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**UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANISATION**

**CONVENTION CONCERNING THE PROTECTION OF THE WORLD
CULTURAL AND NATURAL HERITAGE**

BUREAU OF THE WORLD HERITAGE COMMITTEE

**Twenty-second session
UNESCO Headquarters, Paris, Room X (Fontenoy)**

22-27 June 1998

**Information document: Report of Findings of the Expert Group Review of the World
Heritage Centre Data and Information Infrastructure**

BACKGROUND

Following the decision of the World Heritage Committee at its twenty-first session in Naples, Italy, December 1997, a group of information management professionals met at UNESCO Headquarters in March 1998.

The expert group reviewed the existing data and information infrastructure of the World Heritage Centre and recommended ways in which that infrastructure might be improved. Their Report outlines specific recommendations for restructuring, as well as a general recommendation to implement a phased approach to creating an integrated information system for the World Heritage Centre.

This Report is an example of a follow-up activity to the Management Review of the World Heritage Centre.

Executive Summary

As a follow-up to the Recommendation of the Management Audit that the Centre should improve the manner in which information was received, distributed, and archived, a group of information management specialists from internationally recognized agencies were invited to UNESCO Headquarters in early March 1998.

In this report, the group outlines specific recommendations for restructuring, as well as a general recommendation to implement a phased approach to creating an integrated information system. The expert group was of the view that by adopting these recommendations -- which were made based on both an objective analysis of the current data and information infrastructure, and on subjective accounts by Centre staff -- current and future data and information needs of the Centre can be met. The elements of a phased approach, including priority items, estimated time allowance, and resource requirements for each phase, are highlighted below.

The expert group unanimously agreed that it is critical to the success of the phased implementation that oversight be provided by experts in the data and information field.

In summary, the expert group recommended that the Centre should:

- develop an integrated management information system using outside professional guidance and full staff participation, integrating existing and new databases and data records into a unified whole accessible to all Centre staff and where appropriate, Advisory Bodies and Committee members;
- move strategically toward complete electronic collection, storage, replication, and distribution of information ;
- provide personnel for on-going systems administration;
- acquire necessary hardware and software.

The group recommended the following steps toward implementation:

Task	Duration	Resources required *
1. Definition of requirements	2-3 months	full-time IMS expert
2. Design and prototyping	2 months	full-time IMS expert
3. Implementation	4-8 months (total duration will depend on the number of components implemented in parallel)	full-time IMS expert
4. Testing	1 year	WHC staff

The cost of this programme is estimated as follows:

Implementation Costs		
Full-time IMS Expert	September 1998-September 1999	\$US 150,000
Hardware & Software	October 1998	\$US 25,000
Running Costs		
System Administrator (P4).	March 1999 -	\$US 150,000/yr

The Secretariat is now exploring means of implementing the recommendations with extrabudgetary support from several States Parties.

* IMS = Information Management System

REPORT OF FINDINGS

EXPERT GROUP REVIEW

OF

THE WORLD HERITAGE CENTRE
DATA AND INFORMATION INFRASTRUCTURE

UNESCO HEADQUARTERS, PARIS, FRANCE

MARCH 11-13, 1998

Report of Findings: Expert Group Review of the
World Heritage Centre Data and Information Infrastructure

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FOREWORD

This report details the finding of a group of information management professionals who met at the request of the World Heritage Centre. Their task was to review the existing data and information infrastructure of the Centre and to recommend ways in which that infrastructure might be improved.

In this report, the group outlines specific recommendations for restructuring, as well as a general recommendation to implement a phased approach to creating an integrated information system. By adopting these recommendations—which were made based on both objective analysis of the current data and information infrastructure, and on subjective accounts by Centre staff—current and future data and information needs of the Centre can be met. The elements of a phased approach, including priority items, estimated time allowance, and resource requirements for each phase, are discussed in the summary of the report.

The investigating group unanimously agreed that it is critical to the success of the phased implementation that oversight be provided by experts in the data and information field. This expertise can be from either commercial consulting firms or from existing or recruited internal World Heritage Centre staff, but it is an essential component of implementation.

EXPERT GROUP REVIEW
OF
THE WORLD HERITAGE CENTRE
DATA AND INFORMATION INFRASTRUCTURE
UNESCO HEADQUARTERS, PARIS
MARCH 11-13, 1998

1. INTRODUCTION

1.1 Background

The World Heritage Centre (WHC) serves as the secretariat for the World Heritage Convention. In this capacity, the Centre serves as the focal point for data and information flow relating to the World Heritage Committee, the States Parties to the Convention, to other governmental and non-governmental bodies, and to the general public. The number of States Parties is now at 152, giving the Convention a high visibility in the international arena. In addition, every year the World Heritage Committee adds as many as 30 or more new sites to the World Heritage List (which now stands at 552), resulting in a very large number of properties for which it is necessary to maintain at least minimal current records. In addition, the Committee has put new expectations on the Centre and has asked the Centre to devise a format and process for periodic monitoring reports.

To address these increased needs, all staff have been provided with e-mail and Internet access, and a closed e-mail mailing list has been established for distribution of documents and other news and announcements to the staff. An in-house Intranet provides access to the statutory meetings documents and other information in a variety of formats. Through the Intranet, a number of databases can be accessed, including address lists, links to other partners, etc. Increasingly, many professional and support staff use the Intranet to share files. The staff has also begun a large scanning project to create PDF files from the nomination dossiers.

An extensive set of web pages with a full set of statutory meeting documents dating back to the first years of the Convention also exists. In addition, a public moderated e-mail list, WHNEWS, distributes news about World Heritage issues to the general public. A partner network of World Heritage sites, the World Heritage Information Network, will serve increasingly as an important forum for information exchange.

1.2 Purpose of Review

To address data and information concerns recognized by the Centre and further identified in furnished documentation (Attachment 1), a group of professionals in the field of data and information exchange (Attachment 2) met during the period 11-13 March, 1998, at United Nations Educational, Scientific, and Cultural Organization (UNESCO) Headquarters in Paris. The meeting was convened, at the request of the WHC, to evaluate the data and information infrastructure of the Centre. The Terms of reference for the review and evaluation are shown (Attachment 3). This report presents the findings of that evaluation effort.

1.3 Documentation

Prior to the meeting, the group was provided with relevant documentation to review in preparation for the meeting. Included in this documentation were copies of recent assessment studies performed to address various elements of the Centre's data and information infrastructure. The first, Information & Documentation Unit Review and Assessment, was completed in-house by the WHC documentation unit, and draws attention to the inadequate coordination among different elements of the WHC. The second report, Financial Audit of the World Heritage Centre, which was mandated by the Committee early last year, documents the inadequate recordkeeping that the Centre inherited from a long period of incremental growth. The companion Management Audit of the World Heritage Centre highlights similar problems in the way information is managed and makes particular recommendations for management information systems and consolidated recordkeeping. A recent report prepared by World Conservation Monitoring Centre (WCMC) on the World Heritage Information Network Review and Recommendations, calls for a relaunching of the network with enhanced partnership arrangements. Another recent report completed for the UNESCO Archives, Report on UNESCO Records Management, highlights some of the problems inherent in the UNESCO system of correspondence management.

1.4 Scope of This Document

This document provides a report of the deliberations, findings, and recommendations resulting from a three-day review and analysis of the data and information infrastructure of the WHC by a group of data and information specialists. The report is based on documentation provided to the investigating group, and upon presentations by, and discussion with, WHC staff. It is intended to provide recommendations for courses of action that the Centre should pursue to improve the efficiency of the flow of data and information. The report is not intended to provide systems, software, or data handling specifications, as would be provided in a more rigorous consultation study.

1.5 Approach

As described above, the group was provided with relevant documentation to review prior to the meeting to familiarize them with the World Heritage Convention, the operations of the Centre, and with deficiencies described in earlier studies. As shown in the attached agenda (Attachment 4), WHC staff provided descriptions of various tasks of the Centre, and discussed data and information deficiencies in current operating practices. The group then met in closed session to review each of the described tasks and to agree upon recommended improvements. A draft of his report was then prepared and a summary of that draft was presented to the WHC staff.

1.6 Assumptions

In the course of its deliberations, the group considered only the procedural and technical solutions to problems identified in this evaluation. The group operated, throughout its deliberations, under the assumption that political, legal, and financial considerations may preclude or delay implementation of any or all of the groups recommendations.

2. WORLD HERITAGE CENTRE OVERVIEW

2.1 General

The Director of the WHC opened the three-day meeting by welcoming the group and highlighting some of the key features of the work of the secretariat. He observed that while the Centre had made credible progress in the last two years in using electronic technology to streamline operations, there were still significant areas in which the Centre was failing to meet the needs of staff and of the network of World Heritage sites, management authorities, and States Parties. In particular, he noted that the recent management and financial audits of the Centre's activities identified several areas in which improved information and records management would lead to improved efficiency and cost savings. A "distributed" information management system would overcome the effects of the "radial" paper flows that were currently the norm. In concluding, he outlined the five blocks of presentations that staff would make during the day.

2.2 Financial Information

There was considerable discussion of the problem of retrieving data from the mainframe ("legacy") system for use on the micro-computer network operated by the WHC. Although real-time links were not possible in the current system, software (called "EASY") that would allow frequent batch downloads was now being used. There was considerable staff interest in developing a system which would allow real-time programmatic financial information to be available to all staff. Centre

staff also explained that most of the other detailed recommendations of the financial audit were already being addressed.

2.3 Site-Specific Information

Presentations concerning site-specific information explained the process of nomination—from initial inscription of (cultural) properties on a State Party's tentative list, to submission of nomination, evaluation, and decision by the World Heritage Committee. Parts of this process already included several databases, and Centre staff presented some ideas to further standardize this process by creating digital files of all submissions. Staff noted that the proliferation of monitoring and mission reports around the Centre often made retrieval of information time-consuming and difficult. The new process for periodic monitoring reports would be an opportunity to request data in a digital form from the beginning. Data from the Man and Biosphere (MAB) program could also be relevant to the conservation of those World Heritage properties which were also MAB sites. The problem of communicating with World Heritage sites by conventional postal mail was raised, since local addresses were often not provided by the nomination dossier.

2.4 State Party Specific Information

In the presentation on State Party-specific information, the Centre's first database was described, with its large number of fields. The difficulties encountered in updating these fields was noted since the information was often held by other individuals in the Centre. As had been noted in the presentation on financial data, the need for real-time data on international assistance requests and decisions was urgently needed, for both staff requirements and to provide an updated report to the public as required by the Convention. Mailing lists were also discussed in the context of State Party information, and it was noted that real-time access to those kept by UNESCO on the mainframe is not currently possible. Increasingly, the Centre is relying on copies of these mailing lists, updated in MS Access databases.

2.5 Documentation and Archiving

The physical constraints of the Documentation Unit were described, and it was noted that the various projects to digitize materials in the unit could be an opportunity to more efficiently use the available space. Digitization of nomination dossiers would also allow staff to consult these critical materials from their own desks. The preparation of documents for the Committee's statutory meetings was also reviewed, and the comments revealed that better use could be the available network drive for this type of collaborative work. There was also extensive discussion of correspondence filing,

including the advisability of establishing an electronic tracking system, such as had been included in the recent UNESCO report on records management.

2.6 In-House Development

The final session provided an overview of Information Technology development in the Centre, summarizing the four ongoing or planned digitization projects, the planned integration of databases, use of Centre-wide Intranet, and the constraints imposed by existing hardware.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Financial Information

The group learned that WHC financial records are maintained on a central mainframe computer system operated at the UNESCO computer Centre, which is likely to remain a factor for a number of years to come. The following deficiencies of this "legacy system" were detailed:

- ◆ The technology is old and not as robust as contemporary systems;
- ◆ There is a lack of communication (cooperation) between developers and operators of the legacy system and the WHC;
- ◆ Presentation capabilities for proper financial reporting are deficient.

The group learned the following needs from WHC staff related to finance management. There is a need to:

- ◆ Track funding from multiple sources;
- ◆ Track contract management, monetary obligations, international assistance, etc.;
- ◆ Integrate funding information with programmatic information;
- ◆ Integrate above with nominations, documentation, archives, correspondence, slides, photos, library, tentative lists, mailing lists, education, and global strategy;
- ◆ Sort above by a multitude of categories—(perform any sort)—cross-reference all;
- ◆ Obtain immediate feedback on financial and programmatic status;
- ◆ Provide access to integrated financial and programmatic information for staff.

The group also learned of a number of other current deficiencies, including:

- ◆ Present skills of staff may not be the set of skills needed to improve data and information infrastructure;
- ◆ Maintenance activities are consuming an inordinate amount of staff time/resources;
- ◆ Coordination attempts are consuming time and trying the patience of the staff.

THE GROUP CONCLUDED that an integrated information management system is needed, and that scanning documents, electronically entering information, or developing disparate databases will not solve the problems.

Therefore, THE GROUP RECOMMENDS , in response to the perceived deficiencies of the legacy system residing on the mainframe system, that the WHC should:

- ◆ Explore integration with UNESCO databases through the EASY interface;
- ◆ Formulate plans in response to future changes on UNESCO database;
- ◆ Design a database prior to planning for ongoing “port” to WHC databases;
- ◆ Coordinate two systems with date-of-information retrieval;
- ◆ Put requirements on the UNESCO database;
- ◆ Require input from the mainframe team.

THE GROUP RECOMMENDS , regarding needs related to finances, that the WHC should:

- ◆ Develop an integrated management information system. All parties who will contribute to the database of such a system, such as users and/or potential users of the information, should provide information on the format of their input and the required format and content of their needs. These needs must include exact specifications on the format, the repeatability of fields required, and the necessity for a particular field to be searchable through an interface.
- ◆ The sophistication of the system interface (or even the need for it) will depend on the requirements of the users. Scalability and extendibility, as well as sophistication of the users, must be considered in the development of requirements. Ongoing communication with other contributors to the database is essential.
- ◆ Based upon the above requirements, prototypes of potential databases must be offered and tested before populating the database.

THE GROUP FURTHER RECOMMENDS , regarding other current deficiencies, that the WHC should:

- ◆ Provide an adequate dedicated server via modalities yet to be determined. This could be acquired through internal establishment at the WHC as a contracted service from the UNESCO computer centre, from external bureau services, or from some other means;
- ◆ Provide configuration control software for the server operating system;
- ◆ Improve network connections;
- ◆ Provide additional training for staff;
- ◆ Provide personnel for systems administration and database management;
- ◆ Choose appropriate commercial, off-the-shelf software packages, rather than in-house development;
- ◆ Ensure that WHC staff participate, based upon a rigorous user needs survey, in the design of an interface and/or software;
- ◆ Engage professional assistance in systems software design and prototyping;
- ◆ Develop an entity-relationship diagram to assess relationships among variables for database;
- ◆ Design a single personnel database with reference fields for associated purposes to include all mailing lists and to ensure cross-reference capability;
- ◆ Choose the software packages or database management only after all the needs are identified and requirements are specified;
- ◆ Design in response to cost-benefit ratio (how much time will be saved within certain time period).

The group noted that implementation of these recommendations would yield many fortuitous results. For example, this course of action would address the following points from the World Heritage Fund, Report of the External Auditor:

- #23. Develop a more detailed chart of accounts of the Fund;
- #24. Improve their accounting and administrative preparedness through better coordination of the Fund's accounts and in the preparation of financial statements for the Fund;
- #29. Take immediate steps to improve its records that contain the documentation supporting financial transactions related to the World Heritage Fund;

- #36. Recommend that the accounting for obligations pertaining to the World Heritage Fund be recorded in the Fund's accounts and not in those of UNESCO's Regular Programme or another trust fund.
- #37. Improve tracking of anticipated revenues to ensure that receipts are deposited promptly and to ensure that it provides the Treasury Division in the Bureau of the Comptroller with the accurate information it needs on expected revenues, the anticipated date of receipt and the financial codes that the funds should be credited to;
- #41. Develop adequate records to monitor the Fund's receipts and disbursements on a regular basis;
- #45. Analyze unliquidated obligations on a regular basis throughout the year. Make adjustments on a timely basis for those obligations that no longer represent a valid legal liability;
- #53. Improve the financial information provided to the WHC by providing financial information against which actual performance can be measured, a summary report of all world heritage activities, annual financial statements with comparative figures for the preceding year and budget information for earmarked income and expenditures related to this income.

3.2 Site-Specific Information

The group learned that a range of processes regarding individual sites are undertaken by the WHC. These processes include: nomination, evaluation and listing of sites; tentative lists of cultural sites; monitoring sites and maintaining the World Heritage Danger list; maintaining the mailing list of site managers; and establishing links to other site-based programs and conventions. Each of these processes involves the management and use of information, yet there is no direct link between the information and data management processes applied, and information is managed separately. This leads to fragmentation of information, and potentially, to duplication of effort.

THE GROUP RECOMMENDS that information on sites be managed in an integrated manner, not in a series of independent databases.

The group learned that many reports and publications are received by the WHC. A large proportion of them deal with individual sites, and include: nominations, evaluations, international assistance reports, reports by non-governmental organizations (NGOs), reports from training workshops, mission reports, brochures, management plans, annual reports, and so on. There is no

single catalogue of written communications to aid location of this information, much of which is with individual desk officers.

THE GROUP RECOMMENDS that the WHC should be keep a record of all material received by the WHC, managed in such a way that all material on individual sites and/or countries can be easily located within the catalogue and found within the Centre, whether as hard copy or electronic copy.

The group learned that, despite the advice provided in the Operational Guidelines, there is considerable inconsistency in the size and content of nomination packages, and in the form in which they are sent. Some countries are clearly going to considerable expense to provide supporting materials and “packaging” that is over and above what is required for an adequate nomination. While not wishing to restrict States Parties in any way, steps need to be taken to normalize the process, both to reduce unnecessary effort by States Parties and to ease the task of recording and archiving nominations.

THE GROUP RECOMMENDS that the WHC, in order to discourage (or at least not advertise) the submission of nominations in non-standard formats or unnecessary packaging, should take nominations to the World Heritage Committee meetings in standard folders such as are currently used for nomination filing.

To this end, THE GROUP FURTHER RECOMMENDS that the WHC should work with its advisory bodies to review the content of the 1997-98 nominations to identify what parts of the nomination are useful and which are not, and to use this as a basis for future advice to States Parties in order to promote the provision of useful material and (hopefully) stop the submission of non-useful material with the nomination.

The group also learned that the maintenance of the nomination files requires an ever-increasing amount of space in the WHC. Meanwhile, the WHC is going through the process of creating electronic copies of the nominations and evaluations, both to ensure the long-term security of the information resource and to increase potential for access to the information.

The World Heritage Centre is to be commended for its foresight in creating electronic copies of the nomination and evaluation documents for all World Heritage nominations, past and present.

THE GROUP RECOMMENDS that this project continue. THE GROUP FURTHER RECOMMENDS that consideration be given to extending the project to also cover deferred and rejected nominations, so that the archive is complete. Once electronic copies of the nomination and evaluation documents are available, the hard-copy files can be passed to the UNESCO archive, thereby relieving the space problem.

THE GROUP FURTHER RECOMMENDS that the WHC should review the current project to ensure that the process is being carried out in the most cost-effective manner.

THE GROUP CONCLUDED that the work of the Documentation Unit would be made easier if nominations arrived in electronic format and did not require scanning. Also, if future nominations arrived in electronic format, they would then require considerably less storage space at UNESCO.

THE GROUP RECOMMENDS that the WHC should more actively encourage the submission of nominations in electronic format, including following up with each State Party submitting a nomination. When preparatory assistance is provided to support development of a nomination, an electronic copy should be expected or at least encouraged as part of the commitment. The group noted that, for many submissions, geobased electronic data would be readily applicable. The geobased data would also allow the Centre to make improved timely decisions regarding site impacts, using available geobased information systems technology, which could be incorporated as a complementary adjunct to a Centre information management system.

To this end, THE GROUP FURTHER RECOMMENDS that the WHC should work with a State Party currently developing a nomination for submission in 1998 or 1999, to prepare a nomination entirely on suitable digital medium, such as CD-ROM. This nomination would then be used as a demonstration to other States Parties of the potential benefits of this medium for submission of nominations (including other potential uses in dissemination of information on the site). The group holds that the Committee should reinforce the capacity of States Parties with appropriate technical assistance to implement the above recommendation.

The group learned that the WHC receives other useful information on World Heritage sites, including publications, videos, etc. Some of this information is received as part of nominations, some as unsolicited material arriving in later years. The information is useful in supporting response to queries by staff, visitors to the Centre, and others. However, not all material is catalogued—only that which is actually moved to the documentation unit. Also other useful material resides with International Union for the Conservation of Nature and Natural Resources (IUCN), International Union for the Conservation of Nature and Natural Resources (IUCN), International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) and WCMC, much of it collected as part of the evaluation process..

THE GROUP RECOM MENDS that a catalogue of all material on World Heritage sites received by the WHC be developed, as an element of the overall integrated information management system.

THE GROUP FURTHER RECOMMENDS that the WHC should discuss with IUCN, ICOMOS, ICCROM and WCMC the creation of a cross-organization catalogue of information available on World Heritage sites. The group recognizes that this could require the WHC to convert to a more recognized form of cataloguing and indexing.

THE GROUP CONCLUDED that there is not full agreement within the Centre on the process to be followed in receipt and subsequent handling of nominations.

THE GROUP RECOMMENDS that WHC staff agree on the process to be followed in receiving, checking, scanning, and forwarding nominations, ensuring the effective recording of both the information itself and the actions taken at each stage.

The group learned that, despite the fact that nominations (and evaluations) are, in effect, legal documents, the WHC does not necessarily hold the originals, and there are gaps in the files.

THE GROUP RECOMMENDS that the WHC should take steps to ensure that the files held by UNESCO are complete, and that whenever possible, the signed original is held.

The group learned that the current scanning project covers the nomination and the evaluation only, yet a range of other documents is relevant to the listing process, and to action subsequently taken.

THE GROUP RECOMMENDS that the WHC should give careful consideration to continuing the document trail on individual World Heritage sites, including linking information on the Committee Decision, future actions (possibly as a result of that decision), monitoring reports (see below), etc. All information on a site, including a summary of action taken by the WHC or related parties, should be available to staff and potentially to others.

The group learned that information on tentative listing of sites is managed independently of the information on site nominations, and is not managed consistently across the WHC. This is so, despite the fact that the tentative lists contain useful information on sites, that countries may receive technical assistance to support development of nominations on the sites, and that in the case of cultural sites, tentative listing is required before submission of nominations.

THE GROUP RECOMMENDS that information on a tentative list of sites should be managed as part of a “holistic” sites database, ensuring as complete an audit trail as possible. Information on when sites were added to (or removed from) national tentative lists, as well as action taken by the Centre—including provision of technical assistance—should also be maintained as part of this database,.

THE GROUP CONCLUDED that there are potential links between tentative listing and the Global Strategy activities (see below), in that the reviews of the distribution of World Heritage sites

in relation to reviews of natural or cultural features may identify potential future World Heritage sites. The ability to track this process may be of value.

THE GROUP RECOMMENDS that the WHC should work with IUCN, ICOMOS, ICCROM and WCMC to identify whether tracking of this information would provide a valuable information source.

The group learned that the WHC receives, as part of the process of ensuring the effective management of World Heritage, a range of reports on individual World Heritage sites, both solicited and unsolicited, from official sources and unofficial sources, and through regular review cycles or as part of ad hoc or reactive monitoring processes. This information is apparently not being currently managed in a consistent manner across the WHC, and is heavily dependent on the desk officers.

THE GROUP RECOMMENDS that a master list of monitored sites should be maintained as part of the sites data, and a complete record of the reports and actions taken should be maintained so that the information can be easily traced. This record, which should be available to all staff and to the advisory bodies, should also include the reports and related actions of the advisory bodies.

THE GROUP FURTHER RECOMMENDS that the WHC should scan reports and other related documents that form a valuable part of the record for individual sites, in order to increase potential access to the information and to make the information archive more secure. This should be done both for current monitoring efforts and for past action.

THE GROUP ALSO RECOMMENDS that the processes for handling information on threats to sites within the WHC should be reviewed thoroughly, in order to ensure that adequate documentation on the information received and the actions taken is maintained, and to ensure that the desk officer dealing with the claim has the information he/she requires readily available from the WHC's files or those of the advisory bodies and WCMC.

The group learned that, as a result of threats to sites, technical assistance projects are often undertaken to deal with the problems that result. Effective management of these projects requires better staff access to financial and management information. Recommendations on this are dealt with elsewhere in this report.

The group learned that the WHC needs to be able to contact those actually responsible for management of World Heritage sites on the ground, but often this contact information is not available, or is out of date.

THE GROUP RECOMMENDS that the WHC should consider modifying the nomination form so that contact details for World Heritage site managers are explicitly requested in addition to contact details for the responsible authorities.

THE GROUP FURTHER RECOMMENDS that the WHC should establish procedures for regular updating of this information, using whatever mechanisms are most effective (UNESCO delegation, WHC meetings, regular mailings, etc.).

THE GROUP ALSO RECOMMENDS that the "mailing list" function should derive from a whole, integrated-contacts element, rather than be managed as a separate entity.

The group learned that there exists a range of other international programs and agreements that involve the management of information on sites. A number of these sites are also part of, or include, World Heritage sites. There is, therefore, potential value in linking this information in some manner.

THE GROUP RECOMMENDS that the WHC should discuss with its advisory bodies and with WCMC the potential value of linking information on World Heritage sites with information on other sites recognized by international agreements or programs, and means by which this might be achieved.

3.3 States Parties Specific Information

The group learned that data relating to States Parties is stored in different sites and media.

The group learned that the database previously resided on UNESCO's mainframe (in ISIS format) but was migrated during 1997 to PC Microsoft Access. It is currently in French, but there is no special reason for this. In general, an English database system is required, provided that the database enables users to produce both English and French output reports.

THE GROUP CONCLUDED THAT the database contains data and information that is also stored on other databases combined with certain unique data fields not stored on any other current database, such as:

- ◆ Country payment status: amount promised, amount currently paid;
- ◆ Whether training has been provided to someone belonging to a particular country (not necessarily linked to any particular site);
- ◆ Whether a request for training has been received from a country;
- ◆ Whether stamps have been issued for any site corresponding to this country (this could be a site field);
- ◆ Whether any exhibitions have been organized about a site (or sites) for a country.

NOTE: Fields are not always filled in, therefore information may not be complete for any specific country.

The group learned that paper files contain incoming and out-going correspondence with a State Party, as required under UNESCO's rules and policies. The letters stored contain a wide variety of topics, not necessarily related to a specific site.

THE GROUP CONCLUDED that there are certain limitations with respect to potential future use of the information contained in the two systems mentioned above. These limitations are mainly due to the current situation of having the necessary information spread over different databases and paper files. It is inefficient and not convenient to keep two different systems to store the country information.

THE GROUP RECOMMENDS that the WHC, with the assistance of an external consultant, should establish a mechanism for users to identify the desired type of reports, most current queries, any other eventual queries, etc., and that a single database element with links to other entities of information (e.g., sites, finance, missions) be established. In this database, the section dealing exclusively with country information, not residing on any other system, should be kept. With the assistance of an external consultant, the users should decide what information should be stored where. This exercise should adhere to the main objective of keeping data in a single place, thereby avoiding duplication.

THE GROUP FURTHER RECOMMENDS, as a conclusion of the prior recommendation, that the WHC discontinue maintenance of the current Parties Database.

THE GROUP ALSO RECOMMENDS that the current method for storing country paper files be reexamined. Except for legal correspondence, staff receiving country letters should store only a brief summary of the letter, identifying what is being requested. If the letter provides some new or updated information (e.g., a new contact point and/or new address) the database should be updated accordingly. Letters coming from the countries to be kept at the WHC only for a short period of time (perhaps six months) should be sent to the central UNESCO archive in order to comply with UNESCO's regulations.

THE GROUP ALSO RECOMMENDS that letters dealing with sites (proposal or nomination) should follow the process suggested in the section on site-specific information.

THE GROUP RECOMMENDS that the WHC users should make a deep analysis of the type of data required to create the necessary reporting. All data frequently used to produce the reports must be stored somewhere in the system, not necessarily on the same data entity.

The group learned that the WHC, at the request of the Parties, initiated the creation of an expert database. Currently this is a list of persons with the associated address, phone, etc. It is not currently possible to know the area of expertise of each expert, or whether he/she has provided some services to the WHC, or other valuable information.

THE GROUP CONCLUDED that, while this database was created to satisfy the instructions given by the Parties, and the real use of this system has never been challenged, it could have potentially significant application if the WHC users define the different manners in which this database may be used in the future.

The group learned that mailing lists are stored in UNESCO's mainframe and that these lists are not readily adaptable to many WHC needs. The WHC has the need to print envelopes and labels, and has developed a PC Microsoft Access system in which the WHC puts together the mailing lists coming from UNESCO's mainframe, plus the site-managers' addresses, plus some internal WHC contacts (not stored in UNESCO's mainframe). Since all addresses for the final mailing list come from various sources, there are problems managing these lists. The group identified the difficulties of the WHC dealing with experts and contacts, and of managing a mailing list. Up till now the database of experts has been populated only by those names officially submitted by States Parties. There are too many isolated places where names and associated addresses are stored.

THE GROUP RECOMMENDS that:

- ◆ The database containing information about experts should be integrated into a larger information management system, and that the WHC should define a strategy for expert-information acquisition, storage and use;
- ◆ This information should be linked with an area of expertise for the expert as well as a geographical area on which the expert has experience. If the expert has been working on joint UNESCO projects on a specific site, this information must be stored in the sites related entity. The database should be kept as simple as possible.
- ◆ Lists of experts for a country have to be sent periodically for revision and update by the country itself, and/or through an automatic reminder in order to see if data about the contact person should be updated, replaced or maintained;
- ◆ The new system should be able to link all necessary names and addresses in order to create a final personnel database, so "mailing lists" should be an extract of information from the database and not databases per se;
- ◆ The WHC should analyze and consider adopting the format used by the NASA's Global Change Master Directory in respect to contacts and addresses;
- ◆ The WHC should implement a mechanism to ensure discipline on the part of the staff in order to maintain the contacts/addresses data. For example, if a letter is received, the corresponding address must be checked and updated if necessary;

- ◆ The WHC should acquire periodic extracts from the UNESCO core mailing list, including schools' addresses for World Heritage Education;
- ◆ Site manager information should be stored in the sites entity. This list should be extracted by country and should be provided to the country representative for revision and update. Whenever possible this type of information should be downloaded into a simple WWW country site page so that the country does the revision and corresponding updates. In general, the WHC has to adopt a strategy for WWW maintenance by dynamic extraction from on-line databases maintained for real operational purposes.

The group learned that information for the WHC Youth Forum resides on UNESCO's mainframe. Other UNESCO units list and maintain data regarding 4,500 schools. It is not clear if all this information, or only some of it, is required by the WHC.

THE GROUP RECOMMENDS that a WHC staff member ensures that periodic extract from the mainframe is provided in suitable electronic form.

3.4 Documentation and Archiving

The group learned that physical space is a problem. A 45 m² space is currently being used for storage, and four employees are committed to archive management—yet no complete records of reports produced exist.

The group learned that slides and photographs are stored in different areas with no central catalogue.

The group learned that there are difficulties in the preparation of documents. The exchange of disks for co-authoring activities is not efficient. The possibility of using shared directories is being investigated.

The group learned that the scanning of the nominations presents difficulties with maps, photos, slides, and video. Only the core documents, and not the full dossier, are scanned. The available on-site equipment is not powerful enough.

The group learned that there is a lack of acquisition policy. There is no digital catalogue of the available publications. The acquisition policy should be defined to acquire only the relevant documents.

The group learned that, although an archive of all relevant correspondence is a legal commitment, there is no mechanism in place to ensure that correspondence records are complete. The rules governing responsibility and controlling access to the central file are not clear, and the central file is not used because it is difficult to access.. Correspondence is archived manually in paper form,

arranged chronologically by country. Personal archives are also available, but they are organized in a different way (by site). Finally, no policy concerning the use and the value of e-mail correspondence is defined.

The group learned that an on-site, centrally-available calendar for meetings and missions is desired but not available.

THE GROUP RECOMMENDS that the WHC should:

- ◆ Define and document the procedures for documentation preparation, acquisition, cataloguing and archiving;
- ◆ Define the procedures for correspondence management, including the follow-on of the actions given following the reception of a letter, document, e-mail, fax, or other correspondence;
- ◆ Select and deploy a Documentation Management System to automate all the processes in the Centre, including configuration control of the documentation produced. This system would also manage the electronic archives;
- ◆ Progressively replace the paper archives with electronic archives, maximizing the number of new documents and correspondence stored electronically, and making sure that a complete directory of the documentation produced and received by the Centre is created and made available to all staff;
- ◆ Complete the scanning of ongoing projects and verify the advantage of extending the electronic archiving to slides and films. Consider the possibility to outsource the scanning activity.

NOTE: There should be a policy to establish a library—with a digital catalogue—that is of value for the Centre.

3.5 Internet and WHIN

The group learned that WHC is currently redeveloping its web site, but recognized that significant improvements are possible in the way in which the Centre is managing its information. These issues are linked.

THE GROUP RECOMMENDS that, whenever possible, web pages be built in real time from databases to reduce the maintenance workload of WHC staff while ensuring web-based information services are kept up to date. In almost all cases these databases will be able to deliver information relevant to information services on the web. This will include inter alia site information as well as information on technical assistance. Databases can also be used to manage location of PDF files and URLs of other related web sites, easing the task of adding information to the web site.

The group learned that a critical review of WHIN has recently been carried out, and a report was prepared on how the service can be developed over the coming year and beyond. The report also begins to explore how a more effective WHIN partnership can be built, which will more proactively involve States in developing web-based information services.

THE GROUP RECOMMENDS that the WHC and WCMC both ensure that every effort is taken to implement the recommendations of the WHIN review, moving WHIN on from the current prototype-and-testing phase to full implementation of both the services and the WHIN partnership. Particular attention should be paid in 1998 to the preparation of the proposed development strategy for the WHIN partnership and mechanisms for effectively drawing States Parties into the process.

The group learned that it would greatly assist the WHC if certain categories of information were available in an up-to-date manner on web pages maintained by the States Parties.

THE GROUP RECOMMENDS that the WHC develop, as part of WHIN implementation, recommendations on the types of information that would be helpful for web sites managed by States Parties to include.

4. SUMMARY: CONCLUSIONS AND RECOMMENDATIONS

4.1 Recommendations

The staff and management of the World Heritage Centre recognize that their processes and procedures are intensely infomatic in nature. They also recognize many areas of complementing and overlapping information requirements and processes, and that many processes are constrained by reliance on tangible media-storage demands and limited physical access. These factors result in deficient location tracking and access control, costly and unwieldy reproduction and distribution, and difficult aggregation and analysis for reporting. These constraints can be expected to become more apparent as the number of World Heritage sites increases, as more States Parties ratify the Convention, as the number of nominations per year rises, and as site-monitoring reporting becomes more frequent. The necessity for effective and efficient coordination among these information requirements will similarly rise, and has yet to be addressed. The group considered that its prime term of reference was anticipating and addressing these necessities.

The group recognized a small set of consistently apparent elements: the sites themselves at the various stages of their history toward inscription; the States Parties and their relationships with the sites nominated and managed; and the activities of the Centre relating to both the sites and the States Parties. The group considered that these elements may be integrated within a homogeneous information management system. Such a system will serve as the base for streamlining many of the Centre's recurrent statutory reporting and public information responses regarding sites, States and

activities. The group notes that the system must be based on formal and rigorous assessment of the requirements of all its potential users, and on an explicit and thoroughly-integrated definition of relationships among the elements of information processes.

THE GROUP STRONGLY RECOMMENDS that the Centre should defer any consideration of implementation methodology, applications packages, hardware or software directions until such time as analysis and design are complete.

The critical step in the definition of an integrated system will be the definition of data requirements for the various inventories and catalogues of the Centre. THE GROUP RECOMMENDS that the Centre should adopt a standardized, pre-existing solution to meet such requirements.

Without prejudice to well-known limitations and practical considerations, THE GROUP NONETHELESS STRONGLY RECOMMENDS that the Centre should undertake a concerted strategic shift toward electronic storage, replication, and distribution of information for site nominations and monitoring, for statutory reporting, and for archive purposes.

THE GROUP RECOMMENDS that the Centre should encourage and assist States Parties and advisory bodies to provide submissions and reports in electronic format, that Centre staff be encouraged to treat these electronic documents as their primary documentation, and that archiving and documentation storage be treated primarily as an electronic issue, with physical management as an off-site backup. The group recognizes that such a fundamental shift in the Centre's way of doing business cannot be implemented overnight, cannot be imposed on the States Parties, and cannot be adopted by many nations without considerable capacity-building and support.

The group believes, however, that the benefits arising from decreased duplication of effort by staff, improved access control and tracking, decreased physical storage requirements, cheaper reproduction and distribution, and streamlined report production will be demonstrated to outweigh the investment.

The group holds that savings arising through efficiencies and effectiveness will ultimately benefit the management of World Heritage and be perceived by the States Parties themselves as being in their best interest to endorse.

The success of any such shift will depend at least as much on effective institutional change management as on any aspect of chosen technology. Fewer staff are doing more tasks across a broader field in shorter time than has been the case in the past. Staff competencies require strengthening, and a coordinated acceptance by staff will be necessary to ensure success. The needs identification described earlier can be one element in addressing this, but THE GROUP

RECOMMENDS that the Centre should also embark on an explicit campaign to provide training and orientation to Centre staff.

4.2 Implementation Approach

The following sections describe the characteristics of an information management system that THE GROUP CONCLUDED the Centre should implement to meet all the requirements expressed and to increase the efficiency of its operation. The description provided is very general and is used to estimate the total cost of the system and to suggest a phased approach for its implementation.

The proposed implementation approach suggests a clear separation of the components that should automate the business processes from the component that will allow the browsing and reporting functionality, using an integrated set of data. This separation is considered useful because it will provide an higher degree of flexibility in defining the priorities and the implementation phases.

4.2.1 Business Processes

The business processes are the procedures executed by the WHC staff to perform their duties. Normally, only a few specialized staff are involved in the execution of such processes. These activities are grouped in three different domains: administration and management processes, site-related processes, and documentation management.

4.2.1.1 Administration and Management processes

- Budget preparation and execution;
- Contracts management;
- Projects management;
- International assistance;
- Relations with State parties;
- Education;
- Mailing list management.

4.2.1.2 Site-related processes

- Tentative list preparation and update;
- Nomination accessioning processes;
- Site monitoring processes.

4.2.1.3 Documentation management

- Management of statutory documentation;
- Correspondence, faxes, e-mail, etc., and associated management and action follow-on;

Configuration and versioning control;
Archive of nominations;
Web pages for Intranet and Internet.

4.2.2 Browsing and Reporting

The browsing and reporting functionality is of general interest for the Centre. The need of access to integrated view of data has been strongly expressed. This integrated view is needed for consultation or for preparing reports both for internal and external usage. A common tool for this function should be available to all the Centre staff. This tool should have sufficient flexibility to define tailored views or reports format.

Implementation of the browsing and reporting capability should implemented prior to the business processes capabilities, at least through the prototype stage, for the following reasons:

The browsing and reporting capability can be implemented fairly rapidly, thereby providing immediate benefit to all Centre staff;

Implementation of this capability will identify gaps in data availability. This dictates a change in the business processes to improve acquisition of data.

4.2.3 Implementation Phases

Phase 1 Definition of requirements

Detail and document all processes to be automated

Identify and document all output requirements

Phase 2 High-level design and prototyping

Design logical data model

Validate the data model with a prototype

Design high-level architecture, including interfaces with mainframe

Phase 3 Implementation

Integrate data repository, mainframe interface and reporting tools

Integrate documentation management system

Phase automation of the processes according to WHC agreed upon priorities

4.2.4 Time and Resource Requirements

Phase 1

Estimated duration: 2-3 months

Resources required: full-time expert plus support by WHC staff

Phase 2

Estimated duration: 4 months

Resources required: full-time expert plus support by WHC staff

Phase 3

Estimated duration: will depend on the number of components implemented in parallel

Resources required: one or more full-time experts plus support by WHC staff

Other: the cost for hardware, software, and tailoring to be defined in Phase 2

Attachment 1: Terms of Reference

Expert Group Review of the World Heritage Centre Data and Information Infrastructure

With a view to improving the ability of the World Heritage Centre to fulfill its role as the Secretariat of the World Heritage Committee, the expert group shall conduct an evaluation of the information management procedures currently in use in the World Heritage Centre. More specifically the group shall:

1. Meet with staff of the World Heritage Centre for 3-5 days to analyze:
 - a) the nature and extent of information collected by the staff in the course of their normal activities and information requirements of staff for more effective operation;
 - b) the way in which this information is utilized, distributed and archived;
 - c) the nature, extent, and use of the existing information infrastructure (filing, databases, Intranet, etc., scanning activities).

This information will include, but not be limited to:

- a) Nomination submissions
 - b) Monitoring reports
 - c) Requests for International Assistance
 - d) Project completion reports
 - e) Mission reports
 - f) Scheduling of Centre activities and individual professional missions
 - g) Daily correspondence (paper, fax and e-mail)
 - h) Financial records.
2. Produce an evaluation report with recommendations for a comprehensive information management infrastructure for the World Heritage Centre. The report shall include priorities, cost estimates of such work, and a suggested timeframe for implementation.
 3. The group will be provided with:
 - ◇ The draft Report on Records Management produced for the UNESCO Archives in December 1997
 - ◇ The Report of the External Auditors on the Management of the World Heritage Convention
 - ◇ Summary findings of the Documentation Unit staff (August 29, 1997 meeting)
 - ◇ The text of the Convention and Operational Guidelines
 - ◇ The Financial Regulations of the World Heritage Fund
 - ◇ Recent reports of the Bureau and Committee.

Attachment 2: Members of the Expert Group Review of the World Heritage Centre Data and Information Infrastructure

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Attachment 3: Reference Documentation

Text of the World Heritage Convention

Operational Guidelines for the Implementation of the World Heritage Convention

Properties included in the World Heritage List

Summary findings of the Documentation Unit staff (August 29, 1997 meeting)

(Paper referenced in the Report of the External Auditors, outlining goals and objectives of the Unit and problems in meeting those objectives)

Report of the External Auditors on the Management of the World Heritage Centre ("Report on the Work of the Committee's Consultative Body on the Overall Management ... of the World Heritage Centre")

(Note that this outside evaluation made several recommendations concerning the management of information. See especially paras. 72, 85-88, 180-193)

Report on UNESCO Records Management by Don Brech (December 1997)

(The report deals primarily with correspondence files in UNESCO but presents a good picture of the conditions at the present time in the Centre. See especially section 7.0. Note the para. 7.26 recommends a pilot study, possibly using WHC as a test case. The report also refers to the "Information Technology Master Plan")

"Information Technology Master Plan" (14 April 1997). Provides an overall view of UNESCO planning. (Note the "target system architecture" criteria in para.12 and that costs must be borne by the sectors or units.)

"World Heritage Information Network - Review and recommendations".

(A new report produced by Jeremy Harrison of WCMC summarizing the work of WHIN over two years with recommendations for future work. Although not directly related to the management of internal information at the Centre, the full development of WHIN should assure that data available to the Centre for internal decision making is improved.)

"Implementation of the Convention in the light of 25 years practice".

A working document prepared for the Committee in 1996 concerning its overall goals and objectives.

Draft Organizational Chart of the UNESCO Secretariat 1998-1999

"World Heritage Centre Computer Systems Overview", 18 February 1998

"Towards a Harmonised Information Management Infrastructure for the Biodiversity Conventions" (5 workshop discussion papers). Ongoing discussions between the Secretariats offer the opportunity for increased information exchange between Secretariats.

Organogramme of Staff positions at the UNESCO World Heritage Centre

Financial Audit of the World Heritage Centre (distributed at meeting)

**Attachment 4: Expert Group Review of the Data and Information Infrastructure of the
UNESCO World Heritage Centre**

Paris, 11-13 March 1998

Provisional Agenda, revised

Wednesday, 11 March

10:30 - 10:45	Welcome and Introduction
	Questions
10:45 - 11:30	Financial Information
	Questions
11:30 - 12:15	WH Site-specific Information
	Questions
12:15 - 13:00	State Party Specific Information
	Questions
13:00 - 14:15	Lunch
14:15 - 15:00	Documentation / Archiving
	Questions
15:15 - 16:00	Internet and WHIN
16:00 - 16:45	Discussion

Thursday, 12 March

09:00	Expert Group deliberation
12:00	Lunch
13:00	Review and discussion with selected staff of World Heritage Centre
17:00	Adjourn

Friday, 13 March

09:00	Drafting of Final report by Expert Group
12:00	Lunch
16:00	Presentation of Preliminary Findings
17:00	Adjourn