

# GUIDING PRINCIPLES AND ILLUSTRATED EXAMPLES RECORDING, DOCUMENTING AND INFORMATION MANAGEMENT FOR THE CONSERVATION OF CULTURAL HERITAGE PLACES

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## CIPA Symposium

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### ABSTRACT:

Good conservation of our cultural heritage is based on informed decisions. Information to make these decisions is, in part, obtained through the use of documentation and recording tools following general principles. Knowledge of these principles, tools and their uses is readily available, however many of the decision makers are unaware, uninformed or unconvinced of their benefits. Several reasons for this include a misunderstanding or intimidation by the language or technology.

This has long been an issue in the field of conservation and this paper presents two publications that highlight guiding principles and documentation tools using illustrated case studies as examples. These publications were designed and written with the manager, mid-career architect or conservator in mind - those who make decisions and work in the field therefore need to identify and select documentation tools. They are non-technical books and the principles and example can be read by these busy professionals within thirty minutes. The principles are intended to guide rather than institute hard rules about how to go about documentation while the collection of examples balances technology, geography, and site significance and will serve as a beginning reference guide to the conservation community. Significant contributors from ICOMOS, ISPRS and CIPA were included in creating these books. This paper will describe the research, methodology and lessons learned from compiling and editing the material and will present the conference participants with the first official edition of these new publications.

**1.1 Introduction** There are two main questions when dealing with the recording or documentation of cultural heritage. Why do people survey or record cultural monuments, architecture and archaeological sites? Who does this surveying or recording? There can only be one answer to the first question - because we *care about the creative history of mankind*. And if we care about our shared history there is only one thing that can be done: Preserve that history. This can be done in two ways by conserving the physical fabric and/or by creating a record to preserve the knowledge if that physical fabric cannot be conserved. The second question about who does the recording may be more difficult. Is it the historian? Archaeologist? Architect? Engineer? Academic? Is it the Geomatics professional<sup>1</sup>? Or even the public? A main premise of this paper is that all of the above should be involved in the recording in order to preserve our cultural history.

The geomatics professionals involved with CIPA represent the one segment of this group that have researched, studied and have been trained in how to record a site, building or landscape. They know how to 'do it.' But they are in the minority. Most projects do not employ these professionals either in an advisory role or directly. In July 2004, four sites in Pakistan seeking protection and inclusion into the World Heritage List were rejected because "no information about the boundaries of the proposed sites were provided" and "the sites were not geographically defined in any respect."<sup>2</sup> In Southern Africa in order to sustain conservation of rock art "comprehensive recording and condition reporting is a priority"<sup>3</sup>. In a recently evaluated conservation project, over 1000 images were captured, 100 condition drawings and numerous sketches created, and thousands of dollars spent all without a single measured survey or stereo pair. The 3 x 3 rules were not even discussed. The conservation was carried out very successfully

and project managers did an excellent job, however with little or no additional effort they could have had a much more complete and 'measured' record. Although this story is anecdotal, it represents the case with many projects. There are many reasons for shortfall; limited financial resources or skill of existing staff, etc. But one reason should not be a lack of knowledge about the general principles for recording or tools and techniques to carry out this work. Likewise, from reviewing geomatics periodicals seldom did articles that focused on recording cultural heritage address conservation.

Geomatics professionals are in the forefront in defining these principles and in using and developing new tools and creating standards for the results they produce. However, these same professionals often do not directly relate these principles and tools to conservation of the physical heritage. But the rest of the groups that are involved in cultural heritage conservation are often left far behind. In a recent informal survey of two dozen conservation professionals several questions were asked about commonly used professional recording tools. Less than half knew the purpose of a total station. Only 10% knew of photogrammetry or the 3 x 3 rules.

Robin Letellier, a long time member and former vice-president of CIPA, recognized this 'gap' between the professionals 'providers' of this information and the eventual end 'users.'<sup>4</sup> Others also recognized the need to better inform conservation professionals. These include Peter Waldhäusl, Francois LeBlanc, Bill Blake and the list goes on. About five years ago a few of these concerned professionals from both sides got together to begin 'bridging this gap.'<sup>5</sup>

## 1.2 Background

Several meetings were held before and after CIPA conferences, ISPRS meetings, ICOMOS assemblies, in Turkey, London and Los Angeles. A group was formed and named RecorDIM (Recording, Documentation, and Information Management). This group decided to identify specific gaps in order to improve recording with the larger aim of improving conservation. A number of important gaps were identified and it was decided that the Getty Conservation Institute would address two communication gaps through publications:

- 1) Overall guiding principles
- 2) Tools/technology/methods

Guiding Principles and Illustrated Examples were created to highlight the main principles, examples, tools, methods and successful projects. In 2005, at the Torino CIPA conference the Getty Conservation Institute announced the intention to create and publish these books. It was the intent of the authors and editors that these books would be ready in time for the CIPA conference in Athens 2007. Following is an outline of the audience and goals, key conservation issues, method, results and content of these publications.

## 2.1 Audience and Goal

Identifying the audience was the first-step to shape the content of the books. From the authors' preparatory research, it was clear that these books needed to serve the professional *conservation* community where the necessity to understand the applicability of documentation principles and tools in the field of heritage is the direst. Therefore conservators, architects, engineers, city planners, archaeologists and other professionals who conserve historic buildings and sites were chosen as the audience. The publications are also meant to reach out to the geomatics professionals so that they may also see ways in which documentation can effectively aid in the conservation process.

The goal of these publications is to introduce *guiding* principles - **not laws** - and tools and techniques to these busy professionals in order for them to quickly draw parallels to their own projects and thus improve conservation practice. The intention is to inform their decisions on how to gather and use information. To captivate our audience, it was necessary to identify the interests of our audience. A brainstorming session was held to list the major conservation issues faced in the world. There were many conservation issues identified however we decided to initially focus on 16:

Rapid assessment after a natural or man-made disaster  
Wall deformation in earthen structures  
Defining landscapes for legal protection  
Mapping features over a wide area  
Recording complicated uneven surfaces  
Organizing data in order to make informed decisions  
Economically recording streetscapes in the face of development  
Condition surveys of surfaces for conservation intervention  
Surveys of large spaces over time for different disciplines for coordination  
Inspecting remote sites quickly and economically  
Structural assessments of tall buildings or difficult to reach places  
Cities inventories that capture more than just structures  
Economically planning conservation interventions over time  
Investigating hidden subsurface conditions  
Monitoring movement in masonry structures  
Recording traditional building techniques

At the same, we tried to identify the principal and primary documentation tool appropriate to provide answers to each issue. Furthermore, we thought it essential to extend our

readership to an international level outside of Europe and North America. Thus by researching and including relevant material from other countries, the books would be more widely disseminated and have a larger impact. We also thought it was important to have a wide variety in terms of significance. We did not want to include only World Heritage sites but also buildings or structures that would be of local significance.

## 2.2 Method

An advisory board that consisted of nine conservation professionals from a variety of backgrounds was convened in early 2004<sup>6</sup>. This board was established to guide and advise the publications and proved essential when key decisions were made concerning development. With this board it was decided that a team of three experienced professionals, one 'user', one 'provider' and an editor would draft the Guiding Principles<sup>7</sup>. It was also decided that a modular case study approach would be used for the Illustrated Examples. Case studies featuring successful projects would address the key conservation issues listed above and could be written by both geomatics professionals and conservators with an editor<sup>8</sup>.

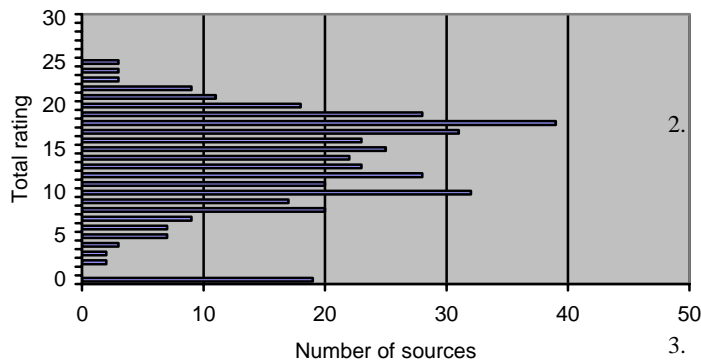
An extensive bibliographic search was conducted to find these conservation projects using various library databases, catalogues, archives and indices. These were supplemented by browsing and cross-referencing citations in books, journals and conference proceedings and soliciting international conservation and geomatics professionals for suggestions. Search keywords were identified from the issues drafted during the brainstorming session as well from primary recording tools and techniques. Over 800 articles, books, conference proceedings and white papers were gathered from various sources such as publications with a conservation focus that featured survey or documentation; survey and documentation publications and conference proceedings with a cultural heritage component (CIPA proceedings, survey periodicals, etc.); and, periodicals relating to cultural resources and conservation. This search was limited to material from the last 15 years.

To guide the selection process, a set of criteria was determined to evaluate each source from the literature search. This rigorous evaluation system not only assessed the quality, clarity, and relevance of the content and the success and suitability of the tool application but also considered the nationality of the authors as well as site location - this was all the more important since the publication needed to feature international sites and authors to reach out to the global community of conservation experts. The collected material was then distributed among the team members and systematically reviewed and rated against each of the criteria for which a score was assigned.

The review and evaluation of literature was based on following questions:

- Is a conservation issue clearly stated?
- If so, is the scope of the issue addressed by documentation?
- Is there a correlation between the documentation objectives and the conservation process?
- Are the documentation tools appropriate to address the conservation issue in terms of costs, details, precision, time, and availability?
- Are the tools effective in informing the conservation process?
- Is the writing style clear?
- Does the author have good expertise on the topic?
- Are references provided?

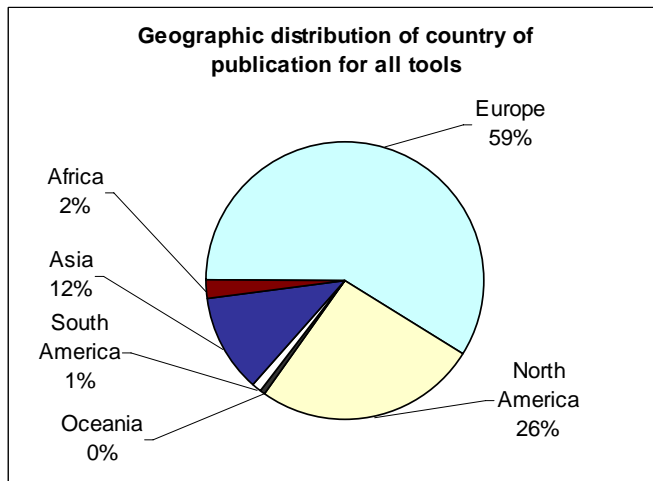
### Results from literature review



### 3.1 Results

Some interesting results came out of this literature review that supported the ideas of the RecordDIM group and Advisory Board<sup>9</sup>.

- 1) Only 1/6th of the reviewed literature is strongly relevant to conservation.
- 2) Increasingly articles feature hi-tech tools and complicated procedures.
- 3) These hi-tech tools are often not used by conservators
- 4) Documentation literature is not published extensively outside of Europe.
- 5) Published work frequently targets the *already* informed and highly specialized professionals.



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### 3.2 Content and Contributors

With these research results supporting the initial assumptions and providing some direction; writing, editing and refining of both publications began. The Guiding Principles began by outlining 12 overall principles for documenting cultural heritage for conservation:

1. Why? - Heritage information is required to acquire knowledge, understand meaning and values, promote

the interest and involvement of people, permit informed management and ensure long-term maintenance and conservation of heritage places. It may also be considered as an "insurance policy" against loss and as a "posterity record" for future generations.

2. When? – Acquiring information of heritage places should be undertaken when compiling inventories or creating a heritage information system, when critical decisions are made, when historical evidence is revealed, before, during and after any conservation or other type of work, where heritage places are at risk or when use changes.
3. Who should carry out heritage information activities? – Heritage information activities should be carried out first and foremost by professionals but everyone with an interest in the heritage place and having information to contribute should also participate.
4. Who is responsible? - Managers of heritage places are responsible overall for ensuring the adequate recording and cataloguing of information, and the quality and updating of the records, but everyone else involved in the conservation process also has specific responsibilities for recording, conserving and sharing information.
5. Where do heritage information activities fit in the Conservation Process? - Recording, documentation and information management of heritage places are essential activities of all phases of the conservation process and should be fully integrated into this process. All heritage information products should be kept in a central repository and managed as part of an integrated project dossier.
6. What is the first planning step? - Research is the first step. Before new records are prepared, existing sources of heritage information should be found and examined for their adequacy.
7. What should records contain? - Heritage records must clearly and accurately identify and locate the heritage places and their setting, and note the sources of all related information; they must also include metric, quantitative and qualitative information about the assets, their values and significance, their management, their condition, their maintenance and repairs, and the threats and risks to their safeguard.
8. What commitment is needed from decision makers? - The commitment to conserve heritage places requires an equal commitment towards the activities of acquiring heritage information by establishing clear policies for recording, documentation and information management activities, guidelines and standards for defining, planning and implementing recording for all projects, for archiving all records and for information exchange and dissemination.
9. Who should have access to heritage information? – Since heritage is what the community wishes to protect and pass on to the next generations, dissemination of heritage records should be as wide as possible and the location of the records should be made public.
10. What level of detail is required? - Recording and

other heritage information activities should be undertaken to an appropriate level of detail to provide information for sensitive and cost effective planning and development, for efficient research, conservation work, site management and maintenance and for creating permanent records.

11. What about scope, level and methods? - The selection of the appropriate scope, level and methods of recording requires that the methods of recording and type of documentation produced should be appropriate to the nature and importance of the heritage place, the project needs, and the purpose of the record, the cultural context, and the resources available. Preference should be given to non-intrusive techniques. The rationale for the intended scope and for the selection of the recording method must be clearly stated and the materials used for compiling final records must be stable.
12. How should records be kept and identified? - Original records of heritage places must use standardized formats, be preserved in a safe and accessible place, be backed-up, and in the case of digital records, be regularly migrated to newer versions of software and support. Although costly, archiving hard copies of digital records is also a recommended practice. For records to be easily retrieved and managed they require a unique identifier such as standard longitude and latitude coordinates that define the location of a heritage place on earth.

It was decided by the advisory board that the writing style should be one of 'encouragement' and 'guidance' rather than prescribed. It was decided by the author and editors that the style of the chapters and headings should be questioning while providing follow-up answers.

**3.3 The Illustrated Examples** provides a background of the project and conservation issue then introduces the tool or technique used as well as indications of cost, time, technology, and levels of difficulty in a simple uniform format. It includes further references to existing published materials and connections to practicing experts in the field of documentation. Eighteen examples were chosen from around the world that includes a wide variety of projects that fit the conservation issues outlined earlier. Recognizing that the audience is not interested in the tool per se but more in solving a pressing problem; each of the eighteen examples is presented with the conservation "issue" first – not with the documentation tool. This is followed by a description of the site and project, and then the tool and its use are presented. Finally an "answer" statement, final product and summary are included.

Following is a sample illustrated example.

The issue statement is "How can a team quickly make informed evaluation of earthen structures and their seismic performance in order to better protect them in the future?" This is then followed by the situation in Los Angeles after the 1994 Northridge earthquake and how the team quickly evaluated twenty structures and conducted their recording. The tools, photography and 3D sketches, are detailed and how they helped in the assessment and temporary shoring and subsequent conservation. Finally, a summary is presented that lists all the tools in an easily accessible format.

The issues, tools and contributors that comprise the Table of Contents include:

Rapid assessment with sketch diagrams and photography, U.S.

(Tony Crosby)

Wall deformation with hand survey and plumb bob, India (Sandeep Sikka)

Defining landscapes with a total station, Zimbabwe (Geoffrey Chikwanda)

Mapping features with GPS, Easter Island (Jo Anne Van Tilburg, Cristián Arévalo Pakarati, Alice Hom)

Recording irregular features with a laser scanner, Peru (Alonzo Addison)

Recording streetscapes with rectified photography, Bahrain (Salim Elwazani and José Luis Lerma)

Condition mapping with transparencies, Czech Republic (Rand Eppich, Dusan Stulik and Jaroslav Zastoupil)

Building surveys with a total station and rectified photography, Canada (Christian Ouimet)

Inspecting sites with aerial photography, New Zealand (Kevin Jones)

Structural assessment with stereo photogrammetry, Turkey (Gorun Arun)

Inventorying cities with maps and forms, Zanzibar (Francesco Siravo)

Ancestral landscapes, Australia (Cliff Ogleby)

Planning conservation interventions with GIS, U.S. (Frank Matero and Judy Peters)

Virtual solutions with 3D computer modeling, Spain (José Luis Lerma)

Determining subsurface conditions behind masonry, Italy (Marco Tallini)

Measuring movement of masonry structures with automated monitoring systems, Italy (Giorgio Croci)

Recording traditional building techniques with video, Yemen (Caterina Borelli)

Reading interventions with infrared reflectography, South Korea (Soon-Kwan Kim)

These are essentially the conservation issues that were outlined earlier. The book also contains several tool overviews.

#### **4.1 Conclusion**

In early 2006 drafts of these publications were sent to the advisory board and a selected peer review group. The books were also 'tested' on various student groups at Katholieke Universiteit Leuven, the University of Pennsylvania, and the University of California Los Angeles (UCLA). Comments were gathered over the year and incorporated into the current version. The books were then copy edited and designed.

With both of the publications finished we are now in the process of distributing free hard copies to institutions, universities, training programs and influential individuals. Distribution of free electronic PDF copies will also be available via the Getty's website (address to follow). These books are now being presented to the geomatics professionals and conservation professionals in order to bridge the gap between the two groups. They will also be incorporated into conservation educational and training programs.

The authors and editors have also had a chance to reflect on lessons, both good and bad, learned during this process. One key decision early on was to form the advisory board and involve a wide range of professionals on both sides of the gap. This led to many good ideas and prevented work from proceeding in a vacuum. The peer review group was also helpful in this respect. Another good idea was to involve conservation educators; this was a fortunate as one member of the board is a professor. This brought in new ideas about how people absorb ideas and new information. One more influential idea was to design the publications with images in mind at the same time the text was developed. The inclusion of images early on helped form and shape the text. It was also helpful to

have a 'mock up' of the two books to beginning to get early feedback and comments. Along with these good ideas were several 'lessons learned'. Not nearly enough time or human resources were allocated for the creation of these books once the project was announced - long hours and weekends were the result. A project of this scope should have required another six months. This was due in part to not allocating enough time for the widely dispersed contributors to write and edit their work. Soliciting influential contributors also delayed the production because these professionals are often very busy with multiple projects. Another issue that arose late in the process was obtaining the hundreds of image permissions necessary. All of these issues are familiar to experienced editors and publishers and therefore could have been avoided. But from the beginning it was decided that the original RecorDIM group would have creative control and direct the work. The advisory board determined that this group had the passion to bridge the gap and impartial editors or writers may have been too 'distant' from the project.

The authors and editors feel that these publications will just begin to bridge the gap between the geomatic professional providers and creators of information and the users for the conservation of our shared cultural heritage. There is more work to be done but this is a beginning.

## 5.1 References/Endnotes

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<sup>1</sup> University of Florida, 2007. Geomatics is the modern scientific term referring to the integrated approach of measurement, analysis, and management of the descriptions and locations of Earth-based data, often termed spatial data

<sup>2</sup> Zulqernain Tahir, 2004. UNESCO representative as quoted in Dawn Edition - *UNESCO Rejects Four Pakistani Sites Again*

<sup>3</sup> Janette Deacon, 2004. Archeologist, Board Member South African Heritage Resources Agency; *Where Are We Now? An update on the state of a sustainable conservation programme at rock art sites in South Africa*, Paper and presentation at the Getty Conservation Institute.

<sup>4</sup> Robin Letellier, 2001. 'Bridging the Gap' Between the Information User and the Information Provider. Working Group report CIPA Conference Potsdam.

<sup>5</sup> Robin Letellier, 2004. Strategic Alliances as seen by ICOMOS and Information Users, *ISPRS CIPA Special Session*, Istanbul.

<sup>6</sup> Alejandro Alva (ICCRUM Centre, Rome), Kate Clark (Heritage Lottery Fund, UK), Rand Eppich (Getty Conservation Institute, USA), John Fidler (English Heritage, UK), François LeBlanc (Getty Conservation Institute, USA), Frank Matero (University of Pennsylvania, USA), and Giora Solar (ICOMOS International, Israel) Robin Letellier, Author (RecorDIM Initiative, CIPA, Canada), Werner Schmid, Technical Editor (Private conservator, Italy)

<sup>7</sup> The provider is Robin Letellier, the user Werner Schmid, and the editor Francois LeBlanc

<sup>8</sup> The editor for the Illustrated Examples is the author of this paper. R. Eppich

<sup>9</sup> R. Eppich, A. Chabbi, 2006. Results from a Literature Review of Documentation for Cultural Heritage, CIPA/VAST proceedings.

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## 6.0 Acknowledgements and Appendix

Many thanks to all of our contributors, the members of the advisory board, peer review group and students that have helped shape these publications. These books are dedicated to the memory of Robin Letellier and Geofree Chikwanda who both unfortunately passed away just as work on the manuscripts was being completed.

## 7.0 Transmittal and Further Information

If there are any questions or further comments please contact the author. Rand Eppich at [reppich@getty.edu](mailto:reppich@getty.edu)