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A CRITICAL ANTHOLOGY OF INTERNATIONAL CHARTERS, CONVENTIONS & PRINCIPLES ON DOCUMENTATION OF CULTURAL HERITAGE FOR CONSERVATION, MONITORING & MANAGEMENT

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ABSTRACT

Cultural heritage (CH) is a unique expression of human achievement which is endangered today. The world is losing many monuments and sites more rapidly than it can even be documented. Its documentation, protection, and proper management are critical to enabling the scholars of heritage to study and interpret it, on behalf of and for the benefit of present and future generations. Documentation prior to any intervention in the CH is now an integral part of any conservation and preventive plan and process. It is also an essential prerequisite to form a comprehensive understanding of cultural significance and factors affecting CH conditions. As a baseline, surveying, recording, and documentation are critical for monitoring changes over time, degradation, modifications and/or conservation intervention in addition to risk assessment and mitigation. This anthology will review 50 International Charters, Conventions and Principles along nine decades (1930-2020) and will highlight 27 out of them related to documentation, recording and surveying. More analytically, this study reviewed 13 charters of the 27 from the period from the 30's to the 90's of the 20th Century, another 14 from the first and second decades of the new millennium (2000-2020), four significant publications on «recording» from English Heritage, initiatives of CIPA and Getty Conservation Institute, and the 10 representative documents of the second decade of the New Millennium together with one notable publication of CIPA. The paper aims to present a critical review, assessment and investigation of these International Charters, Conventions and Principles related to the three main terms; surveying, recording, and documentation of CH. They will be discussed within the conservation, monitoring and management scope, from data collection to data sharing. The paper will trace the evolving conception of these terms and their interplay in the aforementioned Charters.

KEYWORDS: Documentation, Recording, Surveying, Information Management, Risks, conservation, Monitoring

1. INTRODUCTION AND SCOPE

Cultural Heritage (CH) is realized through its tangible and intangible spiritual characters. Both are facing all over the world many risks; from natural anthropogenic and technical factors, (Haddad *et al*, 2018). Today the world is losing its CH more rapidly than it, in many cases, can be even documented (LeBlanc and Eppich, 2005, p. 5).

Those serious factors underscore as to why documentation is a necessity. This is even more critical in emergency situations when there are a humanitarian crisis and sites threatened with armed conflicts. Documentation prior to any intervention in the CH is now an integral part of the conservation process and an essential pre-requisite to form a thorough understanding of a building's significance and the factors affecting its condition (Muhammad and Chabbi, 2012).

The importance of CH documentation is obvious in research, protection, conservation, reconstruction, stabilization, identification, interpretation, CH management, raising awareness and helping in educating the public regarding the CH values, data recovery especially in mitigating losses resulting from construction (Haddad, 2019). In times of crisis documentation plays a central role. It can produce a lasting record of CH in the event that it is lost, and must be well-thought-out (Haddad and Fakhoury, 2019).

CH documentation includes evidence in the form of oral, written, graphic and photographic documents. Heritage information is based on documentation. It involves different layers of integrated activities of surveying, recording, documentation, and information management. **Fig. 1** is showing the use and flow of heritage information.



*Fig. 1 The use and flow of heritage information. Overview (after Letellier *et al*, 2007, p. 12)*

After the end of the First World War, Europeans woke up to a great loss that destroyed a large number of their historical buildings and monuments. The loss

warned those interested in CH of the need to preserve them, especially with insufficient knowledge of the methods and techniques of conservation and restoration that guarantee their safety and continuity.

Thus, there was an urgent need to document historical buildings of national importance and propose an archive for each country, and work to publish it.

According to ICOMOS (New Zealand Charter for the Conservation of Places of Cultural Heritage Value, 2010), documentation means “collecting, recording, keeping, and managing information about a place and its cultural heritage value, including information about its history, fabric, and meaning; information about decisions taken; and information about physical changes and interventions made to the place”.

Of importance here, is the recent elaboration of the definition of heritage documentation, under the direction of Robin Letellier (CIPA Heritage Documentation) and Francois LeBlanc (Getty Conservation Initiative ‘GCI’), the RecorDIM.¹ At the opening meeting, 36 delegates from 12 countries agreed to work with the definition of heritage documentation (Blake, 2019, p.81) as:

“Heritage documentation is a continuous process enabling the monitoring, maintenance and understanding needed for conservation by the supply of appropriate and timely information. Documentation is both the product and action of meeting the information needs of heritage management.

It makes available a range of tangible and intangible resources, such as metric, narrative, thematic and societal records of cultural heritage” (Blake, 2019, 82).

Documentation can be defined as the systematic collection and archiving of records of CH asset in order to preserve them for future reference. It also refers to the stock of existing information while recording is the active process of creating and collecting new records. (Letellier *et al.*, 2007, 117). Documentation can also provide an answer to the questions of a risk assessment and monitoring of the remains of past human activities (Haddad, 2019).

CH documentation has many dimensions such as technical, social, economic, and environmental aspects. This has to be reflected in the approaches to assess and monitor CH risk. The assessment of risks equally requires a conceptual framework to identify and quantify their various components (Haddad, *et al*, 2018, 7).

It is important to underscore the role of CIPA Heritage Documentation and the ICOMOS / ISPRS Committee for documentation of CH. CIPA is an international non-profit organisation, one of the oldest International Scientific Committees of ICOMOS.

It was jointly founded with ISPRS (International Society of Photogrammetry and Remote Sensing) in 1968, only 4 years after the adoption of Venice Charter. It “endeavors to transfer technology from the measurement and visualization sciences to the disciplines of cultural heritage recording, conservation and documentation”.²

As stated, CIPA’s mission is to encourage the “development of principles and practices for the recording, documentation and information management for all aspects of cultural heritage”, and to support and encourage the “development of specialized tools and techniques in support of these activities.” CIPA organizes and supports conferences, newsletters, summer schools and publications which contain CIPA authored or approved literature and guidelines <https://www.cipaheritagedocumentation.org/about/whatiscipa>. (<https://www.cipaheritagedocumentation.org/activities/>).

On the other hand, International charters, conventions and principles illustrated wide-ranging principles for the application of CH documentation for conservation and Monitoring. These charters and principles, therefore, reflect basic and universally applicable principles and practices.

They do not take into account particular problems of regions or countries, which can be supplemented at the regional and national level by providing further recommendations where necessary. They include, sometimes, technical and practical description for their implementation.

2. INTERNATIONAL CHARTERS & CH DOCUMENTATION: A REVIEW

The significance and the need for CH documentation have been stressed in most of the charters and conventions starting from Athens Charter of 1931 to Venice Charter of 1964, to Principles for the Recording of Monuments, Groups of Buildings and Sites (1996) to Australian Burra Charter (1999), to ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value (2010), to ICOMOS Principles for the Conservation of Heritage Sites in China (2015), as well as many other recent conventions and declarations. This issue shall be discussed and analyzed through a review of 50 representative international Charters, Conventions and Principles.

After reviewing those 50 documents, the study selected 27 of them related to documentation covering 9 decades (1930-2020). To achieve the aim of this study, the charters were grouped along their related decades; 13 from the 20th Century, which were published between the 30’s to the 90’s, and another 14 from the first and the second decades of the new millennium (2000-2019). Moreover, the study discussed

four significant publications on recording from English Heritage and a relevant initiative of CIPA and Getty Conservation Institute, as well as 11 documents of the second decade of the 21st century.

3. THE 20th CENTURY: THE DECADES BETWEEN THE 30’S & THE 90’S

13 International Charters, Conventions and Principles are collected from this period and can be grouped and summarized as follows: one from the 30’s, one from the 60’s decade, 3 from the 80’s and 8 from the 90’s decade.

3.1 The 20th Century: The 30’S Decade

Formulated in the early 1930s, the Athens Charter for the restoration of historic monuments (ICOMOS, 1931) emphasized the value of international documentation. It stated that “*Each country constitutes official records which shall contain all documents relating to its historic monuments*”; “*compile records and systematically inventory cultural heritage for identification*”. The charter also covers even related issues of excavation needs; “*when the preservation of ruins brought to light in the course of excavations is found to be impossible*”, the conference recommended that they can be buried, but “*accurate records being of course taken before filling-in operations are undertaken*”.

A significant contribution of this early phase is the introduction of the term “*records*” in parallel with the term “*documents and inventory*” in the early 1930s. It is important at this juncture to mention recent clarifications of these terms. “*Records of monuments, groups of buildings and sites may include tangible as well as intangible evidence, and constitute a part of the documentation that can contribute to an understanding of the heritage and its related values*” (ICOMOS, 1996.) Recording based on the principles laid out by ICOMOS is to “*the capture of information which describes the physical configuration, condition and use of monuments, groups of buildings and sites, at points in time, and it is an essential part of the conservation process.*” (ICOMOS, Principles for the recording of monuments, groups of buildings and sites, 1996, 49). “*Heritage recording is the capturing of graphic and photographic information describing the physical configuration, evolution, and condition of a heritage place*” (Lianos and Stamnas, 2016, p.92).

3.2 The 20th Century: The 60’S Decade

While the decades of the 40’s and 50’s, did not produce any charter in relation to documentation, the 60s produced one of the most significant charters. The most important document of this period, Venice Charter (ICOMOS, 1964) is entirely dedicated to documentation. Article 16 of this Charter emphasizes that

it is essential that responsible organizations and individuals record the nature of the cultural heritage. *"In all works of preservation, restoration or excavation, there should always be precise documentation in the form of analytical and critical reports, illustrated with drawings and photographs. Every stage of the work of clearing, consolidation, re-arrangement and integration, as well as technical and formal features identified during the course of the work, should be included. This record should be placed in the archives of a public institution and made available to research workers. It is recommended that the report should be published."* This charter clarifies the term "documentation" for the first time which includes three types/categories; written, graphic and photographic.

In fact, Venice Charter continues to be the most influential international document for documentation for conservation and even for monitoring. Monitoring is also requested through *"Every stage of the work"*.

3.3. The 20th Century: The 80'S Decade

While no charter, in relation to documentation was developed in the 1970s, the 1980s were important in that regard. Representative charters of this period are:

- 1- Florence Charter (1981) regarding Historic Gardens adopted by ICOMOS in 1982
- 2- Appleton Charter for the Protection and Enhancement of the Built Environment, published by ICOMOS Canada (1983)
- 3- Charter for the Conservation of Historic Towns and Urban Areas (Washington Charter, 1987)

This decade addressed new issues related to documentation and recording for restoration and reconstruction works. It also dealt with the conservation framework at the regional, local planning levels which corresponded to multidisciplinary studies and documentation of existing conditions before any intervention.

Florence Charter (1981) regarding Historic Gardens (Article 16), states that *"no one period should be given precedence over any other, except in exceptional cases where the degree of damage or destruction affecting certain parts of a garden may be such that it is decided to reconstruct it on the basis of the traces that survive or of unimpeachable documentary evidence"*. Regarding the restoration and reconstruction, article 15, clarified that *"no restoration work and, above all, no reconstruction work on a historic garden shall be undertaken without thorough prior research to ensure that such work is scientifically executed and which will involve everything from excavation to the assembling of records relating to the garden in question and to similar gardens"*. The legal and administrative protection section affirms the preservation of such gardens *"must be provided for within the framework of land-use plans and such provision must be duly mentioned in documents relating to regional and local planning"* (Article 23).

In a typical manner, Appleton Charter for the Protection and Enhancement of the Built Environment, published by ICOMOS Canada (1983), emphasized, in the practical section regarding documentation, that *"the better a resource is understood and interpreted, the better it will be protected and enhanced. In order to properly understand and interpret a site, there must be a comprehensive investigation of all those qualities which invest a structure with significance. This activity must precede activity at the site. Work on site must itself be documented and recorded"*.

Charter for the Conservation of Historic Towns and Urban Areas (Washington Charter, 1987) further elaborated the significance of documentation. The section of methods and instruments, in article 5, introduced the need of multidisciplinary studies in urban planning *"Planning for the conservation of historic towns and urban areas should be preceded by multidisciplinary studies. Before any intervention, existing conditions in the area should be thoroughly documented"*.

To conclude, that although this decade is not so rich with the development of material for documentation and recording, it underscored the need for documentation within conservation at the various scales of regional and local planning and multidisciplinary studies together with the need of documentation of existing conditions before any intervention.

3.4. The 20th Century: The 90'S Decade

This decade is so rich with prescriptions for the material, conditions of the structures and sites, appropriate techniques documentation (non-intrusive, non-destructive techniques), traditional skills, sharing publicly accessible archive and terminology regarding the vital role of modern photographic documentation. This is clear in the 90's decade where 8 charters were produced. The representative publications of this period are:

- 1- ICOMOS guide to recording historic buildings (1990), Nicholas Cooper edited by R. Chitham.
- 2- Charter for the protection and management of archaeological heritage (1990)
- 3- Resolution on Information as an Instrument for Protection against War Damages to the Cultural Heritage (1994)
- 4- Principles for the Recording of Monuments, Groups of Buildings and Sites (1996), ratified by the 11th ICOMOS General Assembly in Sofia (1996).
- 5- Charter on the protection and management of underwater cultural heritage (1996)
- 6- Charter on the Built Vernacular Heritage (1999)
- 7- Principles for the Preservation of Historic Timber Structures (1999)
- 8- The revised Burra Charter (1999)

Cooper's ICOMOS guide to recording historic buildings (Cooper, 1990), displays a variety of drawing types. The guide gives practical advice such as the distinction between dimensioned sketches or site notes and 'direct plot' measured drawing. It notes that taking site notes requires certain experience which should be conducted "after one has reached one's understanding of the structure' not before". It subsequently suggests that hand measurement is invaluable for filling in essential data unrecorded by other techniques is as valid today as it was then" noted Blake (Blake, 2019, 67).

Cooper stated that "Hand measurement is often invaluable for filling in essential data unrecorded by other techniques (such as by photography) or where by their employment small-scale detail could only be recorded at disproportionate cost (e.g. by photogrammetry)." Cooper further stressed the value of measured drawing skills: "The great advantage of hand measurement is that it can be carried out by those familiar with the techniques without recourse to specialists or to specialized and expensive equipment. This means in addition that the practitioner - the architect, surveyor, planner etc. can himself control the extent and scope of the information he needs to record for any specific purpose while the very process of measuring gives him a familiarity with the building that he can never achieve by studying records made by others. Nor are the techniques involved basically difficult."³

Published in the same year, the Charter for the protection and management of archaeological heritage (1990), clarified in its introduction, that the archaeological heritage constitutes "the basic record of past human activities". It laid down principles relating to the different aspects of archaeological heritage management. These include the responsibilities of public authorities and legislators, principles relating to the professional performance of the processes of inventorying, survey, excavation, documentation, research, maintenance, conservation, preservation, reconstruction, information, presentation, public access and use of the heritage, and the qualification of professionals involved in the protection of the archaeological heritage.

In this charter, a special section under the term "Survey" is introduced for the first time. Article 4, states that "General survey of archaeological resources is, therefore, an essential working tool in developing strategies for the protection of the archaeological heritage". Consequently, the archaeological "survey should be a basic obligation in the protection and management of the archaeological heritage".

Of importance here, is an added clarification of the term surveying. Surveying "is just one component of CH documentation. Surveying as part of CH documentation includes "all methods available to record

the geometry of objects and/or topography" (Böhler and Heinz, 1999, 3).

According to this charter, inventories constitute primary resource databases for scientific study and research. The compilation of inventories should, therefore, be regarded as a continuous, dynamic process. It follows that inventories should comprise information at various levels of significance and reliability since even primary knowledge can form the starting point for protection measures.

The overall objective of archaeological heritage management, as per the section of maintenance and conservation in Article 6, "should be the preservation of monuments and sites in situ, including proper long-term conservation and curation of all related records and collections etc".

In the section of legislation and economy in Article 3, "Legislation should in principle require full archaeological investigation and documentation in cases where the destruction of the archaeological heritage is authorized".

The section of investigation, Article 5 clarified that "As excavation always implies the necessity of making a selection of evidence to be documented and preserved at the cost of losing other information and possibly even the total destruction of the monument, a decision to excavate should only be taken after thorough consideration".

Finally, one should mention the significant contribution of this charter in introducing some new terms for the actions of gathering information about the archaeological heritage. They should not destroy any more archaeological evidence for the protection or scientific objectives of the investigation.

The charter also encourages "Non-destructive techniques, aerial and ground survey, and sampling should therefore be encouraged wherever possible, in preference to total excavation". The term "non-destructive technique" here appears for the first time in the related charters for documentation in the 1990s.

In the subsequent Guidelines on Education and Training in the Conservation of Monuments, Ensembles and Sites (1993), the section of aims (10) clarifies that traditional crafts are a valuable cultural resource. Craftsmen, already with high-level manual skills, "should be further trained for conservation work with instruction in the history of their craft, historic details and practices, and the theory of conservation with the need for documentation". Many historic skills will have to be recorded and revived.

On the other hand, the resources section (16, e), emphasizes the need for a library and documentation centre providing reference collections, facilities for coordinated research, and access to computerized information networks (section 17).

Since conservation depends upon adequate documentation for the understanding of monuments, ensembles or sites and their respective settings, “*Each country should have an institute for research and archive for recording its cultural heritage and all conservation works related thereto*”. They all should be undertaken within an archive with responsibilities identified at the national level.

One year later, emphasizing the need of “recording” underscored in previous charters, the Resolution on Information as an Instrument for Protection against War Damages to the Cultural Heritage (1994) declared that “the destruction of historic records, monuments and memories serves furthermore the purpose of suppressing all that bears witness that the threatened people were ever living in the area...”.

Later the Principles for the Recording of Monuments, Groups of Buildings and Sites (1996), ratified by the 11th ICOMOS General Assembly in Sofia, 1996, articulated the objectives, principles, responsibilities, and extent for recording cultural heritage.

CH documentation, thus, became embedded into the broader field of heritage conservation, preservation, interpretation and management. The collection of precise and accurate information was thus not only meant to further heritage specialists’ understanding of a CH structure or site’s significance and condition, but also advise interventions, track and manage change, as well as be applied in didactic and advocacy purposes (Muhammad and Chabbi, 2012).

In fact, the model of information required to inform conservation action was established in Venice Charter (Article 16). This was expanded on in ICOMOS Sophia Principles (1996). Elaborating article 16 of Venice charter, as a fully integrated part of research and conservation activity, recording is seen as a priority and a need before, during and after any works of repair, alteration, or other intervention. “*A report of the main results of any recording should be disseminated and published, when appropriate*”.

New records should note the sources of all information, as it is one of the “*principal ways available to give meaning, understanding, definition and recognition of the values of the cultural heritage*”.

Recording and its associated complexity and interpretation processes, require “*the deployment of individuals with adequate skill, knowledge and awareness for the associated tasks. It may be necessary to initiate training programmes to achieve this*”. Recording may involve “*skilled individuals working in collaboration, such as specialist heritage recorders, surveyors, conservators, architects, engineers, researchers, architectural historians, archaeologists above and below ground, and other specialist advisors*”.

Regarding the level of details, ICOMOS Sophia Principles mandates that permanent recording is to be undertaken. Recording should provide all the related information for all parties concerned with its process including administrators and planner, at regional or local levels.

This process includes interpretation and presentation, control policies and decisions, sustainable use, management, maintenance and construction works of all monuments, groups of buildings and sites that are to be “*destroyed or altered in any way, or where at risk from natural events or human activities*.”

Sharing the process of recording is essential to promote the involvement of the public. A strong commitment for recording is needed at the national level, where all managers are responsible for “*ensuring the adequate recording, quality and updating of the records*”.

As for the planning for recording, it is important that the national and local public archives, at professional, institutional or private archives, inventories and collections, of libraries or museums to search out for recent as well as old records with individuals and organizations who have owned and recorded them. Planning assumes that before new records are prepared, “*existing sources of information should be found and examined for their adequacy*”, such as information in surveys, drawings, photographs, published and unpublished accounts and descriptions, and related documents.

The selection of the appropriate level of detailing and methods of recording, should be clearly stated and must be as an archivable. It should provide “*important data for local planning and building control and management*”. Recording methods should use “*non-intrusive techniques, and should not cause damage to the object being recorded*”. They should be “*appropriate to the nature of the heritage, the purposes of the record, the cultural context, and the funding or other resources available*” “*Such methods might include written descriptions and analyses, photographs (aerial or terrestrial), rectified photography, photogrammetry, geophysical survey, maps, measured plans, drawings and sketches, replicas or other traditional and modern technologies*”

With regards to the content of records, the name, unique reference number, recording organization and cross-references to a related building should be identified including “*records and reports, photographic, graphic, textual or bibliographic documentation, archaeological and environmental records*”. In addition to the location and site description, maps, plans or aerial photographs must be given accurately.⁴

Finally, Sophia’s charter’s section of management, dissemination and sharing of records, stresses that the original records should be preserved and stored with a complete back-up copy in a separate location and

should be made public with copies accessible “to the statutory authorities, to concerned professionals and to the public”.

They should be preserved in “a safe archive and the archive's environment must ensure permanence of the information and freedom from decay to recognised international standards” with up-dated records, if possible, on the site. The format of these records should be standardized.

The Charter on the protection and management of underwater cultural heritage (1996) was published in the same year of ICOMOS Sophia Principles. It similarly declares in the section of documentation, Article 8, “all investigations must be thoroughly documented in accordance with current professional standards of archaeological documentation”. Documentation also must provide “a comprehensive record of the site, which includes the provenance of underwater cultural heritage moved or removed in the course of investigation, field notes, plans and drawings, photographs and records in other media”.

In accordance with previous charters, the fundamental principles' section, Article 1, stresses that investigation must be accompanied by adequate documentation tools, while non-destructive techniques, non-intrusive survey and sampling should be encouraged in preference to excavation. In the project design, article 2, “prior to investigation a project must be prepared, taking into account: which should be considered a documentation”; In Article 3 regarding funding, the project design should include “contingency plans that will ensure conservation of underwater cultural heritage and supporting documentation in the event of any interruption in anticipated funding”.

However, project funding must not require “the sale of underwater cultural heritage or the use of any strategy that will cause underwater cultural heritage and supporting **documentation** to be irretrievably dispersed”.

Article 4, in the section of time-table, demands that the project design should include “contingency plans that will ensure conservation of underwater cultural heritage and supporting documentation in the event of any interruption in anticipated timings”. Article 12, in the section of reporting, instructs that interim reports should be made available “according to a time-table set out in the project design, and deposited in relevant public **records**”. Regarding the research objectives, methodology and techniques, Article 5, clarifies that post-fieldwork analysis of artifacts and documentation are “integral to all investigation; adequate provision for this analysis must be made in the project design”.

Article 13 addresses curation and the project archive, that includes underwater cultural heritage removed during the investigation where a copy of all supported documentation, “must be deposited in an institution that can provide for public access and permanent

curation of the archive”. In the dissemination section, Article 14 requests, “A final synthesis of the investigation must be made available as soon as possible, having regard to the complexity of the research, and deposited in relevant **public records**”. In fact, in both documents of ICOMOS (1996), we can observe for the first time the introduction of new terms for avoiding damage during documentation by using non-intrusive, non-destructive techniques.

As we will subsequently show, a special document/charter for the “Principles for the Recording of Monuments, Groups of Buildings and Sites” was proposed in 1996. Its purpose was to set out the principal reasons, responsibilities, planning measures, the contents, and management and sharing considerations for the documentation, recording and surveying of the CH and deciding on the level of details of records.

Later in 1999, three other charters/principles appeared. Charter on the Built Vernacular Heritage (1999), the guidelines in practice, research and documentation sections emphasize that any physical work on a vernacular structure should be cautious, and should be preceded by a full analysis of its form and structure. This document should be lodged in “a publicly accessible archive”. In the section on traditional building systems, the continuity of traditional building systems and craft skills associated with the vernacular emphasized as fundamental for vernacular expression, and essential for the repair and restoration of these structures. “Such skills should be retained, recorded and passed on to new generations of craftsmen and builders in education and training.

Principles for the Preservation of Historic Timber Structures (1999), the section of inspection, recording and documentation, stresses that “the condition of the structure and its components should be carefully recorded before any intervention”, as well as all materials used in treatments, in accordance with Article 16 of Venice Charter and ICOMOS Principles for the Recording of Monuments, Groups of Buildings and Sites (1996).

All pertinent documentation, including characteristic samples of redundant materials or members removed from the structure, and information about relevant traditional skills and technologies, “should be collected, catalogued, securely stored and made accessible as appropriate”.

The documentation should also include the specific reasons given for the choice of materials and methods applied in the preservation work. A thorough and accurate diagnosis of the “condition and the causes of decay and structural failure of the timber structure should precede any intervention”.

This diagnosis should be based on “documentary evidence, physical inspection and analysis, and, if necessary,

measurements of physical conditions and non-destructive testing methods".

This should not prevent necessary minor interventions and emergency measures. Though, the appearance of non-destructive techniques/ methods is now a condition in the related charters.

The section of interventions, article 8, states that the aim of restoration is to conserve the historic structure and its load-bearing function and to reveal its "cultural values by improving the legibility of its historical integrity", its earlier state and design within the limits of existing historic material evidence, as indicated in articles 9-13 of the Venice Charter (1964). Members and components removed from the historic structure "should be catalogued, and characteristic samples kept in permanent storage as part of the documentation".

All pertinent documentation, including characteristic samples of redundant materials or members removed from the structure, and information about relevant traditional skills and technologies, "should be collected, catalogued, securely stored and made accessible as appropriate". The documentation should also include the "specific reasons given for the choice of materials and methods in the preservation work".

Finally, the revised Burra Charter (1999), presents a process and sequence of investigations, decisions and actions, required for understanding cultural significance; to gather and record information about the place sufficient to understand its significance. It refers to three types of information: documentary, oral and physical.

More analytically, the statement of the conservation policy should be cross referenced to sufficient documentary and graphic material to explain the issues considered. Meanwhile "all sources of information, both documentary and oral, consulted during the task should be listed, whether or not they proved fruitful".

Article 6 of Burra charter process (6.1) recommends that the cultural significance of a place and other issues affecting its future are best understood "by a sequence of collecting and analysing information before making decisions. Understanding cultural significance comes first, then development of policy and finally management of the place in accordance with the policy".

Article 31, regarding documenting evidence and decisions states that "a log of new evidence and additional decisions should be kept". Article 32, regarding the records (32.1) "the records associated with the conservation of a place should be placed in a permanent archive and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate (32.2). Records about the history of a place "should be protected and made publicly available, subject to requirements of security and privacy, and where this is culturally appropriate".

Applying Burra charter process in the conservation practice, article 26, (26.1) demands that "work on a place should be preceded by studies to understand the place which should include analysis of physical, documentary, oral and other evidence, drawing on appropriate knowledge, skills and disciplines".

To conclude, many of the main significant principles of the 90's decade charters/principles commonly advise that documentation material and archive to be publicly accessible and available, as was first mentioned in Venice charter, article 16 in 1964. The other domain of documentation in these charters is related to documenting the conditions of the structure and its components, the causes of decay and structural failure, as also the specific reasons given for the choice of materials and methods in the preservation work.

They should be carefully recorded before any intervention, and the collection and documentation of the relevant traditional skills and technologies should be made accessible and appropriate in education and training associated within the conservation work, repair and restoration. In addition, these charters tended to emphasize the need for using non-destructive techniques/methods in any process of documentation.

Finally, one must mention a critical aspect of the charters prior to the 21th century. They presented principally an archaeological approach to recording. According to Bill Blake (Blake, 2019, p.68) the archaeological approach and methods, when applied to buildings, "tend toward analytical and investigative processes driven by descriptive 'levels' of record rather than metric or scalar performance".

4. THE 21th CENTURY OF THE NEW MILLENNIUM: FROM THE FIRST TO THE SECOND DECADE

The subsequent 14 International Charters, Conventions and Principles collected for this phase can be summarized as follows: three from the first decade, four significant publications on recording from English Heritage and later Historic England⁵, in addition to an initiative of CIPA and Getty Conservation Institute, as well 10 others from the second decade of the New Millennium and with one notable publication from CIPA.

4.1 The First Decade of the New Millennium

The representative documents of this period are:

1- ICOMOS Charter-Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage (2003)

2- Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas, adopted in Xi'an, China by ICOMOS, (2005)

3-Historic English Heritage, *Understanding Historic Buildings: A Guide to Good Recording Practice* (2006)

4- Getty Conservation Institute two volumes, *Recording, Documentation, and Information Management for Conservation of Heritage Places*, 2007. Vol. 1: *Guiding Principles*, and Vol. 2: *Illustrated Examples*.

5- ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites, (2008)

6-Metric Survey Specifications for Cultural Heritage (2009)

These publications identify who is responsible for creating the documentation and what its purpose is. Emphasis is placed on ensuring that the documentation is available for future generations, so they can understand interventions. The "researches and diagnosis" section (2.1) in ICOMOS Charter-Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage (2003), states that "a multidisciplinary team, to be determined in relation to the type and the scale of the problem, should work together from the first steps of a study - as in the initial survey of the site and the preparation of the investigation programme".

The section of remedial measures and controls (3.22), states that "all the activities of checking and monitoring should be documented and kept as part of the history of the structure".

Xi'an Declaration on the Conservation of the Setting of Heritage Structures, Sites and Areas, adopted in Xi'an, China by ICOMOS (2005), is significant especially the section dealing with understanding, documenting and interpreting the settings in diverse context.

It boldly emphasizes that understanding, documenting and interpreting the setting "is essential to defining and appreciating the heritage significance of any structure, site or area". Meanwhile, it clarifies that understanding the setting in an inclusive way requires "a multi-disciplinary approach and the use of diverse information sources" (article 4). "Sources include formal records and archives, artistic and scientific descriptions, oral history and traditional knowledge, the perspectives of local and associated communities as well as the analysis of views and vistas".

Of significance in this decade is the English Heritage, *Understanding Historic Buildings: A Guide to Good Recording Practice*, (2006). It incorporated the work of RCHME completed by 1999 and its drawing standards - principally used for thematic and analytical work.

It covers the following subjects;" why record?" "prior to recording," "when to record," "creating a

record," "recording levels: a description, preserving the record, architectural drawing conventions."

The four levels of recording are now replaced with this English Heritage guide to good recording practice. However, it "did not anticipate works used for the drawings and although updated it still fails to address the critical relationship between precision, cost, and scale".

According to Bill Blake (Blake, 2019, pp.68-69) the guide acknowledges the "issue without addressing the fundamental concept of information capture and presentation commensurate to a scale.

Conservation functions are suggested as beyond the scope of the guidance": "While the levels specified ... will cover most eventualities when a building is recorded for historical purposes, there will be circumstances in which more detailed records may be desirable. The type of record required by an architect, builder or engineer to monitor a major conservation project or to reconstruct a severely fire-damaged historic building will be very different from those described. The purpose of the record must always determine its scope" (Bill Blake, 2019, 69).

Also, of significance to this decade, is the two-volumes' on recording which were published in 2007 as an initiative of CIPA and the result of the RecorDIM TG16. which were later published by Getty Conservation Institute in 2007. They provided international standards for heritage documentation.

Vol. 1: *Recording, Documentation, and Information Management for Conservation of Heritage Places, Guiding Principles* (2007), which describes 12 principles covering project design, inventory, method selection, data types, and institutional responsibility.

It is directed towards heritage managers and stresses the importance of documentation. It discusses the basic documentation principles and approaches. For example, Fig.2 illustrates the production and integration of data to create the complete record of a heritage place. (Letellier et al, 2007).

Vol. 2: *Recording, Documentation, and Information Management for Conservation of Heritage Places, Illustrated Examples* (2007). It is a series of eighteen short case studies on successful projects, from around the world, where documentation was crucial to the conservation.

Although these publications outline why recording is necessary, and the parties responsible for creating the documentation and its purpose, they do not specify tolerance and performance, or explain their standards. They only provide a general framework for documentation projects.

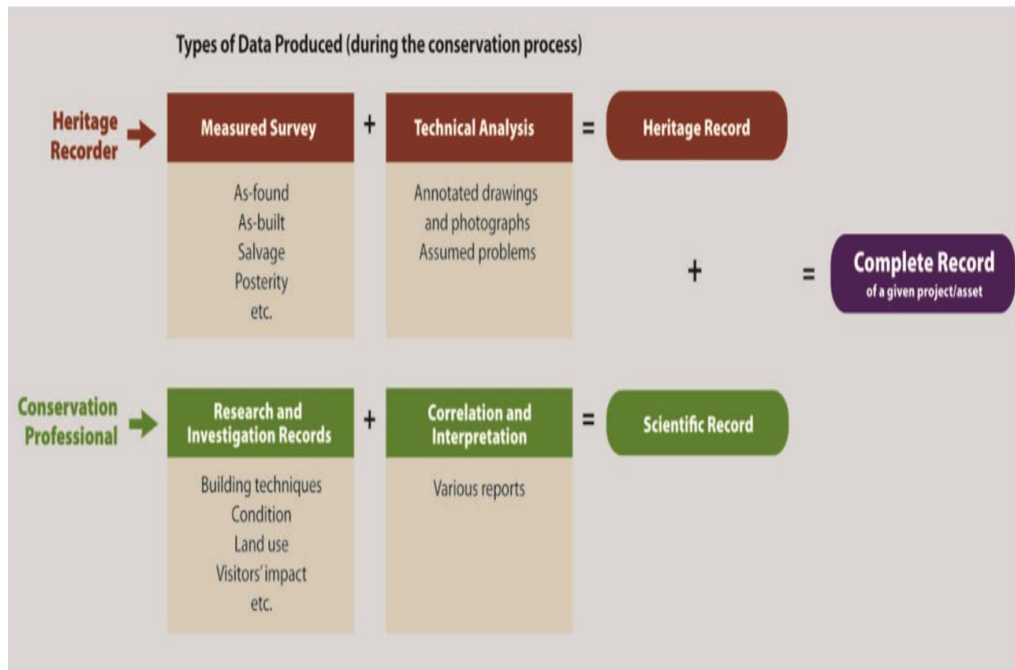


Fig. 2 Chart showing the production and integration of data to create the complete record of a heritage place. (Letellier et al, 2007).

One year after Getty's two publications, ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites, (2008) were published. Out of the seven principles of the objectives of this Charter, two are associated with documentation. In principle 2, lists that information sources, interpretation and presentation should be based on evidence "gathered through accepted scientific and scholarly methods as well as from living cultural traditions". In article 1, interpretation should show "the range of oral and written information, material remains, traditions, and meanings attributed to a site". The sources of this information should be "documented, archived, and made accessible to the public".

Regarding visual reconstructions, whether by artists, architects, or computer modelers, Article 4 requests that they all should be "based upon detailed and systematic analysis of environmental, archaeological, architectural, and historical data, including analysis of written, oral and iconographic sources, and photography". The information sources on which such visual renderings are based should be "clearly documented and alternative reconstructions based on the same evidence, when available, should be provided for comparison". Article 5, requests that interpretation and presentation programs and activities, should also be "documented and archived for future reference and reflection".

Meanwhile principle 3, in dealing with the context and setting states the interpretation and presentation of cultural heritage sites "should relate to their wider social, cultural, historical, and natural contexts and settings". However, the cross-cultural significance of

heritage sites, as well as the range of perspectives about them which are based on scholarly research, ancient records, and living traditions, "should be considered in the formulation of interpretive programmes".

At the end of this decade, the Metric Survey Specifications for English Heritage (2000) was expanded and retitled as Metric Survey Specifications for Cultural Heritage in 2009. With a second edition and a third published in 2015 they all offered solutions to emerging problems in the procurement of heritage appropriate work from the geomatics sector. This Metric Survey presents a practical guide that teaches basic metric survey skills for conservation activities. Thus, Historic England continued to upgrade and publish this last outcome, eventually expanding the experience by publishing handbooks on most of the techniques⁶. Those publications are now accessible through Historic England website and are periodically updated as technology develops (Blake, 2019, 112). Case studies of best practice appeared in "Measured & Drawn: Techniques & Practice for the Metric Survey of Historic Buildings" (2003) Blake, 2019, 59).

To summarize, what characterized this decade is the emphasis on the need of a multidisciplinary team and a multi-disciplinary approach, according to the nature of the structure or the site. Other critical issues clarified which were previously emphasized by Venice charter 1964, are the importance of monitoring the remains of past human achievements and activities, as also sharing the documented material, and making them accessible to the public.

To sum up, the charters of this decade presented new instructions which are; documentation is vital for encouraging and involving the local and associated communities; the importance of the living cultural traditions and knowledge which should be considered in the formulation of interpretive programs. Finally, alternative reconstructions based on the same evidence should be provided for comparison while based on their wider social, cultural, historical, and natural contexts and settings, thus, ensuring that the documentation is available for future generations and interventions can be better understood.

4.2 The Second Decade of the New Millennium: (2010-2020)

This second decade (2010-2020) can be considered the richest one so far, based on the numbers of the related published charters and principles (11 out of 14), especially in its recommendations and themes. However, we can also observe that it built on the two most important previous works. It especially agrees with Article 16 of Venice Charter (1964) and ICOMOS Principles for the Recording of Monuments, Groups of Buildings and Sites 1996 as it states that at each stage, the CH conservation work must be documented in detail and should be carefully recorded before considering any further action. This decade can be divided into two periods: a) 2010-2015. b) 2015-2020.

4.2.1. The first period 2010-2015

The representative publications of this period are:

- 1- ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value (Revised 2010)
- 2- Lima Declaration for Disaster Risk Management of Cultural Heritage (2010)
- 3- Valletta Principles for the Safeguarding and Management of Historic Cities, Towns & Urban Areas, adopted by the 17th ICOMOS General Assembly (2011)
- 4- The Florence Declaration on Heritage and Landscape as Human Values (2014)

ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value (Revised 2010), defines documentation as “collecting, recording, keeping, and managing information about a place and its cultural heritage value, including information about its history, fabric, and meaning; information about decisions taken; and information about physical changes and interventions made to the place”. The section of documentation and archiving, made clear that the cultural heritage value and cultural heritage significance of a place, and all aspects of its conservation, “should be fully doc-

umented to ensure that this information is available to present and future generations”. All records of CH value should be also deposited in an archival repository.

More specifically, documentation should include information about “all changes to the place and any decisions made during the conservation process”. It also should be carried out “to archival standards to maximize the longevity of the record, and should be placed in an appropriate archival repository”. It should be made also available to connect people and other interested parties. Where reasons for confidentiality exist, such as security, privacy, or cultural appropriateness, “some information may not always be publicly accessible”.

The section on understanding cultural heritage value, states that CH value should be understood through “consultation with connected people, systematic documentary and oral research, physical investigation and recording of the place, and other relevant methods”. Meanwhile, the planning for conservation section argues that conservation should be subject “to prior documented assessment and planning”. Regarding the physical investigation of a place it should be carried out “according to currently accepted professional standards, and should be documented through systematic recording”. Each conservation project should use all the proper methods of recording, such as written, drawn, and photographic and include “the deposit of all records in an archival repository”, and research into “documentary and oral history, using all relevant sources and repositories of knowledge”. Meanwhile any repair of a place, with cultural heritage value, should utilize matching or similar materials. Where it is necessary to employ new materials, “they should be distinguishable by experts, and should be documented”.

Regarding reconstruction of heritage sites, the charter states that it is appropriate if it is essential to the “function, integrity, intangible value, or understanding of a place, if sufficient physical and documentary evidence exists to minimize conjecture, and if surviving cultural heritage value is preserved”.

Finally, concerning the physical fabric removed from the site, the charter clarified that it should be “systematically recorded before and during its removal. In some cases, it may be appropriate to store, on a long-term basis, material of evidential value that has been removed”.

Published in the same year (2010), Lima Declaration for Disaster Risk Management of Cultural Heritage, its preamble (4), states that the earthquake history, especially the seismic activity in and around the heritage sites, and the impact of recent earthquakes “on traditional and non-traditional structures, should be documented and made available”.

One year later, the Valletta Principles for the Safeguarding and Management of Historic Cities, Towns

& Urban Areas, adopted by the 17th ICOMOS General Assembly in 2011, stated that the method and scientific discipline, proper planning “requires up-to-date precise documentation and recording (context analysis, study at different scales, inventory of component parts and of impact, history of the town and its phases of evolution, etc.)”. As for the section of the management plan, the information provided by the local authorities and officials, as also the “*field survey and detailed documentation*”, should all be included, “as an appendix, the conclusions from stakeholder discussions and an analysis of the conflicts arising in these inherently contradictory debates”.

What specifically characterizes this charter is the new section of contemporary architecture. It deals with situations when it is necessary to construct new buildings or to adapt existing ones. Contemporary architecture, as an integral part of the perception of the historic spaces’ context, must be coherent with the existing spatial layout of the historic towns as well as with the rest of the urban environment, which “must be respected in the event of new interventions. Before any intervention, the existing context should be carefully analyzed and documented”.

In Florence Declaration on Heritage and Landscape as Human Values (2014), the section of the principles and recommendations on the value of cultural heritage and landscapes is identified with promoting peaceful democratic societies. This section advances collaborative standardization and simplification of procedures and tools (5.3, b) where priority should be given “to user-friendly and low-cost technologies to ensure the adoption of tools that can be used for cultural heritage documentation, conservation and monitoring, as part of a virtuous circle.”

The section on sharing and experiencing community identity through tourism and interpretation points to opportunities to empower communities and tourists (1.1, b). The community involvement with cultural heritage sites which are affected by disaster and conflict can “offer opportunities for healing and reconciliation”. In rebuilding the fabric of their own lives in the face of painful memories, “communities retain or create physical memorials in the landscape recording the psychological damage of ‘crimes against humanity’ or devastation of disasters in terms of human lives lost. In turn, as visitor attractions, opportunities arise for a range of community interpretations and ongoing dialogue with tourists”.

To conclude, the first part of this decade (2010-2014) can be considered as very rich in its recommendations and themes. It also emphasizes the vital and needed role of community involvement with CH. CH value should be understood through “consultation with connected people, systematic documentary and oral research, physical investigation and recording of the place,

and other relevant methods”. As also it should be available to connected people and other interested parties. Now, it is clear that community involvement affects the value of cultural heritage especially in promoting peaceful and democratic societies, by community interpretations and ongoing dialogue with tourists. However, in certain cases, where needs for confidentiality exist, such as security, privacy, or cultural appropriateness, “some information may not always be publicly accessible”.

We can also observe the need to sustain a documentation definition, which includes information not only about all changes to the place, but also about any decision made during the conservation process. Documentation now is being expanded in its meaning and roles; it is not only “collecting, recording, keeping, and managing information about a place and its cultural heritage value, including information about its history, fabric, and meaning; information about decisions taken; and information about physical changes and interventions made to the place.” It also requires up-to-date precise documentation and recording (context analysis, study at different scales, “and to archival standards to maximize the longevity of the record, and should be placed in an appropriate archival repository”.

When new materials are necessary to employ, they should be distinguishable by “experts, and should be documented” and be systematically “recorded before and during its removal. In some cases, it may be appropriate to store, on a long-term basis, material of evidential value that has been removed”. Conservation though, should be subject “to prior documented assessment and planning” without ignoring the traditional and non-traditional structures, which should be documented and made available.

An issue which lingers in the charter concerns the need for full documentation to ensure that “the existing context should be carefully analyzed and documented”. To ensure that this information would be available to present and future generations; all proper methods of recording, such as written, drawn, and photographic documentation should include “the deposit of all records in an archival repository”, as well as research of the “documentary and oral history, by using all relevant sources and repositories of knowledge”. This should be achieved according to current accepted professional standards, and should be documented through systematic recording, by applying “user-friendly and low-cost technologies to ensure the adoption of tools that can be used for cultural heritage documentation, conservation and monitoring, as part of a virtuous circle.”

4.2.2. CH charters of the 2nd period: 2015-2020

The short second half part (2015-2017) of this decade can be considered as the richest period based on

the numbers of the related charters and principles (approximately 10), as also in its recommendations and themes, in relation to the previously discussed first half. The main publications marking this period are the following:

1- Principles for the Conservation of Heritage Sites in China, by ICOMOS China (Revised 2015)

2- CIPA in 2016, entitled 3D Recording, Documentation and Management of Cultural Heritage, by Efstratios Stylianidis and Fabio Remondino

3- The sets of regulations adopted by the 19th ICOMOS General Assembly, New Delhi, India, 2017:

“ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage,” “The SALALAH Guidelines for the Management of Public Archaeological Sites,” and “Principles for the Conservation of Wooden Built Heritage.”

4- ICOMOS: Guidance on Post Trauma Recovery and Reconstruction for World Heritage Cultural Properties, which refers to world heritage committee decision in 2016, (Paris–2017)

Principles for the Conservation of Heritage Sites by ICOMOS China (Revised 2015), states that the process of identification and investigation of heritage sites (Article 17), “*comprises a national level survey and inventory, an investigation of selected sites in greater depth, and a detailed investigation of the most significant ones. These investigations must examine all historic vestiges and traces and relevant extant documentation, as well as the immediate setting. Survey should be undertaken at archaeological sites to determine the site boundaries and state of preservation.*”⁷

Chapter 4, concerning conservation measures, (article 24), declares that “*All technical and management interventions should be documented and archived. Related surveying, research, monitoring, and intervention reports should be made public and published by the responsible government entity*”. In these China principles, monitoring is fundamental to understanding the processes of deterioration, as well as identifying potential problems. “*Problems that cannot be dealt with through maintenance should be monitored regularly, documented, and collated. Monitoring data should be analyzed and become the basis for carrying out further conservation measures. Management should include costs associated with maintenance and monitoring in the site’s annual budget*” (p.81).

The minor and major restoration section, article 27, specified that documentation records “*should be kept of elements that are removed or added and those that have been added should be distinguishable from original fabric*”. However, conjectural reconstruction, “*based solely on documentary records is not permitted*”. When the overall layout of building ensembles is still basically intact, restoration may be considered by reconstructing a small number of missing buildings as a means of conserving

the overall integrity of the complex, “*but only when there is sufficient documentation and visual evidence*” (p. 86). It is not permitted to create new buildings in a traditional style on the pretext of restoring a site, based solely on documentation or an oral account (p. 88).

According to Article 31, each stage of the work must be documented in detail and samples of decorative painting of particular significance that cannot be conserved *insitu* should be archived after conservation treatment. Research, analysis, assessment and documentation should be undertaken at all periods of redecoration.

Article 33 underscores that reinstatement of decoration to a particular historical period can only be undertaken after extensive review and the approval process is completed. If removed, information about later decoration needs to be recorded. Thorough documentation should be undertaken prior to any physical conservation. In Article 34, reconstruction *in situ* for purposes of presentation and interpretation is not advocated.

According to Article 43, reconstruction should not be undertaken on archaeological sites. Instead it encourages presenting and interpreting these sites by means of drawings, photos and sketches, and models, and the use of modern technology such as virtual reality presentations based on accurate archaeological and documentary evidence. However, in special circumstances, “*as when a lost structure has great significance for an architectural ensemble, reconstruction may be considered provided there is sufficient visual evidence and textual documentation on the missing structure and it is possible to accurately recreate the structure*” (p. 102).

The notable publication of CIPA in 2016, entitled 3D Recording, Documentation and Management of Cultural Heritage and authored by Efstratios Stylianidis and Fabio Remondino, provided an objective and cohesive approach to this subject matter through an integrated treatment of cultural heritage documentation and recording.

The 19th ICOMOS General Assembly, New Delhi, 2017 adopted many regulatory sections concerning conservation and documentation of CH. The section on understanding rural landscapes and their heritage value in ICOMOS-IFLA Principles Concerning Rural Landscapes as Heritage, emphasizes the action of documentation, and the heritage values of rural landscapes as basis of effective planning, decision-making, and management: “*Inventories, catalogues, atlases and maps provide basic knowledge of rural landscapes to spatial planning, environmental and heritage protection and management tools, landscape design and monitoring*”.

The section on historic study, preservation, and management, as in the general remarks (17) in ICOMOS-IFLA document on Historic Urban Public Parks,

New Delhi (2017), clarifies that the stewardship of historic urban public parks and their component parts *"must be based on careful research, original documents, such as photographs, and evaluation of their condition in relation to an inventory of the existing park conditions and future uses. These studies must be done by qualified or appropriately experienced experts."* It is also equally important to research the evolution of the planning and development of historic parks and their settings, as well as their importance for local communities. It is also important *"to establish and actively maintain archives of related historic documents that can be used as the basis for their on-going maintenance, management, and stewardship"*. On the other hand, *"all such work must be documented, and the records must be deposited and protected in accessible public archives to assist reference and understanding, and ensure the benefit to future generations. Such records can and should inform future conservation and management decisions and actions"*.

The inventory and evaluation section of management planning guidelines in SALALAH Guidelines for the Management of Public Archaeological Sites - adopted by the 19th ICOMOS General Assembly, New Delhi, India, (2017)- stipulates that every effort should be made *"to employ cost effective, non-intrusive, and non-destructive technologies for the inventory and evaluation of cultural and natural resources. These technologies shall include, for example, direct detection of sites and resources or modelling the distribution of sites and resources (1.1)"*. Also emphasized that well-documented and internationally recognized best practices for field-based study of, *"documentation, evaluation, and protection of archaeological heritage are implemented"* (1.1.1.2). As-built surveys and specifications and current conditions of all infrastructure should be provided, along with known or estimated numbers of users. *"Infrastructure includes all buildings, utilities, roads, communication networks, and means of access and travel"* (1.1.3). In addition, there is need to ensure that *"well-documented and internationally recognized best practices for field-based study; documentation; evaluation and protection of archaeological heritage in traditional use areas are implemented"* (1.1.4.2). In the case of establishing site boundaries and management zones (1.2), the *"boundaries of a buffer zone should also be accurate and well documented (1.2.4)"*.

The section related to inspection, survey and research in Principles for the Conservation of Wooden Built Heritage, adopted by the 19th ICOMOS General Assembly, New Delhi, India (2017), states that the condition of the structure and its components, including previous works, *"should be carefully recorded before considering any action"*. In addition, the diagnosis must be based *"on documentary evidence, physical inspection and analysis and, if necessary, measurements of physical conditions using non-destructive testing (NDT), and if necessary on laboratory testing"*.

Moreover a special section is dedicated to recording and documentation in accordance with Article 16 of Venice Charter (1964) and the ICOMOS Principles for the Recording of Monuments, Groups of Buildings and Sites (1996). It states that *"a record should be made of all materials used in interventions and treatments"*. All relevant documentation also, including characteristic samples of redundant materials or members removed from the structure, and information about relevant traditional skills and technologies, *"should be collected, catalogued, securely stored and made accessible as appropriate. The documentation should also include the specific reasons given for the choice of materials and methodologies in the conservation work"* (27). All documentation must also be *"retained both for future maintenance of the building and as a historical record"* (28). In the section of monitoring and maintenance, the records of any maintenance and monitoring *"should be kept as part of the documented history of the structure"* (31).

In the section of inspection, survey and research, the condition of the structure and its components, including previous works *"should be carefully recorded before considering any action"* (1). Where the significance of the covering allows, consideration may be given to its *"local temporary removal to facilitate the investigation, but only after full recording has been carried out"* (3). Invisible (hidden) marks on old wooden parts *"must also be recorded"*; *"Invisible marks refers to features such as scribe marks, level and other marks used by carpenters in setting out the work (or in subsequent works or repairs) and which were not intended to be visible features of the structure"* (4). According to the section of education and training, it is essential to *"record, preserve and recover the traditional knowledge and skills used in constructing historic wooden architecture"* (34).

The permeable of Delhi Declaration on Heritage and Democracy, (the 19th General Assembly of ICOMOS, in Delhi, India (2017)), emphasized that all levels of government have a responsibility *"to identify, assess and document heritage places and to promote awareness of their significance. Access to both traditional knowledge and evidence-based documentation is fundamental to this approach"*.

Another special section, dedicated to documentation (Article 3) is also in agreement with Venice Charter, regarding the conservation-restoration of wall paintings which must be accompanied *"by a precise program of documentation in the form of an analytical and critical report, illustrated with drawings, copies, photographs, mapping, etc"*. The condition of the paintings, the technical and formal features pertaining to the process of the creation and the history of the object must also be recorded. Furthermore, every stage of

the conservation restoration, materials and methodology used should be documented. This report should be placed in the archives of a public institution and made available to the interested public. Copies of such documentation should also be kept *in situ* or in the possession of those responsible for the monument.

Also, in agreement with article 16 of Venice Charter, Delhi Declaration recommended that the results of the documentation works should be published. Documentation should consider definable units of the area for investigations, diagnosis and treatment. Traditional methods of written and graphic documentation can be supplemented by digital methods. However, regardless of the technique, the permanence of the records and the future availability of the documentation works are of utmost importance. The section of conservation-restoration treatments, article 5, states “a well-documented and professionally executed reconstruction using traditional materials and techniques can bear witness to the historic appearances of facades and interiors”. Access to both traditional knowledge and evidence-based documentation is fundamental to this approach by a precise program of documentation in the form of an analytical and critical report, illustrated with drawings, copies, photographs, mapping, etc”. Traditional methods of written and graphic documentation can be supplemented by digital methods where “a well-documented and professionally executed reconstruction using traditional materials and techniques can bear witness to the historic appearances of facades and interiors”.

ICOMOS: Guidance on Post Trauma Recovery and Reconstruction for World Heritage Cultural Properties refers itself to a summary of the world heritage committee decision in 2016, (Paris-2017) which stipulates that the documentation and recording of surviving and lost tangible and intangible attributes of Outstanding Universal Value (OUV) are undertaken by “establishing their post trauma status and identifying potential new attributes that support OUV”. The purpose is to set out a framework for documenting impacts and evaluating options for the identification, re-establishment, recovery or possible restoration of attributes.

The section on the identification of attributes of OUV (1.1), indicates that “It is crucial that the identification of attributes be as complete as possible so that damage or loss can be systematically **recorded**, appropriate mitigation measures be implemented, impact on the significance of the site be assessed, and options for recovery and supporting actions can be identified”.

With regard to the initial identification and documentation of impacts (1.2) -when the existence of documentation prior to disaster is fundamental for comparison- “the importance of early recording of damage and

surviving elements is emphasized. The priority for documentation is established on the basis of historic records and the attributes of OUV, or on the more obvious and iconic attributes, internationally or locally referred to, and how they are manifested. Image capture (such as photographs, aerial views, etc) is a first essential step; other forms of documentation such as audio recording must be utilized as circumstances allow. Comparatively simple technologies/techniques such as recording by mobile phones or tablets, crowd sourcing of images, and the use of drones and robots for 3D documentation have established their value in disaster settings, as has the use of sonic and thermographic characterizations of damage, internal dispositions and historic layerings”.

Whenever feasible, assessments of impact must include, according to review of impacts section (1.3), “documentation of the effects of events on social and economic conditions, services, infrastructure and environmental factors, as well as cultural assets. Processes will vary between uninhabited archaeological sites and those supporting living communities. In the case of continued and protracted disasters, it is recommended that a timeline be drawn up that records successive phases of the destructive events”. The same section emphasizes that identifying and assessing options for recovery and reconstruction; “optimal documentation and evaluation of surviving attributes and an adequate overall assessment of impacts is key to robust identification of options and the basis for any programme of recovery-directed actions”.

Furthermore, the section of effective use of resources (2.4), emphasizes that the provision for emergency interventions to protect the attributes of World Heritage properties “would address documentation, stabilization, rescue, salvage, storage, implementation of preventive measures and safe-keeping”.

Finally, the section of preparedness (3), recognized and acknowledged that all World Heritage properties “entail some additional element of risk” in the light of changing global situations “making the documentation of tangible and intangible attributes of such properties even more important. States Parties should review their current documentation from the perspective of its comprehensiveness (anticipating possible damage or loss), and existing provisions for storage and retrieval both in emergency situations and in the longer term. Particular attention should be paid to requirements for updating systems”.

The numerous charters of the second half part (2015-2017) of this decade elaborated and agreed with previous charters such as the (Article 16 of Venice Charter (1964) and ICOMOS Principles for the Recording of Monuments, Groups of Buildings and Sites (1996), regarding monitoring; each stage of the work must be documented in detail and should be carefully recorded before considering any action. Every stage of the conservation investigation, diagnosis and treatment restoration, materials and methodology used

should be documented. The vitally needed role of community involvement with cultural heritage to promote awareness of their significance is categorically emphasized. Reports should be made public and published by the responsible governmental entity in accessible public archives to assist reference and understanding, and ensure their benefit to future generations.

Another critical issue concerns the use of non-destructive testing (NDT). When necessary, laboratory testing is to be undertaken where every effort should be made to employ cost-effective measures. In addition, the issue of applying non-intrusive and non-destructive technologies for the evaluation of cultural and natural resources now is also a must. These technologies shall include, for example, direct detection of sites and resources or modelling the distribution of sites and resources. With regard to the issue of design and monitoring, this should also be kept, as part of the documented history of the structure, to ensure a well-documented and internationally recognized best-practice project. Monitoring data should be analyzed and become the basis for carrying out further conservation measures, such as monitoring and routine records of visual inspection of parts of a site that are liable to become deformed, cracked, displaced or damaged.

The condition of the structure and its components is another concern. It should be carefully recorded before considering any action by a precise program of documentation in the form of an analytical and critical report, illustrated with drawings, copies, photographs, mapping, etc., based on a report on the environment, including meteorological, hydrological, geological, and topographical information, as well as material on pollution sources, the state of ecology, distribution of vegetation cover, and animal activity in the area. Investigative analysis of the social factors influencing conservation now is a clear requirement, especially in the light of changing global situations and associated risks that make CH documentation of tangible and intangible even more important.

Finally, emphasis is observed regarding the vital need of education and training to record, preserve and recover the traditional knowledge and skills used in constructing historic monuments and sites. Researching these traditional knowledge areas must be undertaken by qualified or appropriately experienced experts. Emphasis is observed on the traditional methods of written and graphic documentation as they can be supplemented by digital methods.

These relevant traditional skills and technologies should be collected, catalogued, securely stored and made accessible, as appropriate. The documentation, though, should also include the specific reasons given

for the choice of materials and methodologies of the conservation work. Care is stressed regarding boundaries of a buffer zone which should be accurate and well documented and surveyed at heritage sites in order to determine the site boundaries and state of preservation.

5. DISCUSSION AND CONCLUDING THOUGHTS

Because CH is a non-renewable resource and its documentation contains an extensive field of items, matters, disciplines, skills, tools and technologies, and their huge varieties, every CH documentation project has its particularity. This is also especially true in critical emergency situations such as humanitarian crisis caused by armed conflicts. CH documentation is becoming an extremely scientific discipline that requires knowing the latest digital visual technology which should follow the principles, methodology, standards, structure as instructed by the International charters and conventions. This makes the mission of articulating a systematic framework for CH conservation more challenging.

During the last few decades, CH documentation has undergone a noticeable shift in terms of understanding how and why CH sites are at risk and what can be done to protect them and mitigate associated risks. International charters, conventions and principles do not only consider prior to any intervention, CH documentation as an integral part of the conservation process, but even more; an essential pre-requisite to form an exhaustive understanding of a building's cultural significance and the factors affecting its condition.

The analysis, assessment, investigation and recommendation of the 27 International Charters, Conventions and Principles, to the five notable publications on recording from English Heritage, and the initiative of CIPA and Getty Conservation Institute, all indicate that the new digital documentation technologies and approaches would provide additional possibilities and more emphasis on risk assessment, risk mitigation and monitoring of historic monuments and heritage sites.

CH documentation has many dimensions other than the technical such as the social, economic, and environmental aspects, that contribute to the development of social and cultural wellbeing. This has to be reflected in the approaches of CH risk assessment and monitoring. Monitoring data should be analyzed and become the basis for carrying out further conservation measures. The design and monitoring of the structure are to be kept as part of the documented history of the structure to ensure that a well-documented and internationally recognized best practice projects,

will inform guidelines/standards for the documentation of the historic monuments and sites. We can combine different documentation and recording tools and techniques with condition reports, conservation management plans, monitoring reports and various reports related to the fieldwork before, during, and after emergency conservation. They include the meteorological, hydrological, geological, and topographical information, as well as material on pollution sources, the state of ecology, distribution of vegetation cover, and animal activity in the area. Governments, institutions and interested communities should use a wide range of digital communication technologies and multimedia for collecting, sharing, interpreting and disseminating data. Respectively, applying non-intrusive and non-destructive technologies for investigation, assessment and evaluation of cultural and natural resources is a must.

Recently, a wide variety of applications of non-destructive digital and photographic imaging documentation techniques and tools, combined terrestrial laser scanning, digital photogrammetry, thermal imagery, multispectral sensors and Infrared reflectography, have been developed and even have integrated GIS with Heritage-BIM. They are commonly used for CH documentation in geodesy, architecture, construction, landscape, archaeology, history and virtual and augmented reality. Many software tools have been developed to perform modeling and complete 3D & 2D documentation of CH. 3D & 2D visual digital information technology is revolutionizing the ways in which we are documenting and preserving CH, which systematize and safeguard databases from all possible threats, damages and deterioration.

Sadly, at the present, the best practices for CH documentation are not widely exchanged within the CH conservation field of practice. There is more work to be done in bridging the gap between the Geomatics professional providers and creators of CH information and the specialized conservation practitioners. The gap between both initially arose because most of the Geomatics' professional providers are not qualified or trained to identify and deal with the type of data needed by the specialized practitioners of the conservation process to collect, or process and analyze, before any action can be taken.

To effectively bridge this gap between the specialized; technical and non-technical community involved in CH, more serious efforts have to be made through inter-disciplinary gatherings, not only through social media, but more importantly also through specialized workshops, training, and conferences bringing together academics, planners and architects, practitioners of CRM, Geomatics and artificial intelligence, conservators, and risk analysts.

There is an urgent need for a Charter on CH awareness, education and training for these technical specialists, students, architects, and archaeologists which present best practice of documentation approaches and techniques for the various kinds and types of related risks.

Grasping the best practices and principles of CH risk identification and mitigation, which tap the potential of digital technology, is of a particular significance for developing countries with a rich CH legacy. Surely, there will be many complexities in the data gathering that pose formidable challenges to the CH institutions in developing countries, when using and developing digital inventories. To promote and preserve their rich CH legacy, the governments of these countries should be more active in creating appropriate digital heritage documentation policies, regulations and guidelines. Concurrently, the specialized technical practitioners of Geomatics, in these countries, should become more aware of the main principles of risk heritage issues. Moreover, re-definitions of relevant graduate and postgraduate courses and programs in institutions of higher learning in the developing world are required. This is particularly evident in the Arabic region, where most of the academic programs still do not take into account, in their study fields, the aforementioned critical issues of CH. Raising awareness of the above realities will necessarily take into consideration the growing body of effective 3D documentation soft-wares which are available online. These soft-wares will stimulate explorations of their wonderful potentials for the rapid development of CH documentation tools and techniques.

On the other hand, all these recent technological advances must be addressed in a clearer and deeper manner in the International Charters and Conventions. Investigative analysis of the social factors currently influencing conservation is also a clear requirement. The significance of the vital role of the local community and its involvement and awareness of CH documentation should also be further emphasized.

Moreover, there is a growing need to produce a Charter providing a clear mechanism of collaboration between the different scientific and professional teams and disciplines. Accordingly, this charter should address the extant scarcity of management guidelines which are of importance for documentation in the process of protecting CH. Producing such a charter would be a worthwhile challenging mission which will make collective field work more inspired and rewarding. It requires a special attention to be given for the precise and accurate terminologies of words which are to be used. This should be consistent and clear for all different professionals, especially the Geomatics'. Of concern here, is the misunderstanding

and intimidation of the conservation language or technology by archaeologists, architects and conservators. This charter needs to explain the process for progress, in an organized and structured manner, the

different roles of each CH stakeholder, including the Geomatics specialist, architect, archaeologist, conservator and decision-makers.

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ENDNOTES

¹ RecorDIM : Recording and Documentation Information Management a 5 year (2002-2007). An international initiative supported by the Getty Conservation Institute (GCI) to improve application of recording techniques in heritage documentation. initiative approached the problem of integrating standards at the CIPA/VAST 7 symposium at Nicosia on 4th of November 2006.

² CIPA: The International Committee for Architectural Photogrammetry (CIPA Heritage Documentation) is one of the international committees of ICOMOS and it was established in collaboration with ISPRS (International Society of Photogrammetry and Remote Sensing).

³ It is significant that Cooper used a 'why' 'when' 'what' 'how' 'who' and 'where' structure, which according to Bill Blake (2019, 65-66) Robin Letelier will later to use in "Recording, Documentation, and Information Management for the Conservation of Heritage Places Guiding Principles".

⁴ ICOMOS Principles for the Conservation of Heritage Sites in China (2015), pp 51-2 provides a full explanation of recording: "Records should include some or all of the following information: a) The type, form and dimensions of the building, monument or site; b) The interior and exterior characteristics, as appropriate, of the monument, group of buildings or site; c) The nature, quality, cultural, artistic and scientific significance of the heritage and its components and the cultural, artistic and scientific significance of: • the materials, constituent parts and construction, decoration, ornament or inscriptions • services, fittings and machinery, • ancillary structures, the gardens, landscape and the cultural, topographical and natural features of the site; d) The traditional and modern technology and skills used in construction and maintenance; e) Evidence to establish the date of origin, authorship, ownership, the original design, extent, use and decoration; f) Evidence to establish the subsequent history of its uses, associated events, structural or decorative alterations, and the impact of human or natural external forces; g) The history of management, maintenance and repairs; h) Representative elements or samples of construction or site materials; i) An assessment of the current condition of the heritage; j) An assessment of the visual and functional relationship between the heritage and its setting; k) An assessment of the conflicts and risks from human or natural causes, and from environmental pollution or adjacent land uses".

⁵ Historic England is a public body first established in 1984 as the Committee for Historic Buildings and monuments commonly known then as English Heritage which took care of the national historic monuments. In April 2015, the old English Heritage separated into two entities: a charity that looks after the national collections, and Historic England which is the public authority responsible for the nation's heritage, running the listing system, dealing with planning matters and giving grants. The new English Heritage Trust is a charity that takes care of the National Heritage Collection of more than 400 historic properties.

⁶ Another related publication is, A Guide to the Use of Geographic Information Systems (GIS) at Cultural Heritage Sites, and is directed towards expert users of GIS software. Another related report, Guide to Creating Inventories of Cultural Heritage Places for India, was printed on a limited basis and made available in India (Bill Blake, 2019, 112).

⁷ "Under the title of requirements for the collection of historical documents are as follows: I. Historical texts provide evidence and therefore need to be collected; duplication of content is acceptable, but abridgment of documents is not permitted. ii. Historical records should not be judged solely on the basis of present criteria of authenticity, nor should current understanding alone be used to distinguish between what is genuine and what is false. iii. Great care should be taken in the interpretation and annotation of historical texts. Only technical annotations should be made and not value judgments about what may be correct or wrong. Under the title of survey reports on the existing condition of a site should include: i. A report on the environment, including meteorological, hydrological, geological, and topographical information as well as material on pollution sources, the state of ecology, distribution of vegetation cover, and animal activity in the area. ii. All records of investigation into the site, no matter how brief it is. All evidence and deliberative material used to authenticate the site's historic and existing condition. iv. Results of examination of the condition before each conservation intervention, with focus on analysis of the stability of the structure and materials, and conclusions drawn from surveys of major damage to the site. v. Inventory of associated contents. vi. Topographical maps of the setting, plans of the overall site, and elevation and cross-sectional drawings. vii. Photographs, video recordings and other audiovisual materials. Documentation of major conservation interventions should primarily satisfy the requirements of the central government regarding construction and engineering projects. At the same time, in accordance with the special requirements of heritage conservation, the following relevant material should be added: i. A survey report of the existing condition. ii. A research and assessment report. iii. An evaluation report on the proposed plan. iv. Records of repairs, replacements, additions, and removals. v. Records of special technologies and implementation methods vi. Reports of experiments conducted on-site or in laboratories. vii. Photographs, video recordings and other audiovisual materials. Inspection and monitoring records should include: i. Instrumental monitoring records and routine records of visual inspection of parts of a site that are liable to become deformed, cracked, displaced or damaged. ii. Records of regular inspections of safety equipment and installations such as firefighting equipment, lightning rods, flood prevention measures, and techniques used to stabilize slopes. iii. Observation records on the effects of visitors and other social factors on the site and its setting. iv. Monitoring records on the environment.