

# Building a Risk Map of the Mediterranean Cultural and Environmental Heritage

Authors: G. Meli<sup>1</sup> and R. Garufi<sup>2</sup>

<sup>1</sup>Director of the CENTRO REGIONALE PER LA PROGETTAZIONE ED IL RESTAURO

<sup>2</sup>Responsible for THE RESEARCH UNIT FOR LANDSCAPE, NATURAL, NATURALISTIC, ARCHITECTONIC, URBAN ASSETS, AND RISK MAP.

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## Abstract

*An extraordinary historic, cultural and environmental heritage characterizes, with its diffuse presence, the territories of all the Mediterranean Countries and testifies a common identity. The need to create around this heritage a common knowledge and a shared model of economic and social development is hence achievable and highly desirable.*

*In this context a research network applied to cultural heritage also characterized by the sharing of valuable tools to guarantee an effective conservation and management of such a huge heritage is absolutely necessary.*

*In Italy, THE ISTITUTO CENTRALE PER IL RESTAURO (I.C.R) has built around the 1980 the model of the Risk Map that covers such a demand for a correct management of the cultural and environmental heritage.*

*Twenty years later, the Italian-Greek project Archimed – Central and Eastern Mediterranean – Risk Map of cultural heritage and mapping and description of cultural landscape has been developed with the involvement of the Sicilian Region.*

*This project has suggested and positively tested a new model of knowledge management on cultural and environmental heritage. This identifies the regional scale as the standard observation for the heritage and the region as the leading actor of a joint project, aimed at building regional Risk Maps. Sicily, in particular, has activated and finished in large part the management of its project.*

*The Risk Map, more in particular, characterizes the presence and territorial diffusion of the historic, cultural and environmental heritage and values its vulnerability. Furthermore the Risk Map observes, describes and values dangerous levels present in the territory and pertinent static-structural, ambient-air and anthropic dimensions.*

*All this allows to value risk indexes pertinent to the heritage and provides directions to an effective management of the territory that guarantees the conservation of our own cultural testimonies.*

*The project that the Sicilian Region presents here aims at suggesting the simultaneous activation of the Risk Map in all the Mediterranean Regions.. All this with the purpose to inspire the Regions involved to co-operate for a common construction of effective methodologies of knowledge and fruition of heritage.*

*In such a direction, the project foresees the carry out of positive experiences about the research applied to the conservation of heritage, through the construction and sharing of common data base and definition of common criteria to effectively manage our own territories.*

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## 1. Introduction.

An extraordinary historic, cultural and environmental heritage characterizes, with its diffuse presence, the territories of all the Mediterranean Countries and give evidence of a common identity. It is therefore important to strengthen the Cultural Heritage dimension in the future interregional and translational projects. The conservation of Cultural Heritage represents indeed a strategic value, and such activities should encourage the scientific comparison of models and results as well as the elaboration of projects shared among communities.

In particular, it is really important to realize some projects and activities characterized by some innovative and technical solutions that can strengthen the role of the local institutions in preservation and promotion of Cultural Heritage.

The idea of a Mediterranean Risk Map has been launched by the **CENTRO REGIONALE PER LA PROGETTAZIONE ED IL RESTAURO** of Palermo within the scope of the coordinated research activities which have been carried out by the **new HERIMED association**.

The implementation of the Risk Map is in line with the definition and implementation of the Protocols for Cultural Heritage conservation that should be shared in the European and Mediterranean area.

The project of building a Risk Map foresees cooperation among different institutional partners based in the

Mediterranean and the Balkan areas activated at a regional level from all the institutional actors responsible for preservation and management of Cultural Heritage, involving SMEs, research institutes and the academic world. We believe that a preliminary assessment based upon our working experience in this field could be useful to define in the near future some strategic choices in order to implement such ambitious project.

## 2. Restoration and conservative praxis

Whenever we start talking about the topic of Cultural Heritage conservation, certainly, there is a necessity to clarify the dualism between preservation and restoration.

According to the definition given in the Restoration Map of 1972, the term of restoration means "...any kind of intervention with an aim of facilitating the reading of some important work of art...". It also means "...any kind of intervention in order to efficiently preserve and to integrally transfer to the future such work of art".

The first step in the implementation of such activity is the ascertainment of a damage, which is, totally or in part irreversible. In the meantime, we have to consider that the implementation of an intervention of restoration could remove some historical and essential parts of a monument which characterize its national cultural values. If we agree to this reality, then it might be necessary to reconsider the role

of the restoration activities which traditionally prevail upon the conservation ones. In that case, one may say that, we should privilege the preservation activity or even better the activity of prevention.

A careful information about the Cultural Heritage (i.e. monumental building) and its environmental interaction is generally required. We believe that, it will be better to consider such activity as a praxis in the near future. Indeed, the information activities will allow any operator in this field to think about how to reduce the process of deterioration which are related to the Cultural Heritage, taking also into account the environmental risks.

All these activities represent an excellent way to implement an effective model of economic, social and territorial development.

### 3. The Risk Map

In order to realize the aforementioned ambitious objectives we believe that it is essential to apply as much as possible the method of analysis which is clearly defined in the Risk Map.

This method of analysis has been defined for the first time by the I.C.R. of Rome (ISTITUTO CENTRALE PER IL RESTAURO). It concerns both the Environmental and Cultural Heritage.

Thanks to this methodological tool, on one hand, it is possible to better identify the Cultural Heritage which is placed in a particular area; on the other hand, it is easier to estimate the relations between the concept of vulnerability related to the Cultural Heritage (i.e. the degree of susceptibility to be damaged) and the three levels of risk (i.e. static, structural and anthropic) which characterize a specific territory. Therefore, we develop important and cognitive instruments in order to classify some of the risk factors which are related to the Cultural Heritage and to adopt more appropriate strategies for a better territorial management.

The methodological approach of our work will also guarantee the conservation of the territorial cultural identities. There is a strong evidence that we have to build a different model of management of such aforementioned instrument of analysis, especially when this methodological tool is applied to the national territory.

In addition, in relation to the cultural specificities of a territory, it is required to involve as much as possible the regional authorities responsible for protection and management of Cultural Heritage.

### 4. Best practices of Regional Risk Maps

Examinations of the applicability of Risk Map have already been conducted in different Mediterranean Countries, through the implementation of some EC-funded projects.

The first experience which deserve to be mentioned is related to the ARCHIMED project, better known as “*Risk Map of Cultural Heritage and Mapping and Description of Cultural Landscape*”. The ARCHIMED project is co-financed by the European Union within the INTERREG IIC Programme. This project gives partners opportunities to compare all the experience related to the realization of a Risk Map in thirteen Italian regions, including Sicily, the Spanish region of Catalonia, and the Greek region of Dodecanese.

The project implementation confirms some interesting elements for our analysis, which are stated here below. First of all, it is essential to identify the regional scale in order to define some paths of consultation and the studies aimed at

improving our understanding about the specific territorial vocations.

Secondly, the Regions become the main actors capable of observing the cultural heritage.

The Regions work in order to:

- a) realize some shared data bases;
- b) adopt some criteria and common methodologies aiming at building their regional Risk Maps.

The positive evaluation of the Risk Map experience has been affirmed like a “principle” in the document named “*The Declaration of Palermo on Cultural Heritage and Interregional Partnership in the Mediterranean*”. This Declaration was signed in November 2003, during a seminar held in Palermo, from 26 European, Mediterranean and Balkan Countries. During this event the participants discussed about the topic of Cultural Heritage Management. The 130 representatives of the Mediterranean Countries strengthened the strategic importance of the Risk Map, considering it as an useful instrument to help each Mediterranean Country in its own strategy aiming at the prevention, conservation and management of Cultural Heritage. From 2005, the region of Sicily is involved in a project which is related to similar topics. The project is titled *NOË – PATRIMOINE ET PRÉVENTION DES RISQUES NATURELS*. It is a project co-financed by the European Union within the INTERREG IIC - East North South West Program. The Region of PACA (France) is the leader organization in the NOE project, and it coordinates all the activities of four regions, namely Sicily, Molise, East Attica, and North Portugal. The project’s aim is to compare some territorial management tools, such as the Risk Map, in relation to the natural risks that concern Cultural Heritage, with a particular attention to some key topics, such as diagnostic, prevention, participation and communication.

All this experience, in the last five years, has encouraged the region of Sicily to realize its own Risk Map for Cultural Heritage, with the support of structural funds. Its realization is still on going, but some positive results have already been produced. We strongly believe that these results could be invested in the proposal for a similar model to be shared among the Regions bordering the Mediterranean basin.

### 5. Activity steps

The implementation of a Mediterranean Risk Map foresees the following activities:

- census and cataloguing on a bibliographic basis of excellent example of Cultural Heritage;
- census and cataloguing of the Cultural Heritage which has received a formal acknowledgment of interest;
- verification of all data extracted from bibliographical and documentary sources, and production of identifying cards;
- geo-referentiation of the Cultural Heritage already classified and redaction of computer cartographies;
- redaction of thematic and territorial risk maps;
- cataloguing of the vulnerability related to the Cultural Heritage identified;
- creation and application of a specific database which should organize textual, graphical and photographic documentation in order to be shared, updated and integrated among countries;
- elaboration of risk indicators;

- definition and application of models of Cultural Heritage management;
- definition and implementation of tools and strategies for knowledge sharing.

## 6. Organization of the data.

All the information already acquired can be organized in a general database with a digital cartography, which should be able to:

- record the existent Cultural Heritage based in a territory;
- identify the different areas of risk;
- collect and organize the cataloguing of vulnerability, the reliefs and photographic documentation.

These data are maintained in the repositories of the institutions that collect them.

More specifically, in order to better explain the abovementioned concepts, we will consider here how the Territorial Informative System (SIT) of the Risk Map is organized. The SIT consists of the following set of tools:

- a relational database management system, in Oracle environment, able to manage the alphanumeric data related to the architectonic or archaeological Cultural Heritage;
- a cartographic database, in ArcInfo environment, that is able to organize the cartographies and georeferencing the Cultural Heritage;

Procedures of data elaboration will inform about the values of dangerousness, vulnerability and existing risk which are graphically represented in the ArcInfo environment with thematic cartographies.

All these activities will allow us to:

- quantify levels of dangerousness;
- characterize the main parameters of deterioration;
- recognize the risk areas.

## 7. The sources of the data

The two projects, such as the national project of the ISTITUTO CENTRALE DEL RESTAURO (I.C.R) and the Sicilian project of the C.R.P.R have set up the first lists of Cultural Heritage which stem from two bibliographical sources, namely the Red Guide of the "Italian Touring Club" and the Archaeological Guide of "La Terza".

The list of the Cultural Heritage of excellence has been built upon these data. Some specific observations and assessment of risk have been developed over recent years upon the Cultural Heritage of excellence, including the vulnerability and risk assessment. The choice of the abovementioned bibliographical sources is based upon a criteria which can be shared with others. According to the criteria chosen, it is important to create an instrument which describes with homogenous parameters the quality of the existing Cultural Heritage based in different Mediterranean regions. All these activities allows us to prepare the cartographies through a common methodology, and guaranteeing the comparison of the results between the different regions.

The first activity that should be carried out within the future Risk Map of the Mediterranean regions is the following:

the identification of the bibliographical source based upon some analogous criteria.

It might be useful to adopt a wider number of sources chosen among those produced with a similar approach in the different regional contexts. Having this in mind, it's easy to understand that the first bibliographical source could be the publication titled "*Europe and the Mediterranean Countries*" which has been edited by the Italian Touring Club. This publication could be very useful for our project and for further exploitation.

The Italian Institute of Touring Club has been engaged over the recent years in many projects in order to carry out some census activities and to describe the existing Cultural Heritage of excellence based in different Mediterranean regions. The institute is convinced that it's easy to recognize the values of a common identity in the Mediterranean Cultural Heritage.

A fundamental role could be played by the exiting organizations based in the Mediterranean region which are engaged in activities related to Cultural Heritage management, namely the Arab League Educational, Cultural and Scientific Organization (ALECSO) and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

## 8. Assessment of dangerousness

The recording activity of the different factors of risk related to the environmental context should be carried out with some computer cartographies, where it is possible to find the Cultural Heritage assessed. The problem, which is not easy to solve, concerns the identification of sources that should be distributed homogenously in all the Mediterranean territories. It will be necessary, at least, to bring all data collected to an acceptable level of homogeneity.

The choice to write down some Risk Maps at the regional scale, even though partially, will disengage from an absolute homogeneity of the data.

## 9, Assessment of vulnerability

The intensity of the risks that concern the Cultural Heritage is strictly dependent on the environmental aggressive behaviour and the degree of its aggressiveness. The risk depend also on the capacity of such Cultural Heritage to resist external solicitations.

It's easy to deduce the abovementioned considerations from observing the Vulnerability Cards, which are able to develop some dynamics of interaction with the environment, according to some mechanisms that are replicated artificially in the system of the Risk Map.

In the meantime, the opportunity to use an articulate range of cartographic traces of vulnerability will allow to describe the variegated truth which characterizes the Cultural Heritage.

The project should resolve the problem of dictionaries which are useful to organize the cards, and to bring them to coherent criteria in order to guarantee the sharing of the acquired information. We have to recognize the importance of the system and its capacity to lead the complex galaxy of traces of cataloguing to clear indices of vulnerability, in order to activate better strategies of Cultural Heritage management.

## 10, Thematic Maps

The experience already done by the C.R.P.R. with the Sicilian SOPRINTENDENZA could be shared with other countries, in order to think about on how to solve some

crucial ties related to the research activity, but also to identify more suitable and effective strategies of research. However, at present, it is possible to assert that the realization of thematic studies facing the problem of conservation and management of some particular types of Environmental and Cultural Heritage will constitute one of the essential criteria of the Risk Map. Its implementation will allow to observe deeply the Cultural Heritage which strongly characterize the cultural vocations of the territory.

It is an another example which clearly shows the ductility of the regional instrument of Risk Map, and particularly how this instrument can be functional in order to support models of local development based upon a correct fruition of the Cultural Heritage.

Certainly, it will be useful to define some shared and common paths of observation in relation to the thematic natures which constitute the traces of a common cultural line of different countries and regions.

Evidence can come from topics such as the ancient theatrical architectures and the superficial floors of ancient age, which are subject of some specific studies and elaboration of thematic maps from the Sicily Region. The project conducts activities aimed at promoting the definition of specific protocols for conservation which should be shared between the partner participants at the research activity. These protocols could be applied in the specific territorial context.

All this activity will allow to identify priorities for planning the exposure detection, including the related interventions, and to address the Policy of territorial management

#### **11. Tools for sharing knowledge**

Founded on March 2006 in Palermo and located at the CENTRO REGIONALE PER LA PROGETTAZIONE ED IL RESTAURO **HERIMED is an Euro-Mediterranean institution that groups Institutions and Research Institutes involved in cataloguing, preservation and promotion of Cultural Heritage across ten countries** (Algeria, Egypt, France, Italy, Lebanon, Palestine, Portugal, Spain, Tunisia and Turkey), including UNIMED (Mediterranean Universities Union). HERIMED will play the role to promote the realization of this project aimed at building a technology platform dedicated to Cultural Heritage in the Mediterranean area and to guarantee a full international sharing of knowledge and experience on conservation and promotion of Cultural Heritage. The adoption and usage of data bases and ICT-based tools for archiving and sharing data is a functional requirement to achieve the aforementioned goals. It must be carefully decided the broad range of valuable tools to define the network enabling participative processes among partners and comparing knowledge and realities of different organizational structures. As a first hypothesis, a thematic portal is conceived for sharing results from activities and a multi-node network of servers able both to independently manage data base dedicated to each single region and guarantee the real-time exchange of data among regions. Such a knowledge sharing must be integrated with the need of an appropriate dissemination of topics and results achieved with research activities. Such a need can be fulfilled through a specific communication project dedicated both to institutions and communities facilitating a strong involvement and thus that cooperation and development processes among all the partners.

#### **12. Emergence Management**

The activation of Mediterranean Risk Maps must contribute to the identification, definition and application of international emergence management models, for natural and not natural catastrophes, providing suitable indications to create specific protection plans, execute risk mitigation campaigns, develop intervention of restoration of high symbolic value.

#### **13. Enhancing Research on Cultural Heritage**

The Risk Map, in its evolution, concretely facilitates the generation of knowledge flows and research networks applied to Cultural Heritage in order to identify shared tools that can guarantee an effective preservation and management. This should put at a common factor different positive experience of research applied to heritage preservation. Hence it should be possible to define and develop research projects based on such themes, according with the consortium of partners involved, and aimed at creating and disseminating best practices on preventive preservation, planned maintenance and sustainable management of heritage so as to increase and improve opportunities to access and sharing of knowledge.

#### **14. Risk map and local development**

The project presented by the Region Sicily proposes the simultaneous activation of the Risk Map in the Mediterranean regions. Thinking about the experiences conducted in Sicily and in other regions, the Risk Map provides the involved countries with strategic tools for management and intervention on Cultural and Environmental Heritage as it allows to calibrate questions, verify answers and results, plan actions of prevention and effective management of heritage. More concisely, it allows to define a critical territorial planning and a vigilant Policy of preservation and promotion on Cultural Heritage.

Furthermore, the realization of Risk Maps in the Mediterranean regions stimulate the aggregation of scientific and institutional partners and enables the growth of local economic systems. Creating and developing companies allow the exchange of technology know-how and innovative methodological approaches. In few words, all this will facilitate the valorisation of scientific and cultural endogenous resources.

As final consideration, stressing the relevance of this project, it must be pointed out that the realization and correct use of the Risk Map will allow to greatly resize the dynamic of degradation processes affecting Cultural Heritage and, consequently, to considerably reduce the cost of intervention for restoration, concurrently increasing the accessibility of monuments and Cultural Heritage inside the Tourism and Culture itineraries of the involved territories.

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**Herimed Onlus**