO 2000 project, and the information links between these conventions and programmes and other components of the project. While not providing a programme of work, these provide a sort of framework for development of the information services in a cost-effective manner. [Note that this is a working document, but could be drafted as an internal report if required.]

Review of protected areas and species databases

WCMC has initiated reviews of the two major databases, with the intention of identifying improvements that can be made in transferring at least part of each database to a format that can be directly accessed over the Internet. These are being carried out in the first instance by staff familiar with the two databases, and are ongoing.

Development of UIA web server facility

The project envisages the development of web-based operations beyond those demonstrated at the prototype stage. The UIA already has a considerable web presence with some 10,000 **static pages** currently accessible. This information is held on the UIA's service provider that is located in an office within the UIA building. The service provider is in fact a cooperative of which the UIA is a founding member.

In June 1998, the UIA purchased its own server and necessary software and installation services. This means that the UIA's network is now linked directly to the service provider through a firewall. Two or three months work are required to finalise the presentation and security issues for the data, search features etc. and to enable experimental interactive editing of the information (see below).

(a) Dynamic page generation (software requirements): In order to enable dynamic page generation from the UIA data several software components were required:

- **OpenInsight** (Windows-based version of the UIA's Advanced Revelation database software): The 3.5 release of this product was obtained. It allows simultaneous access by the DOS-based users on the UIA's LAN. It also allows for web delivery through CGI script processing. The merit of this technique is that the script can be written in the programming language that extensively overlaps the older DOS-based product, which has been used by UIA for its databases for almost 2 decades. In fact a number of index look-up routines could be ported across with relatively little modification, permitting extensive exploitation of the investment in the DOS-based indexing.
- **O'Reilly Website** 2.0 which offers a professional range of facilities for web delivery, including appropriate security and commercial features. This was obtained and successfully installed in a test mode on a standalone machine to interface with the OpenInsight software.

With these elements, it proved possible to develop an HTML form through which dynamic generation of pages could be requested directly from the UIA DOS-based data over the intranet. Minimum effort was invested in design, the object being to ensure that functionality could be built in for a range of databases with adequate performance. This was achieved.

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(b) Dynamic page generation (hardware requirements): Since the UIA's service provider operates in a UNIX environment, it was considered necessary for the UIA to invest in a dedicated NT server appropriate to the O'Reilly and OpenInsight software. This would be directly connected to the service provider's UNIX machine. Significant delays were incurred in determining an optimum configuration for such a server, bearing in mind the safety and redundancy features, and the costs. The specifications of the server can be provided. The server was delivered and installed during the period late June/early July on the intranet side of the firewall for testing prior to connection to the service provider. Initial tests have been very positive including the access to external websites on which integration between UIA and WCMC data depends.

Immediate challenges are to clarify the access / security features in relation to various levels / domains of user group, and to explore the commercial / payment issues in relation to such user groups. These are overlapping features of O'Reilly and NT.

It is expected that copies of the full range of databases will be accessible over the web in test mode (to restricted users) by end of September at the latest. The process of clarifying the security and commercial issues will give detailed form to the marketing options and product design opportunities.

Of special interest will be to ensure an appropriate match between static pages (open to web search engine indexing) and the dynamic pages that can be called from them. This will allow comprehensive lists of problems and strategies to continue to be made available as indexes, but will in future ensure that they offer access to dynamic pages.

Interactivity and relationship to users

Since the end of the Definition Phase, WCMC has developed facilities for direct editing of selected datasets linked to two current projects: the UK Clearing House Mechanism, funded by the UK Government, and "Biodiversity in Development" facility for DGVIII. Passwords are used to provide secure access to a number of authorised partner organisations. This application will continue to be developed and extended to other datasets identified with INFO2000, notably in the context of the regional pilot project foreshadowed for the South Pacific Regional Environment Programme (see below).

The static online pages of the UIA, already available on the web in test mode as demo pages, allow users to comment on particular texts and feedback their comments via e-mail. These messages are addressed in such a way that they can be filtered for handling in a particular way. One challenge is to relate the feedback to the data where it is useful for the improvement of texts. Initial tests covering use of HTML forms in relation to CGI scripts, demonstrate that users will be able to identify problems and strategies of interest to them and feedback via e-mail as above. The challenge beyond this is to consider how the data can be fed back through HTML forms into the DOS-based database. The OpenInsight software makes provision for this. The more interesting challenges have to do with security issues in general and data adulteration in particular.

Multimedia and virtual reality visualization

Work on this front has continued to focus on tracing valuable software packages which could in some way be adapted to the data. The possibility of allowing users to employ such visual displays as entry points to text data has been confirmed. The obvious constraints continue to be the exhorbitant prices of commercial packages, many of which offer only marginal cognitive advantages in relation to the data.

It remains clear that the most striking advances at minimal cost lie in the area of using either VRML or Java in relation to HTML pages, since these can be most closely related to planned delivery of data. Such work also has the advantage of being least locked into licensing arrangements and most open to further adaption.

The constraints with respect to VRML remain those of acquiring competence in VRML 2.0 beyond that acquired in VRML 1.0, notably in relation to the new browsers. It has been irritating to discover that colour values on work already done, that were very satisfactory in VRML 1.0 have been lost in VRML 2.0. The challenge of generating VRML on-the-fly for web users of the data appears to have been solved.

The constraints with respect to Java are due to the fact that Java compatibility across browsers is far from satisfactory. Steps have been taken to acquire some facility with Java or the adaption of Java packages. However the challenge of linking Java programs to data on-the-fly remains to be addressed.

Initial development of an ability to deliver maps over the Internet

A major gap in the product delivered during the development phase of the project was the ability to deliver maps, and to develop maps "on the fly" - only prepackaged graphics files were available. WCMC has been working on development of an Internet Map Server, in collaboration with ESRI (the developers of Arc/Info GIS software) and the World Bank, and with additional funding from IPIECA. A prototype service is now running and being tested.

Metadata and search standards

WCMC has consulted the two terminological sources, mentioned above, for development of a set of "controlled terms" for biodiversity issues for two current information projects: the UK Clearing House Mechanism website and "Biodiversity in Development".

Through the same projects, it is also acquainted with the Global Information Locator Service (GILS) and GELOS, a metadata server being developed as part of the G8 Environmental and Natural Resources Monitoring Programme. Both systems share the goal to make it easy for people to find information, of all kinds, in all media, in all languages, and over time, by evolving international standards for information searching. These international efforts on information standards have been discussed by the partners and will contribute to the data integration process.

Upgrading CD-ROM software

Development of the CD-ROM beyond use of Folio Views 3.x (in the prototype and in the UIA commercial product) envisaged use of Folio 4.x (available since the beginning of 1998). The upgrade was purchased to take advantage of new features, notably a supposedly multilingual platform in contrast to previous requirements for separate language versions (of which the UIA used English and French).

It turns out, however, that the ability of developers to develop their own thesaurus, which was characteristic of release 3.x, has been disallowed. The UIA had adapted its own 100,000 word thesaurus in the prototype and in its own CD products to allow users to request information by subject in any of a range of languages and obtain hits in English. This also applied to geographic names and names of organisations.

Extensive correspondence with Folio and its agents resulted in the information that achieving such functionality was now only possible with further software development in which the UIA would be expected to invest. The cost, if the work was subcontracted back to Folio, was

estimated at $10,000. The UIA therefore decided to abandon planned use of the 4.x release for the present (and its own scheduled CD product for September 1998) and to consider the possibility of using an alternative product in 1999. These intentions have been communicated to Folio whose European resellers are very concerned at the retrograde design options taken by the upgrade. A proposal has been put forward by them to share such development costs between European resellers -- since it is a problem that affects other multilingual products.

Thesaurus-related issues

Aside from the CD-ROM dimensions of this matter (see above), work has continued at the UIA on refinement of its 100,000 word thesaurus. New terms arising from problems and strategies have been integrated into the thesaurus structure.

Consideration is being given to integrating two significant environmental thesauri:
1) the European Environment Agency's *General European Multilingual Environment Thesaurus* (GEMET), and 2) the *ENVOC* (environmental vocabulary) of around 2000 terms produced by UNEP's Infoterra programme and updated in 1997.

Guided tour feature

The PowerPoint presentation of the project, developed during the Definition Phase, was updated in April. It was used as a continuously-running demonstration at the conference *Bridging the GAP: New Needs and Perspectives for Environmental Information* (see below). The most recent version is also available for download or viewing online at: http://www.uia.org/projects/completx.ppt

On the UIA website, a draft tour has been designed for organisation-related data in order to get a sense of possible ways of organising information for an exploratory approach by users. This will be developed and extended to other categories of data.

Marketing plan

The marketing plan was reviewed and revised during the process of preparing the proposal for complementary funding from the infoDev programme of the World Bank. A copy of the proposal was handed to the INFO2000 Project Officer at the Team Meeting on 24 April 1998. It is confidential and restricted.

Project administration, meetings and communications

The entire Project Team has met together once during the six months – in Brussels, 23-24 April 1998. Mr Michel Brochard, Project Officer for INFO2000 was present. The meeting was primarily for the purpose of reintroducing the project partners to the work which UIA and WCMC, the content development partners, have been doing since the end of the Definition Phase. It also planned for the scaling up of involvement of the NSM and AIDEnvironment in the marketing and testing of the product and when this would commence. Much of the morning was spent on administrative matters.

Members of the partner group have also met in other locations when the opportunity arose, usually as a result of involvement in other projects of groups.

The bulk of the communication amongst the group has been by electronic mail. This has proved satisfactory for almost all purposes. Each partner has facilities for very rapid email delivery and receipt. Early problems with the format of email file attaches appear to have be solved with upgrades in software.

4. Outreach and Marketing

The project group has been active in several areas of outreach. Many meetings have taken place with potential partners, providers of specialist services and for the purpose of publicising the project.

Online Exhibition **(London, 8-12 December 1997)**

At the invitation of the European Commission, the project was presented as part of the EU stand at the London Online Exhibition. Representatives from UIA and WCMC took turns to be in attendance at the stand throughout the exhibition period. The opportunity to be present was appreciated. The Commission organisation and facilities were excellent. In the event, the benefits to the project were not worthwhile. Such events are probably best suited to marketing finished products or services, although even this was apparent. The main reason for most exhibitors to be present was simply that – to be seen. On the strength of this experience, we declined to be part of another EU contingent at the IT exhibition/conference in Vienna later this year. We would welcome a similar invitation twelve-months hence when the product is in a near competed form.

Bridging the GAP Conference **(London, 3-5 June)**

This event, subtitled *New Needs and Perspectives for Environmental Information*, was jointly sponsored by the Netherlands, the UK and the European Environment Agency. It addressed the needs and deficiencies in provision of environmental information for environmental policy and planning, and the communication of required information to the general public and industry.   Nadia McLaren and Anthony Judge of UIA presented the project to one of the conference workshops entitled "Biodiversity: Making the most of very little"; they also ran a continuous presentation in the foyer of the conference hotel. Another project member, Graham Bennett of AIDEnvironment, was one of the workshop organisers. Several potentially very valuable contacts were made, including IUCN and EEA. We are following up interest expressed by individuals from one academic institute (Germany) and one research institute (Denmark) to assist the project with testing interactive editing of the data.

Discussions with corporate IT sponsors

WCMC is in discussion with two leading international companies, one working in software development, the other in development of Internet search engines (June/July 1998). Discussion with the software developer concerns potential support from them in the development of web-accessible databases and other Internet-based information services. Discussion with the company developing Internet search capability is about future development of search engines that can target specific information subsets on other web sites. In both cases WCMC anticipates getting "in kind" support for work relating to the INFO 2000 project, although we are unable to currently define what that support will be. Discussions are continuing.

Discussion with the *South Pacific Regional Environment Programme* **(SPREP)**

In 1991, WCMC published with IUCN and SPREP the *Directory of Protected Areas in Oceania*. In a meeting of 20 May 1998, WCMC proposed to the biodiversity focal point for SPREP the development of pilot project on the Internet for update of protected area descriptions between now and the next South Pacific nature conservation conference in 2000. WCMC will make information sheets on individual protected areas for the whole region available on the Internet in such a manner that direct update by appropriate individuals in

management authorities using the Internet is encouraged. This region is good for a pilot project that can then be applied to other regions because of the need for better information sharing, the distances involved which preclude frequent meetings, and the need for regional organisations to promote increased use of the Internet. SPREP is very encouraged by this project development, and has asked us to proceed.

Discussions with *IUCN Protected Areas Programme* and *IUCN World Commission on Protected Areas* (WCPA)

WCMC works very closely with both the Commission and the IUCN Protected Areas Programme in compiling information on protected areas, and disseminating it in a variety of formats. At the WCPA Steering Committee (8-12 June 1998), the INFO 2000 project was briefly introduced to Steering Committee members, and discussed in more detail with the Commission Chair and the senior staff officer from the IUCN Protected Areas Programme. Both are delighted that the INFO2000 project is able to contribute to increased access to protected areas information and are willing to collaborate in making the information available. The contract that WCMC has with WCPA (worth £46,543 in 1998) was amended to take this collaboration into account.

Discussions with European Environment Agency (EEA)

WCMC and the EEA have a mutual interest in making more information available on the Internet concerning both the compliance of European states with international legislation, and national efforts to meet international conservation objectives. Preliminary discussions on how this can be done in the context of the INFO2000 project have been held with the biodiversity focal point of the *European Environment Agency* and staff of the EEA *European Topic Centre/Nature Conservation* (various correspondence and meeting of 25 June 1998). The parties are meeting discuss this further 25 August. This collaboration is likely to cover information on internationally designated sites and species covered by international legislation, and may also cover nationally designated protected areas.

Discussion with Centre "Leo Apostel"

This meeting with Dr Francis Heylighen covered the possible presentation of the project by UIA to a seminar of the Centre "Leo Apostel" (Free University of Brussels, Belgium). This is in connection with the Centre's work on *Principia Cybernetica* and their possible interest in cybernetic feedback studies. It was agreed that an invitation would be forthcoming.

5. Complementary project work

Threatened Plants of the World / 1997 United Nations List of National Parks and Protected Areas

Both these databases are now available over the Internet, based on publications that WCMC has produced in collaboration with IUCN and others. The plants database is similar to the animals red list database which is the most frequently accessed part of the WCMC web site. In each case funds from other sources paid for the information to made available initially, although the INFO 2000 project will build on this over the coming year.

Experience of developing Internet-based metadatabases

WCMC has worked on two metadata projects over the initial six months, both with funding from other agencies, which has enabled staff to develop skills in the use of the Internet to manage and deliver information in metadatabases. The UK *Clearing-House Mechanism* is a means for UK-based organisations to "advertise" their experience in the context of the *Convention on Biological Diversity* - the products, services, databases and events that they have available. The metadatabase for the *Biodiversity Conservation Information System* is intended to identify the datasets that are managed by the various organisations in the consortium and provide a "shop window" on their services. The experience developed is relevant to the INFO2000 project rather than the metadatabases themselves.

Critical review of the *World Heritage Information Network*

In collaboration with the UNESCO World Heritage Centre, WCMC has made a full review of the current Internet-based information service, and recommendations for future development. This project is funded through the World Heritage Convention, but it is suggested that the collaborative development of certain categories of information service with the INFO 2000 project will provide the basis for development of further Internet-based information services for conservation conventions. This particular project could be very good demonstration project, as future plans include the development of a *World Heritage Information Network Partnership* which would actively encourage the development of national web sites presenting information on World Heritage sites, linked to the international information service and search engine.

EU Wildlife Trade Reference Database

WCMC has recently completed the first phase of this project for the European Commission (DGXI), and it is not directly a part of the INFO 2000 project. However the database is builds on the development phase of the INFO 2000 project and provides a useful demonstration of how a database can be used to support implementation of an international treaty.

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