

EXPERTS WORKSHOP
ON THE STUDY AND CONSERVATION OF EARTHEN ARCHITECTURE
AND ITS CONTRIBUTION TO SUSTAINABLE DEVELOPMENT
IN THE MEDITERRANEAN REGION

FINAL REPORT

August 20, 2009



Villanovaforru, Sardegna, ITALY, 17-18 March 2009

Escola Superior
GALLAECIA
escola superior universitària



The Getty Conservation Institute



provincia del **MEDIO CAMPIDANO**

SARDEGNA

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Edited by Maddalena Achenza, Claudia Cancino, Mariana Correia, Amila Ferron and Hubert Guillaud

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This work is dedicated to Alejandro Alva Balderrama who for many years has been committed to promoting greater cooperation in the study and conservation of earthen architecture within the Mediterranean region.

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TABLE OF CONTENTS

I. BACKGROUND

THE EXPERTS WORKSHOP

II. METHODOLOGY

III. WORKSHOP THEMES

MANAGEMENT AND CONSERVATION OF EARTHEN SITES

Definition for the purposes of this workshop

Questions to identify research and training needs in the region

EARTHEN ARCHITECTURE FOR SUSTAINABLE DEVELOPMENT

Definition for the purposes of this workshop

Questions to identify research and training needs in the region

IV. SUMMARY OF WORKING SECTIONS AND ACTION PLAN

OVERALL AIM

SPECIFIC OBJECTIVES

ACTION PLAN: MANAGEMENT AND CONSERVATION OF EARTHEN SITES

Summary of research and training identified needs

Strategies, proposed activities and available resources

ACTION PLAN: EARTHEN ARCHITECTURE FOR SUSTAINABLE DEVELOPMENT

Summary of research and training identified needs

Strategies, proposed activities and available resources

V. APPENDICES:

A: AGENDA

B: PHOTOS OF COMMBOARDS AND WORKING SESSIONS

C: GROUP PHOTOGRAPH

D: PARTICIPANT BIOS AND CONTACT INFORMATION

I. BACKGROUND

Earthen architectural heritage is of remarkable significance as a testimony to human development and adaptation to environment. There is a wealth of earthen architectural heritage worldwide—from historic city centers and vernacular cultural landscapes to some of the world's largest archaeological sites. Conserving this legacy is a formidable task that requires sustained commitment, interdisciplinary effort, and international cooperation.

The late 1980^s and 1990^s witnessed considerable advancement in the field of earthen conservation through a series of international conferences, training initiatives, and the formation of national and international committees devoted to the cause. Through these opportunities for exchange, a network of practitioners, scientists, and academics was established. Institutional commitment has lagged behind, however, along with support for larger scale initiatives and collaboration. Institutional involvement and cooperation are key to developing the broad-based support needed for the conservation of earthen architecture.

In November 1997, following their collaboration on PAT96 (the first Pan-American Course on the Conservation and Management of Earthen Architectural and Archaeological Heritage), the International Centre for Earth Construction—School of Architecture of Grenoble (CRATerre-EAG), the Getty Conservation Institute (GCI), and the International Centre for the Study of the Preservation and the Restoration of Cultural Property (ICCROM) established a joint program called Project TERRA to further study the conservation of earthen architecture.

Aware that the study and preservation of earthen architecture has been a priority for different national and international organizations in the Mediterranean region, Project TERRA took a first step towards an

assessment of current practices and the state of the field in each country. In 2004, the Terra-Med¹ project was initiated to collect and analyze information of past and present activities organized in different Mediterranean countries. The ultimate objectives of this study were to identify key players in the region and to organize an experts workshop to facilitate the discussion of needs and the development of short- and long-term strategies for the region. In 2005, Project TERRA ended its official partnership, but the institutions involved continue to collaborate closely in various activities.

In the same year, the Diparch-Università di Cagliari (UNICA), the Escola Superior Gallaecia (ESGallaecia) and CRATerre-École Nationale Supérieure d'Architecture de Grenoble (CRATerre-ENSAG) formally became European partners for the UNESCO Chair of Earthen Architecture. This collaborative agreement has provided the framework for ongoing partnership in activities such as research projects within the European Union Cultura 2000 program, book publications, student and professor exchanges, and collaboration in scientific events. In order to strategically place these activities within a regional framework, UNICA, ESGallaecia and CRATerre-ENSAG decided to organize the first Mediterranean Conference on Earthen Architecture (MEDITERRA 2009) and to propose an action plan based on the Terra-Med project. As a contributing member to the original Terra-Med project, the GCI was very pleased to receive an invitation from UNICA, ESGallaecia and CRATerre-ENSAG to co-organize an experts workshop as part of the MEDITERRA 2009 general program. The present document is a summary of that workshop that was dedicated to Alejandro Alva Balderrama for his commitment to move this initiative forward while being the Architecture and Archaeological Sites Unit Director at ICCROM.

¹ The TERRA project (ICCROM, CRATerre and GCI) developed a preliminary assessment of different activities related to the study and conservation of earthen architecture in the Mediterranean region. For the purpose of this document, the report will be called Terra-Med document.

THE EXPERTS WORKSHOP

The Experts Workshop brought together a select group of professionals from Mediterranean countries with expertise in the study and teaching of earthen architecture, materials science, construction, and conservation². It provided a forum to discuss two major issues: first, the challenges for the *conservation and management of earthen sites*—broadly interpreted to include earthen archaeological sites, vernacular and monumental architecture as well as cultural landscapes where earth is a predominant feature—and second, *earthen architecture for sustainable development*.

Workshop participants were selected according to 1) Representation of each macro-area: Northern Mediterranean, Maghreb, Near East and the Balkans; 2) Significance of overall knowledge of earthen architecture and conservation, as well as expertise on research, implementation of projects, and/or training concerning the subject areas addressed; 3) Institutional support (governmental or non-governmental organizations); and 4) Language (English and/or French).³

II. METHODOLOGY

The first day of the workshop program, comprised mostly of working group sessions, was designed to maximize the opportunity for exchanges of information and informal discussion. Formal presentations made by selected speakers (10 minutes each) addressed the “state of the art” of each area of study. Participants then identified priorities, strategies, and resources needed for both of the selected themes based on the questions described below and delivered to participants prior to the event. The second day (to be attended only by workshop organizers) was dedicated to summarizing the previous day's points of discussion. Workshop organizers since then have compiled the present summary with input from workshop participants defining current trends for the selected themes in research and training as well as an action plan including short- and long-term activities.

² The meeting participants represented countries from the Mediterranean Basin, from the European Union or that are associated with the Declaration of Barcelona (1995).

³ Complete list of workshop participants, contact information and biographies in Appendix D

III. WORKSHOP THEMES

MANAGEMENT AND CONSERVATION OF EARTHEN SITES

Definition for the purposes of this workshop:

The management and conservation of earthen sites is undoubtedly a field of increasing interest throughout the world. The 2009 Mediterra conference, the ten international conferences organized in the subject, many published proceedings and numerous international projects are evidence of the transformation of the field into a discipline. This evolution is illustrated by the titles of the international conferences, which have evolved from "Conservation of Mud-brick Architecture" at the first meeting in 1972, to the most recent title "Study and Conservation of Earthen Architecture". Earthen sites are now broadly interpreted to include archaeological sites, vernacular and monumental architecture as well as cultural landscapes where earth is a predominant feature. The discipline embraces the study and research of topics such as material and construction techniques, conservation treatments, seismic protection and performance, management planning and preservation of earthen building traditions, among many others.

The Mediterranean countries have greatly contributed to the evolution of the discipline over the last 50 years. However, although many activities, programs, training courses and projects have been implemented in the field, Mediterranean countries have not yet developed a common action plan for the region. The following questions were intended to help the workshop participants to identify priorities in research and training for the *Management and Conservation of Earthen Sites* in the Mediterranean region.

Questions to identify research needs in the region:

1. Do we need more research into the behavior of **earthen materials**? If so, could you mention at least three topics needing further research to improve the conservation of earthen sites at the material level?

2. Do we know enough about how different **construction techniques** performed and evolved through time? Would a better understanding of the **history** of Mediterranean earthen construction techniques help to promote and preserve earthen sites?
3. Do we know how earthen constructions perform when affected by disasters? Do we need research into **disaster management**, preparedness and response? If so, do we need to perform risk assessments of earthen sites? Do we need guidelines or techniques for seismic retrofitting?
4. Is there a good understanding of the term "**management**" of earthen sites? Does the region need more research to improve the implementation and development of **planning methodologies**? Do we have any management plans for sites in the region which can serve as models?
5. Do we need to work on **standards or best practices guidelines** for the implementation of earthen conservation projects?
6. What other **research topics** will advance the conservation and management of earthen sites in the Mediterranean region?

Questions to identify training needs in the region:

1. Do we have enough training courses on the **management and conservation** of earthen sites? Do we have **model courses** already in place? If not, what should **curricula** for the management and conservation of earthen sites include?
2. Does the region need **didactic materials**? Can one set of didactic materials cover the needs of the whole region? Do we need to standardize training at the **regional level**?
3. How can we make training courses available to students from other disciplines, such as architecture, engineering, planning, etc.? Since it is well-established that we should educate a wide range of **audiences**: technical, undergraduate, graduate, mid-career professionals or the general public (with outreach and advocacy), which target group is most in need of training?

EARTHEN ARCHITECTURE FOR SUSTAINABLE DEVELOPMENT

Definition for the purposes of this workshop:

Worldwide interest in sustainable development has grown dramatically in the last decade as the global environmental crisis has deepened. In response, the discipline of sustainable development has gained attention in the public consciousness and an increasing number of projects are being undertaken in the field. Although earthen architecture has always been a model of sustainability, there remains a disconnect between the study of earthen architecture and the field of sustainable development. This is a loss for both fields, as the benefits of earthen structures are often not utilized in the sustainability field and the study of earthen architecture is not consistently included in research, training or projects for sustainable development. As momentum toward establishing a more environmentally, socially and

economically sustainable society grows, it will become increasingly important for earthen architecture to be a part of that movement. Research and training are two viable ways to strengthen the relationship between the two fields at a fundamental level. The working sessions that follow are intended to identify the challenges facing the study of earthen architecture for sustainable development and list possible strategies for addressing these challenges.

In some Mediterranean countries architects are designing new architectural projects using earth as a building material. However, these cases are more isolated initiatives than an extended movement. Projects seem to become lost between trying to use traditional constructions techniques or simply expressing a new tendency. Furthermore, there is not a real understanding of what earthen architecture can offer to society and how it could become a strong component for sustainable development. From the management of the material, to the territory, through different scales of research, experimentation and application, how can we define what sustainable earthen architecture should be?

The following questions were intended to help the workshop participants to identify what are the priorities in research and training for the study and promotion of *Earthen Architecture for Sustainable Development* in the Mediterranean region.

Questions to identify research needs in the region:

1. What are the key contributions that earthen architecture can make to the field of sustainable development?
2. Since sustainable development focuses on social, economic and environmental factors, how can we introduce cultural considerations into sustainable development research and project implementation? For example, how can we establish the study and implementation of earthen traditional construction techniques as viable methods for contemporary design?
3. How can we improve research into the relationships between Mediterranean building traditions and techniques, their adaptation to the regional ecosystem and the consequential built environment? Do we need more research into the **economic benefits** to communities which currently build or have built with earth?
4. Do we need to research the **efficiency** of earthen buildings (for example, operating energy and energy use during construction) to be able to compare it with other building materials? What type of data do we already have available? What data has not been identified yet and how can that data can be collected? Do we need to specifically research lesser-known earthen construction techniques such as cob, straw-clay or daub?

5. Do we know enough about Mediterranean **contemporary** earthen building **techniques and architecture**? Do we need mathematical models for structural calculations specific to earthen construction techniques (including contribution to a **specific Eurocode**)? Do we need to include earthen standards in **national building codes**?
6. What other **research topics** will advance the use of earthen architecture for sustainable development in the Mediterranean region?

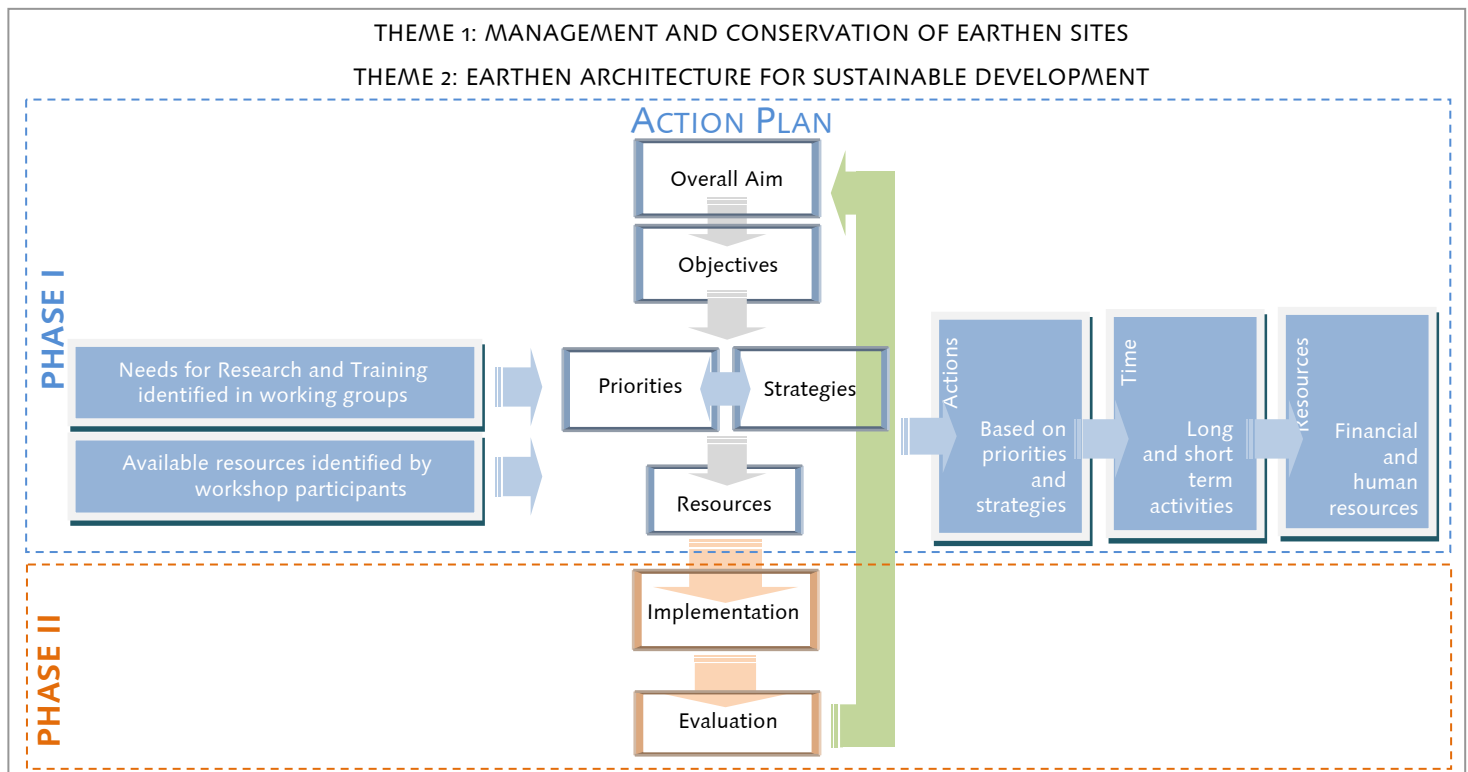
Questions to identify training needs in the region:

1. How do we build a relationship between **earthen heritage conservation and sustainable earthen architecture** within our educational activities?
2. What should the **curricula** of teaching earthen architecture for sustainable development include? Should the teaching of earthen architecture be part of wider curricula (i.e. sustainable materials for new construction) or should it stand on its own?
3. Do we have to develop common educational methodologies and **didactic materials**?
4. How can we address the connection of **theory to practice** during training?
5. Since it is well-established that we should educate a wide range of **audiences**: technical, undergraduate, graduate, mid-career professionals and the general public (with outreach and advocacy), which target group is most in need of training?

IV. SUMMARY OF WORKING SESSIONS AND ACTION PLAN

The last day of the workshop was attended only by the workshop organizers and was devoted to summarizing the groups' discussions and developing an action plan including short- and long-term activities. In the sections that follow, the action plan is presented based on the discussion sessions which occurred during the workshop as well as input and reviews by the workshop participants via e-mail. The role of the organizers has been to synthesize and structure the information provided by the participants. Where possible, results have been grouped conceptually, with a summary given first and specific examples following. The occasional discord or random notations fed the groups' creativity and contributed to open and productive working sessions. While these results may not be cohesive, they represent the participants' dedication to the discussions and eagerness for collaboration throughout the Mediterranean region.

The action plan⁴ took into consideration a set of conceptual definitions, which created the framework foundation for the development of the work and consists of four main sections: overall aims, specific objectives, priorities and strategies. In this case, priorities were based on research and training needs recognized by both the French and English speaking groups. Strategies for the region were defined based on input from the participants, which allowed for the workshop organizers to design a series of activities, based on resources needed to put this plan into action. A second phase will allow organizers to establish a time-line, as well as responsibilities for the implementation of the defined actions. An evaluation of this plan should also be addressed after preliminary actions are implemented. The action plan is based in the following scheme:



⁴ *Action Plan* was defined as "Steps that must be taken, or activities that must be performed well, for a strategy to succeed. An action plan has three major elements: (1) Specific tasks: what will be done and by whom; (2) Time horizon: when will it be done; (3) Resource allocation: what specific funds are available for specific activities." (Website: <http://www.businessdictionary.com/definition/action-plan.html>)
Priorities were considered as conditions deserving specified attention and related to the identified needs.
Strategy within this framework was considered as the creation of an action plan for achieving important aims, dealing with "an uncontrolled environment" (as opposed to planning which is approached in a controlled environment). (Website: <http://www.easy-strategy.com/strategy-definition.html>)

OVERALL AIM

The overall aim of the Mediterra action plan is to formulate a set of strategies in order to encourage institutions and individuals to advocate locally to undertake jointly planned research and training activities to advance the field of management and conservation of earthen sites and earthen architecture for sustainable development in the Mediterranean region.

SPECIFIC OBJECTIVES

The objectives of the Mediterra action plan are to:

- Contribute to a Mediterranean vision to advance the management and conservation of earthen sites and earthen architecture for sustainable development in the Mediterranean region.
- Develop a coordinated program among Mediterranean countries working in the fields of management and conservation of earthen sites and earthen architecture for sustainable development.
- Define a framework for the advocacy of a participatory and interdisciplinary approach to the conservation of earthen sites and earthen architecture for sustainable development.

ACTION PLAN: MANAGEMENT AND CONSERVATION OF EARTHEN SITES

Research needs

The following ideas emerged during the groups' discussions on the research needs for the management and conservation of earthen sites.

1. There is a need for more coordinated **interdisciplinary research activities** —including input coming from practitioners working on project implementation— within a common vision among Mediterranean countries. The participants mentioned the need to develop a Mediterranean research project with common goals, objectives, target audiences, activities and resources.
2. Although **scientific research** has been developed in recent years regarding material characterization and behavior, additional research at the material level is needed on topics such as thermal behavior, decay processes, water vapor transmission rates, acoustic qualities, compatibility with other materials, durability to environmental exposure, the effect of climate change, and long-term loading behavior.
3. **The building cultures** in the Mediterranean region need greater exploration, particularly of how they were transferred and adapted from one country to another and the evolution of their relationship to the environment. Comparisons should be made between different building techniques and building cultures, including the study of the relationships between social systems, living traditions and cultural landscapes.
4. It is necessary to adapt **existing building codes and standards** for best practices for earthen conservation, encouraging the use of results already developed by other research and technical

- institutions. Likewise, standardized terminology is needed at the regional level to foster understanding among disciplines and countries.
5. There is a need to conduct research on the effectiveness of conservation for the **sustainability** of the built environment in the Mediterranean region.
 6. Greater research on **site management** is needed, especially the development of indicators for evaluating the positive and negative impacts of tourism, inhabitation and abandonment of sites.
 7. **Disaster management** needs more research on topics such as damage assessments, risk assessments, monitoring, and inventories, including the creation of scientific data to allow structural analysis for earthen buildings and sites. Assessment of the impact of natural disasters such as flooding, heavy rains, fires or earthquakes, building decay processes was particularly mentioned. Lessons could be learned from the way disasters have been managed in the past. Conservation interventions to improve seismic performance of existing earthen buildings were specifically mentioned.
 8. There is a need to improve **government involvement** through the development of national and regional legislation, adaptive reuse of heritage sites, and the inclusion of earthen architecture in agricultural and land-use planning.

Training Needs

The following topics were identified as needs for training addressing the management and conservation of earthen sites.

1. There is a need for coordinated **training activities** within an interdisciplinary vision among Mediterranean countries while maintaining a focus on earthen architecture. Mediterranean countries should exchange their experience and knowledge through existing networks in order to develop training programs with the ultimate objective of increasing recognition of earthen heritage and strengthening the profile of earthen architecture.
2. There is a need for training at a **variety of levels** —including universities, national programs, and Mediterranean-wide programs— and targeting a wide range of audiences -including academics, practitioners, artisans, technicians, future trainers and primary school students- throughout the Mediterranean. In order to reach decision makers, participants identified the need to increase public awareness by targeting politicians. In order to make training available and accessible to a wide-range of students, there is a need to vary the time-span of training programs and to deliver courses in the local languages.
3. There is a need to develop **curricula** at all levels of education, incorporating hands-on training, from primary school to universities, certification programs for professionals and lectures for the general public.
4. Specific calls were made for the **translation of existing didactic materials** into other languages and for their adaptation to local needs by using local teaching and dissemination techniques to better educate the audience. In addition, educational material on the management and conservation of earthen architecture should be included in schoolbooks for general and architectural education.
5. **Methods and guidelines for disaster management, conservation, and site management** were specifically mentioned as needs for additional training.

Strategies, proposed activities and available resources

The following table lays out the priorities and existing resources identified by workshop participants. The list of activities was compiled from ideas mentioned by participants during the workshop. The strategies and some resources were later extrapolated by the workshop organizers from the activities and priorities mentioned. This table may serve as a base for a more detailed regional program.

	Priorities	Strategies	Activities	Resources
COORDINATION	Create a common vision with clearly identified objectives.	Create of a scientific committee/platform	Review action plan defining preliminary time-frame for activities and set region-wide goals and milestones	Professionals working in the field of earthen conservation
			Identify key players per country and assign specific tasks to interested parties	Existing national and international associations and professional networks working in the field of heritage preservation and earthen conservation
			Organized and regularly scheduled conferences and colloquia for exchange of information within the discipline	Financial support coming from international foundations and existing universities interested in the subject
			Coordination of Mediterranean-wide objectives at the sub-regional and local levels to maintain local vision and visibility	Local formal and informal networks
	Encourage regional collaboration through formal platforms	Promote communication and information among professionals	Establish, promote and connect documentation centers and conservation databases to facilitate accessibility of information about the conservation of Mediterranean earthen sites	Media: The Internet Financial partners such as businesses, foundations, local formal and informal networks, or large-scale Mediterranean projects
RESEARCH	Gain the inclusion of earthen architecture in other disciplines such as cultural landscape studies, urban planning, structural engineering, and architecture	Reach out to, advocate within, and work together with other disciplines working in the field of earthen conservation	Develop condition assessments and scientific analysis on significant buildings to understand performance through time and the impact of natural disasters	Academic institutions and research centers
			Encourage research on the economic impact of and/or development benefits of the preservation of earthen sites	Schools of economics interested in the subject
			Develop maps to assess issues, risks, conditions and performance at the Mediterranean and city level	Schools of engineering, architecture, landscape architecture, real state, urban planning and social sciences

	Priorities	Strategies	Activities	Resources
TRAINING				interested in the subject
			Promote model projects and management plans for earthen urban settlements	Media: TV, preservation journals and professional magazines
			Promote research for the study and conservation of cultural landscapes	International foundations with interest in research
	Encourage the development of training courses	Establish a corpus of knowledge	Establish Mediterranean courses in conservation, improve existing curricula and take advantage of existing teaching expertise	Existing educational institutions with experience in teaching conservation of earthen sites
			Establish, promote and connect training centers to promote the exchange of didactic materials and coordinated training activities within the region	Regional educational programs
			Prepare model training programs	Academic institutions and research centers
			Develop training programs and didactic materials on structural engineering (seismic regions)	Schools of engineering interested in the subject
	Define the training program based on targeted audience, including a wide range of groups	Coordinate activities at the regional level but consider specificities for development and visibility at the local level	Develop concerted regional model courses for different audiences with an emphasis on children and young people	Schools, including primary, secondary, and universities
			Adapt and improve didactic materials for the teaching of earthen conservation	Existing pedagogical tools and teaching experience
	ADVOCACY	Improve the perception of earthen architecture by highlighting its positive qualities	Increase public awareness and outreach	Encourage and promote high profile project/activities
Involve local and regional authorities and decision-makers in various activities				Existing national associations, institutions, and government bodies Collaborative networks
Encourage and promote exhibitions				Media: The Internet, virtual games, cinema, magazines and TV.
New projects for training, implementation and research, including model pilot projects, large-scale workshops, hands-on training programs, and practical conservation research				Financial partners such as businesses, foundations, local formal or informal networks, or large-scale Mediterranean projects

ACTION PLAN - EARTHEN ARCHITECTURE FOR SUSTAINABLE DEVELOPMENT

Research Needs

The following research needs were identified for earthen architecture for sustainable development.

1. There is a need to assess the current level of **knowledge** on the subject.
2. There is a need for more knowledge on the **economic impact and/or benefits** of building with earth in comparison to "modern" construction and how earthen buildings can benefit local communities due to its increased sustainability and income from tourism or other related activities.
3. There is need for more research and dissemination of the **social benefits** of earthen building regarding construction costs for sustainable large-scale housing projects, or the positive impact of the earthen built environment on human health. In the latter case, comparisons with modern materials are needed on topics such as toxicity or thermal and acoustic comfort.
4. There is a need for further research on the effectiveness of earthen architecture as a natural **environmentally-conscious solution** and on the advantages of the adaptability of earthen buildings to their environment. More studies on energy efficiency evaluations, life-cycle assessments, analysis of performance based on "the three R's" (Reduce, Reuse, Recycle), adaptability to climate change, the environmental impact of soil extraction and the seismic performance of traditional earthen buildings were mentioned in particular by workshop participants.
5. There is a need to develop **building codes and standards**, including numerical models for structural, thermal and acoustic analysis; design principles; prototypes and models; simple testing methodologies, and production processes. The practical needs of construction should also be considered when designing research for codes or standards. There is a need to improve and disseminate existing building codes for seismic regions as well as guidelines for structural assessments. Tools developed for quality control for other disciplines should be employed. Testing methodologies should be established so they can be applied throughout the Mediterranean region.
6. Cultural sustainability and common-sense solutions should be considered, such as the relationship between **high-and low-tech innovations** (for example, passive solar architecture), and the cultural relationship between earthen architecture, the landscape and the environment.

Training Needs

The following needs were identified for training addressing the use of earthen architecture for sustainable development.

1. There is the need for **training programs, didactic materials and curricula** adapted to the local culture. For example, there is a great difference between regions with a continuous tradition of building with earth versus areas where the tradition has been lost and is now being recovered.

2. It is necessary for education in the field of earthen architecture for sustainable development to be collaborative with **other institutions and disciplines**. Educational programs need to be formed cooperatively with universities, training institutions, museums, artisans' organizations and non-governmental organizations. There is a need for educators to approach programs teaching sustainable architecture, environmentally-conscious construction, and energy efficiency, with the goal of gaining inclusion in their curricula.
3. In order to train professionals prepared to work in many aspects of earthen architecture for sustainable development it is necessary to **develop a curricula** that includes:
 - Design principles for new buildings, such as life-cycle assessment, passive solar architecture concepts, and levels of construction regulations and economic evaluations of construction projects.
 - The health benefits of living in an earthen building.
 - Material targeting a diverse set of audiences, including artisans, architects, trainers, teachers, non-governmental organizations, decision makers, children and the general public.
4. In order to train professionals with field experience there is a need to develop **pilot projects for on-site and hands-on training courses** with community involvement.
5. In order to reach the general public, there is a need to **develop didactic materials** to easily disseminate using the media (printed, oral, games, Internet, TV, etc.)

Strategies, proposed activities and available resources

The following table lays out the priorities and existing resources identified by workshop participants. The list of activities was compiled from ideas mentioned by participants during the workshop. The strategies and some resources were later extrapolated by the workshop organizers from the activities and priorities mentioned. This table may serve as a base for a more detailed regional program.

	Priorities	Strategies	Activities	Resources
COORDINATION	Address international and national agendas	Respond to international agreements such as the Kyoto protocol and other national agendas	Develop responses with training and research pilot projects	Existing international organizations such as ICOMOS International non-governmental organizations and governing bodies The popularity of fair trade and eco-tourism Professional associations and unions
	Promote information dissemination	Provide structure for regional networking and exchange of information	Organize concerted conferences, competitions and seminars	Financial support coming from existing international foundations and universities interested in the subject Successful examples of conferences, seminars, and colloquia

	Priorities	Strategies	Activities	Resources
RESEARCH			Create and promote existing networks for easy communication and access to information	Media: The Internet and existing networks for the green movement Professional associations and unions
	Encourage research activities towards the integration of earthen architecture with other related fields working on sustainable development	Establish a corpus of knowledge	Assess the state of the art through a literature review—including proceedings of colloquia and conferences—in the field of sustainable architecture	Researchers in related fields at the university levels
			Encourage research projects to assess the use of earthen architecture for sustainable social housing and new technology for earthen architecture.	Universities, research laboratories and academic institutions
TRAINING	Improve training in the region targeting all audiences including artisans, architects, trainers, teachers, non-governmental organizations, decision-makers, children, and the general public	Scientific and educational lobbying within universities to gain acceptance of earthen architecture in educational settings	Promote the creation of scientific and technical publications	Publishing companies
			Create and organize concerted and multidisciplinary regional courses	Existing staff and experience at universities and research centers; existing national association and professional bodies, including unions
			Develop additional training programs for educators including practical and on-site experience	Existing staff and experience at universities and research centers; existing national associations and professional bodies, including unions
			Develop didactic materials for the teaching of sustainable earthen architecture to a diverse group of students	Existing staff and experience at universities and research centers; existing national association and professional bodies, including unions

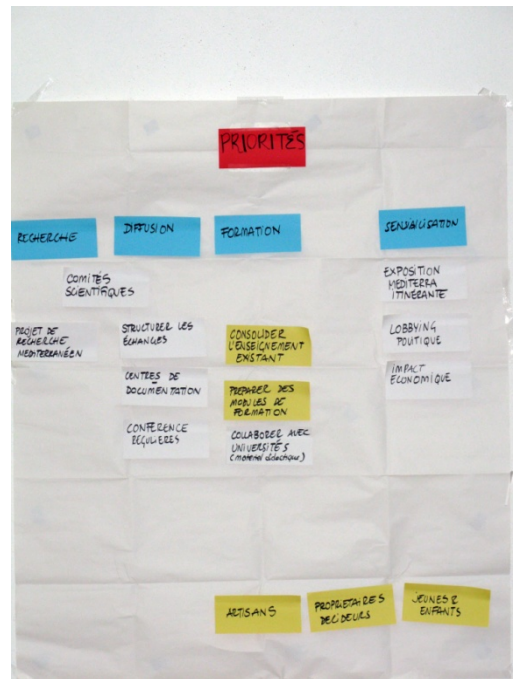
	Priorities	Strategies	Activities	Resources
ADVOCACY	Increase political and social awareness	Create and encourage a participatory process for the development of public policies supporting earthen architecture for sustainable development	Develop codes, standards and guidelines with government institutions for the legalization of earthen construction and the use of earthen architecture for sustainable development	International governing bodies, local governments and professional associations Existing standards and recent research for the development of standards
			In collaboration with government institutions and politicians, create policies to provide incentives for building with earth, using earth for public buildings, or developing pilot projects for sustainable earthen housing	Politicians, lawyers and building officials working in the green movement Existing successful examples Current public interest in sustainable development and earthen architecture International or local businesses
			Create a method to increase participation by all of civil society	Models used in other fields where civil society has been included Local organizations, governments, schools and businesses
	Create a comprehensive and scientific vision for earthen architecture for sustainable development in the region	Facilitate interdisciplinary collaboration while introducing earth to other related disciplines	Identify stakeholders, potential partners and professionals—engineers, architects, developers, contractors, and craftspeople—working in the field of earthen architecture	Researchers at the university level Professional associations and unions International and local businesses
			Learn from and cooperate with educational programs from other disciplines, such as geography or anthropology, as well as other professions, such as development or construction fields	Existing educational institutions Professional associations and unions
			Emphasize the relationship between earthen architecture, the landscape and agriculture	Existing successful projects Traditional models Model projects
			Organize outreach activities with international organizations	Organizations working in the field of sustainable development International non-governmental organizations International governing bodies

	Priorities	Strategies	Activities	Resources
ADVOCACY	Advocate for earthen architecture as a viable tool for sustainable development	Develop a market for earthen architecture through creating and carefully managing a positive image to improve public perception.	Coordinate outreach activities such as regional festivals, fairs and exhibitions	Media: TV, Internet, radio Current popularity of earthen architecture and sustainable development Existing successful examples of large-scale workshops
			Encourage the creation of awards for outstanding work in the field of earthen architecture for sustainable development	Existing networks such as Mediterra
			Seek celebrity and political support	Media: TV, Internet, radio
			Promote the qualities of earthen architecture that are currently perceived as weaknesses as strengths	Media: TV, Internet, radio, housing and green magazines, etc.
			Participate in international sustainable development projects	Networks for the sustainable development field The popularity of fair trade and eco-tourism International non-governmental organizations International governing bodies
			Reach out to developers and promote model projects in the region to explore earthen architecture for sustainable development through new architecture	Media: TV, Internet, radio, construction industry magazines The housing market The field of contemporary architecture Traditional models Existing successful examples and model projects

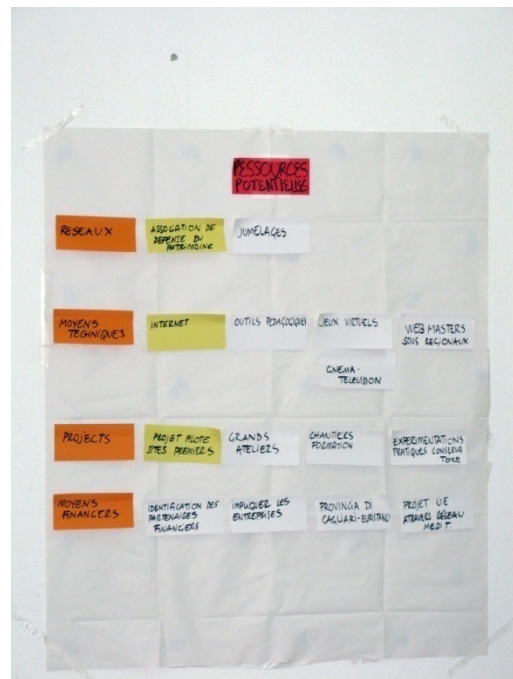
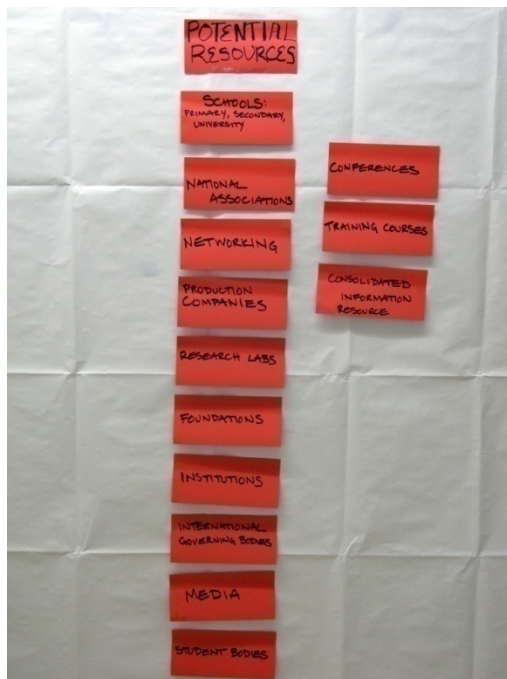
V. APPENDICES:

A. AGENDA

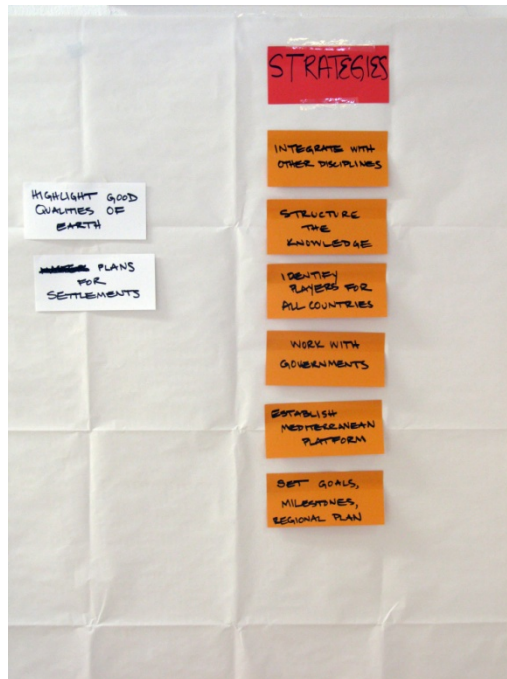
		March 14, 2009
14:15 – 15:00	Logistical meeting with participants <i>Coordinator: Elise Yakuboff; Location: Building Alpha and Beta, University of Cagliari</i>	
<hr/>		March 16, 2009
19:00 – 20:00	Check-in at the hotel and workshop registration at Villanovaforru	
20:30	Dinner and welcome from President of the region to all workshop participants	
<hr/>		March 17, 2009
9:00 – 9:30	WORKSHOP OPENING <i>Prof. Dr. Carlo Aymerich; Dean, Faculty of Architecture of Cagliari</i>	
9:30 – 12:30	THEME I: MANAGEMENT AND CONSERVATION OF EARTHEN SITES <i>Moderators: Claudia Cancino (English), Bakonirina Rakotomamonjy (French), Rapp: Azadeh Vafadari (GCI)</i>	
9:30 – 9:40	Presentation of the theme - <i>Mariana Correia, ESG</i>	
9:40 – 10:45	Working sessions: <i>Questions to identify topics for research and training</i>	
10:45 – 11:15	COFFEE BREAK	
11:15 – 11:45	Working sessions: <i>Resources and strategies needed to further the theme</i>	
11:45 – 12:10	Group presentations	
12:10 – 12:30	Further questions and discussion	
12:30 – 2:00	LUNCH AND GROUP PHOTO	
2:00 – 5:15	THEME II: EARTHEN ARCHITECTURE FOR SUSTAINABLE DEVELOPMENT <i>Moderators: Claudia Cancino (English), Bakonirina Rakotomamonjy (French), Rapp: Gilberto Carlos (ESGallaecia)</i>	
2:00 – 2:10	Presentation of the theme - <i>Hubert Guillaud, CRATerre-ENSAG</i>	
2:10 – 3:15	Working sessions: <i>Questions to identify topics for research and training</i>	
3:15 – 3:45	COFFEE BREAK	
3:45 – 4:15	Working sessions: <i>Resources and strategies needed to further the theme</i>	
4:15 – 4:40	Group presentations	
4:40 – 5:00	Further questions and discussion	
5:00 – 5:15	FINAL REMARKS	
<hr/>		March 18, 2009
9:00 – 12:30	SUMMARY DOCUMENT	
9:00 – 10:00	Presentation of the workshop summary - <i>Claudia Cancino, GCI</i>	
10:00 – 10:45	Discussion regarding workshop results	
10:45 – 11:15	COFFEE BREAK	
11:00 – 11:30	Action plan – Next steps discussion	
11:30 – 12:30	Methodology to draft summary document: Index and timeline	
12:30 – 2:00	LUNCH	
2:00 – 6:30	DRAFT SUMMARY DOCUMENT	



Images 5 & 6: CommBoards to identify priorities – Theme I, English (left) and French (right) groups



Images 7 & 8: CommBoards to identify potential resources – Theme I, English (left) and French (right) groups



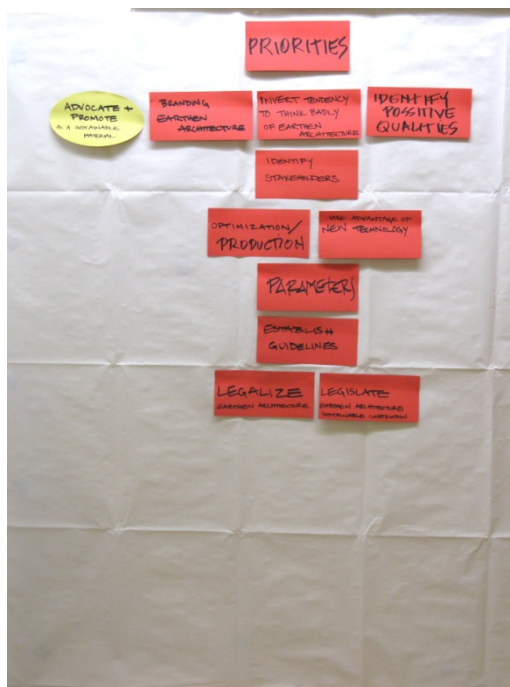
Images 9 & 10:
CommBoards to define strategies – Theme I, English (left) and French (right) groups



Images 11 & 12:
CommBoards to identify needs for research – Theme II, English (left) and French (right) groups



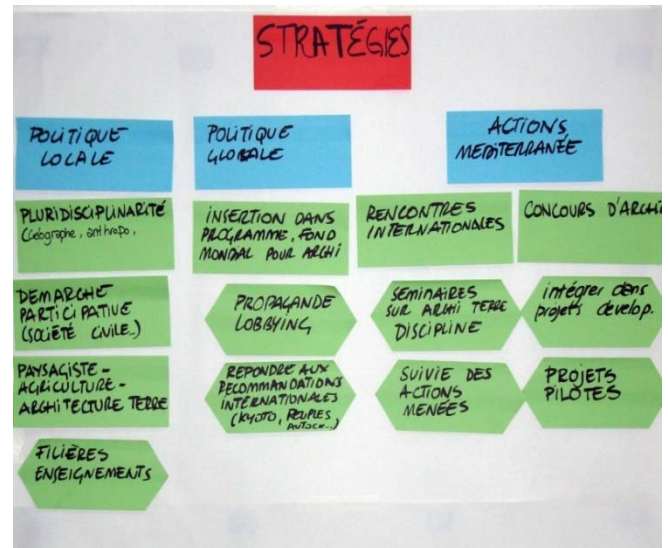
Images 13 & 14: CommBoards to identify needs for training – Theme II, English (left) and French (right) groups



Images 15 & 16: CommBoards to identify priorities – Theme II, English (left) and French (right) groups



Images 17 & 18: CommBoards to identify potential resources – Theme II, English (left) and French (right) groups



Images 19 & 20: CommBoards to define strategies – Theme II, English (left) and French (right) groups

Next page: Images 21-28: Working sessions and presentations, English and French groups



C. GROUP PHOTOGRAPH



Image 29: Group photo

Front row, left to right: Elise Yakuboff (Coordinator), Bakonirina Rakotomamonjy (Moderator), Claudia Cancino (Moderator), Mohamed Boussalh (Morocco), Mariana Correia (Organizers), Ahmed Rashed (Egypt), Amila Ferron (Organizer), Azadeh Vafadari (Rapporteur), Antonia Theodosiou (Cyprus); **Back row, left to right:** Leila El-Wakil (Egypt), Bilge Isik (Turkey), Claire-Anne de Chazelles (France), Maddalena Achenza (Organizer), Hubert Guillaud (Organizer), Mauro Bertagnin (Italy), Maria Fernandes (Portugal), Said Kamel (Morocco), Humberto Varum (Portugal), Valentina Cristini (Spain), Juana Font (Spain), Vjekoslava Sankovic (Bosnia-Herzegovina), Gilberto Carlos (Rapporteur); **Not pictured:** Georgia Poursoulis (Greece) and Borut Juvanec (Slovenia)

D. PARTICIPANTS BIOS AND CONTACT INFORMATION

Maddalena Achenza

Università di Cagliari, Facoltà di Architettura, Dipartimento di Architettura,
Italy

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Maddalena Achenza is an architect, holding a master's degree from the University of Florence, where her thesis explored "Earthen Architecture between Tradition, Conservation and Innovation". In 1996, she obtained the DEEA-Terre at Craterre-École d'Architecture de Grenoble (France). Since 1997, she has been a researcher at the University of Cagliari Department of Architecture. She gives courses for the UNESCO Chair on Earthen Architecture, Building Cultures and Sustainable Development. Since its establishment in the department, she has been the coordinator of Labterra, a centre for studies and research on earthen architecture. Achenza participates in the activities of the National Association of Earth Towns, for which she has organized conferences, seminars, and dissemination activities since 1996. She has been a member of ICOMOS International Scientific Committee of Earthen Architectural Heritage since 2004.

Mauro Bertagnin

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Mauro Bertagnin graduated from the Venice School of Architecture (IUAV) supervised by Giancarlo De Carlo. He is a full professor of architecture in the Faculty of Civil Engineering at the University of Udine in Italy. Since 1985, he has been a member of the CRATerre Group in Grenoble. He has been involved in various conservation projects related to earthen architecture in historical centers on the UNESCO World Heritage List, including the cities of Timbuktu (Mali) and Ghadames (Libya). He is a scientific counselor for the World

Heritage Centre's ongoing project "Terra 2007-2017". He has been a visiting professor in several African, European, and North American universities such as the Massachusetts Institute of Technology (MIT), Harvard University and Columbia University. Since the Adobe 90 Conference in Las Cruces, New Mexico (USA), he has been an invited speaker at many international conferences on the conservation of earthen architecture. He is the author of many publications on earthen architecture and conservation, including a revised reprint of the Del Rosso treatise on earthen architecture in Tuscany, *Pisé and the rule: an 18th century treatise on earthen architecture*, and a guide to Italian earthen architecture.

Mohamed Boussalh

CERKAS (Centre de Conservation et de Réhabilitation du Patrimoine Architectural Atlasique et Subatlasique),

Morocco

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Mohamed Boussalh a fait ses études en anthropologie à l'Institut National des Sciences de l'Archéologie et du Patrimoine de Rabat. Il a intégré le Centre de Conservation et de Réhabilitation du Patrimoine Architectural Atlasique et Subatlasique de Ouarzazate (CERKAS) comme conservateur-adjoint chargé des enquêtes historiques et socio-ethnographiques dans le domaine des architectures vernaculaires en terre et en pierre de l'Atlas et des vallées présahariennes du Maroc. En 1999, et après deux années d'études en gestion du patrimoine culturel à l'Université internationale de langue française au service du développement africain d'Alexandrie d'Égypte (Université Senghor), il a réintégré une nouvelle fois le CERKAS, en tant que conservateur responsable de l'unité d'enquêtes et d'études historiques et socio-ethnographiques. En 2003, il est devenu responsable du Centre et puis directeur à partir de 2006. Il a dirigé et participé à plusieurs travaux d'inventaire, d'études, de restauration et de réhabilitation des architectures de terre : inventaire systématique par photographies aériennes du patrimoine architectural de la vallée du Dra ; études ethno-archéologiques des greniers collectifs de la vallée de l'Ounila ; restauration des greniers de Tazlaft et d'Ibaqliwn ; aménagement du site Aït Ben Haddou, etc. Il est enseignant vacataire au Centre de formation aux métiers de montagne de Tabant, Azilal, au Centre de formation aux métiers de cinéma à Ouarzazate et à la Faculté Polydisciplinaire de Ouarzazate. Boussalh est auteur et co-auteur de plusieurs articles et études sur le patrimoine architectural y compris des manuels (manuel de conservation du patrimoine architectural en terre des vallées présahariennes du Maroc), plan de gestion du site Aït Ben Haddou, etc. Actuellement, il dirige des travaux de conservation et de réhabilitation des constructions en terre du site Aït ben Haddou, classé patrimoine mondial depuis 1987.

Claudia Cancino

The Getty Conservation Institute

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Claudia Cancino is a project manager at the Getty Conservation Institute (GCI). She earned a degree in architecture and urban planning from Universidad Ricardo Palma in Lima, Perú. She continued studies in conservation at ICCROM in Rome (certificate in conservation, 1995) and business administration at ESAN in Lima (certificate in business administration, 1998). From 1996 to 1999, Ms. Cancino was a member of the architecture faculty at the Universidad Peruana de Ciencias Aplicadas (UPC) in Lima, where she taught restoration of monuments, earthen building techniques, and history of architecture. During this period, she also practiced preservation architecture and had projects in several historical earthen buildings around the country. In 1999, Mrs. Cancino moved to Philadelphia to pursue a Master of Science in historic preservation (2001) and an Advanced Certificate in conservation (2002) from the University of Pennsylvania. Since then, she has worked on several archaeological sites in the southwestern U.S. She joined the GCI in 2002 as an associate project specialist to work as part of Project Terra. She was a member of the international scientific advisory board for the development of building codes for earthen materials in Morocco and organized the Getty Seismic Adobe Project colloquium in 2006. She currently manages the Earthen Architecture Initiative at the GCI, which involves scientific research on earthen grouts to repair structural cracks on earthen buildings located in seismic areas, seismic retrofitting methods for earthen buildings in Peru, and sustainable approaches for the rehabilitation of living earthen sites in Southern Morocco.

Gilberto Duarte Carlos

Escola Superior Gallaecia

Portugal

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Gilberto Duarte Carlos is an architect with a degree from the Technical University of Lisbon who has also been a scientific intern at the University of Tokyo in Japan. He is a PhD research candidate in architecture at the University of La Coruña in Spain. He was a research member for the Urbanism Department of the Technical University of Lisbon and involved in several investigation projects regarding public spaces and colonial urbanism studies. He was a senior architect at the East-Timor Studies and Reconstruction Group (GERTIL), developing projects and programs related to the south-Asian native traditional construction. He is presently a resident researcher at CICRA/ESG (Escola Superior Gallaecia), investigating mainly local heritage and vernacular architecture, including an analysis and cataloguing of XVII century earthen fortifications along the northeast Portuguese border.

Claire-Anne de Chazelles

Centre National de la Recherche Scientifique (CNRS)

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Claire-Anne de Chazelles est archéologue, docteur en histoire ancienne. Entrée au CNRS depuis 1990, elle conduit des recherches sur les habitats de l'Âge du fer et sur les techniques de construction, et dirige d'importants chantiers archéologiques sur lesquels des étudiants sont formés ; parallèlement, elle développe des méthodes de fouilles et d'identification des procédés constructifs en terre. Dans son laboratoire, elle a piloté successivement des programmes tels que « matériaux et techniques de construction » et «

urbanisme et architecture », et a créé un site Web pour les maisons de l'Âge du fer. Depuis 2002, elle se consacre à l'histoire des techniques de construction en terre en Méditerranée avec des problématiques techniques et historiques. Elle est consultée comme expert à propos de bâtiments en terre archéologiques datant de la préhistoire à l'époque moderne. Elle a publié de nombreux articles sur ces sujets ainsi qu'un livre (*Les maisons en terre de la Gaule méridionale*, 1997) et organisé plusieurs colloques dont les actes sont édités.

Mariana Correia
Escola Superior Gallaecia
Portugal

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Mariana Correia earned a degree in architecture (1995); a DPEA-Terre with distinction from CRATerre-ENSAG in France (2000); and a master's degree in architecture from the Technical University of Lisbon in Portugal (2002). She is currently concluding a PhD on earthen architecture conservation at Oxford Brookes University in the United Kingdom. She is a member of the Board of Directors of Escola Superior Gallaecia (ESGallaecia) in Portugal, a university for architecture, landscape and design. She is also director of the research centre CICRA-ESG, with several research projects financed by national and international entities. Since 2009, She has been the president of the Board of Administrators of the Fundação Convento da Orada, a foundation for the preservation of heritage in Portugal. She has been a member of the Board of Directors of ICOMOS-ISCEAH (International Scientific Committee on Earthen Architectural Heritage) for the terms 2005-2008 and 2008-2011. She is an associated member of the ICOMOS Vernacular Architecture Committee and a member of PROTERRA, an Iberian-American network on earthen architecture. She was a co-founder of the Portuguese Association Centro da Terra in 2003 and the president of the assembly from 2004 to 2008. She is a member of the UNESCO Chair on Earthen Architecture and the UNESCO Chair on Preventive Conservation. She is the author and co-editor of several books on earthen architecture. She has organized international and national seminars, conferences, meetings and expositions on earthen architecture and vernacular architecture. She is the coordinator of the ATP Seminar (Earth Architecture in Portugal). She actively participates in international and national meetings with presentations and published articles.

Valentina Cristini (for Fernando Vegas and Camilla Mileto)
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Valentina Cristini joined Universidad Politécnica de Valencia (UPV) in 2006 as a grant student at ETSAV in the School of Architecture. She also studied in Milan, at the Politecnico University from 2000 to 2005, where she earned a degree in architecture. She became a PhD student in the field of patrimony after obtaining her advanced degree in the conservation of architectural heritage in 2008. Her work is both in architectural research programs and in preservation projects, developed with Loggia Research Group in collaboration with Fernando Vegas and Camilla Mileto, lecturers at UPV. The group's research is in traditional constructive techniques, vernacular architecture, and preservation strategies, both in Spain and the broader Mediterranean area. She has authored publications and articles related to these themes as well as to archaeology, for which she has worked on sites in Syria (2006-2007).

Maria Fernandes
CEAUCP, Centre for the Archeological Studies from the Universities of Coimbra and Porto, Instituto de Arqueologia
Portugal

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Maria Fernandes joined CEAUCP (Centro de Estudos Arqueológicos das Universidades de Coimbra e Porto) in 2007 as a PhD researcher in architecture. Prior to that she was at DGEMN, Direcção-Geral dos Edifícios e Monumentos Nacionais, where she had been a senior principal architect-conservator since 1993 and was responsible for interventions in many historical buildings in Portugal, especially in the southern (Alentejo, Algarve) and central (Beiras) regions. She has been a senior architect at the municipal office of the historical city of Évora, a World Cultural Heritage Site. She has a MA degree in conservation of landscape and architectural heritage from the University of Évora (1994-98). She has participated in the following courses: ARC 91 Architectural Conservation at ICCROM; PAT 92 through CRATerre/EAG and PAT 96 through CRATerre-EAG, ICCROM, and the GCI. Her work in DGEMN has been mainly on the conservation and management of historical buildings from the XI to XII centuries and XV to XVII centuries. She is the author of many articles on conservation and co-editor of the book *Earth Architecture in Portugal*. She has experience as a guest lecturer in earthen architecture conservation in Portugal, and other courses like the school of Serpa. She is a member of ICOMOS-Portugal, redPROTERRA and Association Centrodatera.

Amila Ferron
The Getty Conservation Institute
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Amila Ferron joined the Getty Conservation Institute (GCI) in March of 2008 as an associate project specialist working on the Earthen Architecture Initiative. Her work at the GCI includes research on repair methods for earthen buildings in seismic areas, the study of consolidation materials for earthen finishes, and the preparation of dissemination materials. Her previous work for the University of Pennsylvania's Architectural Conservation Laboratory involved managing the documentation and treatment of the earthen architectural finishes at Mesa Verde National Park, a UNESCO World Heritage Site. She holds a Bachelor of Arts in Studio Art from Whitman College; a Master of Science in historic preservation, and an Advanced Certificate in architectural conservation, both from the University of Pennsylvania.

Juana Font Arellano

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Juana Font est historienne de l'art par l'Université de Valladolid, Espagne, Master en restauration de l'École d'Architecture de l'Université de Valladolid, professeur des cours post-universitaires en restauration du patrimoine de l'Université Alfonso X de Madrid, et de l'Université de Valladolid. Elle est directrice des cours d'été sur la construction en terre de la Fondation Navapalos de 2000 à 2005 et professeur des cours d'été sur la construction en terre en Amayuelas de 2000 à 2008. Font est vice-présidente de l'Association ESTEPA (Etudes sur Terre, Energie, Patrimoine et Environnement). Elle est membre de l'équipe rédacteur d'Espagne pour les normes de construction en terre d'AENOR et rédactrice des rencontres interdisciplinaires coordonnées par Claire-Anne de Chazelles et Hubert Guillaud, des textes *Presence du pisé dans les textes hispaniques* (mai 2005), *Presence de l'adobe dans la Peninsule Iberique*, et *l'Adobe dans les textes hispaniques* (mai 2008). Elle est collaboratrice des livres *Construção de Terra em Portugal*, *Terra, forma de construir*, etc., de l'Editorial Argumentum de Lisboa, Portugal.

Hubert Guillaud

CRATerre-ENSAG International Centre for Earth Construction - School of Architecture of Grenoble

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Hubert Guillaud completed his degree in the humanities in 1970 and then joined the School of Architecture of Marseille. He received his diploma in architecture with distinction in 1981 with a presentation on history and actuality of earthen construction. In the same year, he joined CRATerre, International Centre of Earthen Construction, in the School of Architecture of Grenoble where he has been the scientific director since the year 2000. As a professor in sciences and techniques for architecture, he is responsible for the development of the UNESCO Chair on Earthen Architecture, Building Cultures and Sustainable Development, which has been a part of the school since 1998. He also teaches masters courses in architecture and building cultures. His research, teaching, and professional activities have been totally devoted, for 30 years, to the re-use of earth for human settlements in developing countries and to the conservation and management of the world's earthen architectural heritage. He has actively contributed to the developments of the successive Projects GAIA and TERRA which have been co-directed by CRATerre, ICCROM and the Getty Conservation Institute (GCI). He also worked as an expert for the UNESCO World Heritage Centre on various sites on the World Heritage List, for their conservation and management (Bahla in Oman, Chogha Zanbil in Iran) and collaborates on other projects carried out by CRATerre-ENSAG in this field.

Bilge Isik

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Bilge Isik is an architect, with a degree from the Fine Arts Academy of Istanbul (Turkey). Since 1978 she has been lecturing on building construction technology at Istanbul Technical University in the Department of Architecture. She received her PhD on "Prefabricated concrete building elements". From 1983 on, she has researched earthen construction technology, particularly in Gypsum Stabilization. She is currently a visiting lecturer at Cyprus International University.

Borut Juvanec

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Borut Juvanec is an architect with a PhD, and a professor at Ljubljana University. His research is mostly in the field of the theory of architecture, its origins, and vernacular architecture in stone, wood and clay. For ten years he has organized the International Conference on Vernacular Architecture Alps Adria. Some of his research topics include stone shelters (Ireland; Wales, UK; Devon, UK; Catalunya, Spain; Baleari, Spain; La Mancha, Spain; Corsica, France; Provence, France; Graubunden, Switzerland; Kras, Slovenia, Istra, Croatia; Sardegna, Italy; Puglia, Italy; Malta; Brittany, France, Bgarija, Bulgaria; Hessen, Germany, Sinai, Egypt; Yemen; Morocco; and Iceland); drying objects (Portugal, Spain, Slovenia), and waterwells. He has published a number of scientific books, including *Arhitektura pri Lenartu* (1995); *Sardinija, arhitektura kamna* (2003); *Kamen na kamen* (2005), *Jewel of Architecture, Yemen* (2005); *Kultura bivanja* (2005); *Kozolec/Hayrack* (2007); *Choso de Extremadura, Joya en Piedra* (2008); and *Architecture of Slovenia 1, Alpine Part* (2009). He has lectured at several European universities in Barcelona, Florence, Malta, Moscow, Zagreb, Bratislava, Graz, Sofia, Valencia, Rome, Moscow, Cardiff/Caerdydd, Trento, Oxford, Lisbon, and Reykjavik. His research work has been exhibited in Alghero, Italy; Barcelona, Spain; Birzeit, Palestine, Zagreb, Croatia; and Ljubljana, Slovenia. He has a permanent museum exhibition on stone architecture in Korcula, Croatia. He is an active member of ICOMOS Paris/Ljubljana, the CEEPUS programme in Vienna, ISPROM in Sassari, SPS in Le Val, ISG in Graz, CERAV in Paris, ARTE in Caceres, and Patronat de Sant Galderic in Barcelona. His Web site is www.stoneshelter.org.

Said Kamel
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Said Kamel est géologue de formation. Il était assistant (1986-87), puis maître assistant en 1991 à l'École Normale Supérieure de Fès au Maroc, après quoi il était détaché à l'Université d'Aix Marseille III (1994 -96) pour préparer sa thèse d'État. Il est passé professeur habilité (1996) puis professeur (2000) à l'Université Moulay Ismail de Meknès. Il était responsable de l'Unité de Formation et de Recherche « Géologie de Surface et de l'Environnement » (1999-2008) et est membre de la Commission Scientifique de la Faculté des Sciences de Meknès (2003-2006). Ses recherches étaient d'abord sur la géologie générale et ensuite sur l'altération et pédogenèse des roches volcaniques en collaboration avec l'IORSTOM dans le cadre du projet Volcal puis projet « PICS » (1992-94). A partir de 2003, il s'est intéressé à la caractérisation des matériaux de construction et leurs formes de dégradation ainsi que leur origine, notamment ceux des remparts en pisé de la Médina de Meknès et des constructions en pierre de volubilis. Il était l'initiateur de la RIPAM (Rencontre Internationale sur le Patrimoine Architectural Méditerranéen). La 3ème édition (RIPAM3) est prévue à Lisbonne au Portugal en octobre 2009. Il était responsable des projets traitant cette dernière thématique : projet CNRST-Maroc/CNRS-France (2003-2004), PROTARS III (2005-09) et partenaire marocain du projet européen MEDISTONE. Il est co-auteur d'un atlas sur les pierres de construction et ornementales du site de Volubilis (Maroc).

Georgia Poursoulis
 Société DIA-gnossis
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Georgia Poursoulis a soutenu sa thèse de doctorat en 1999 sur le thème de la destruction des palais Minoens en Crète (Grèce) à l'Âge du Bronze. Depuis elle a participé à des activités de recherche en archéosismicité qui est sa spécialité. Elle a organisé en 2008 les VIIIèmes Rencontres Européenne du Groupe APS et journée techniques AFPS à Manosque du 15 au 17 décembre. Elle a participé à une campagne de fouilles archéologiques à Lattes Montpellier en août 2008. Elle a intégré la fonction de chef de projet du pôle risques des Grands Ateliers de l'Isle d'Abeau et participe aux travaux du groupe de travail AFPS-CSTB : vulnérabilité et renforcement du bâti existant. En 2007 elle a créé son entreprise DIA-gnossis dans le domaine des « Etudes et Conseils en Patrimoine bâti et sismicité ». Elle enseigne la sismologie à l'École des Mines d'Alès et a également assuré l'enseignement en archéosismicité pour l'Université Atlantique de Floride (USA) et pour l'École d'Architecture et de Paysage de Bordeaux. Elle a participé à des projets de recherche pluridisciplinaires du CNRS et à de nombreuses conférences internationales avec publications scientifiques.

Bakonirina Rakotomamonjy
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Ahmed Rashed is a professor at the British University in Egypt. His profession is architecture and urban design. He was the chair of the Architectural Engineering Department, Mansoura University, Egypt from July 2004 to September 2008. He received his PhD in January of 1995, in architecture planning and conservation, from the University of York, Institute of Advanced Architectural Studies in the UK. His dissertation was titled, "Public participation in the conservation of historical environments: Case Study Luxor city, Egypt". He has studied and researched the unique earthen pilot project "New Gournia" by Hassan Fathy. He is also interested in issues related to history and theories of architecture, conservation of historical environments, environmental impact assessment (EIA), sustainability, and future studies. He has worked as a professor at different universities in Egypt, Saudi Arabia, and the United Arab Emirates. He has published about 45 academic papers in international conferences and magazines.

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Vjekoslava Sankovic Simcic graduated from the Department of Architecture at University of Sarajevo. She attended the Cours de Spécialisation pour la Conservation et la Restauration des Monuments et Sites Historiques at ICCROM in Rome and completed the Master of Science Program at Facoltà di Architettura Università di Roma, Italy. Her final thesis was titled, "La rivitalizzazione della vecchia città di Pocitelj". She completed the PhD program in the field of architecture and urban planning at the Department of Architecture, at University of Zagreb, Croatia, with a thesis on "Method of contrast in revitalization of built heritage". She worked with the Institute for Protection of Cultural Heritage of S.R. Bosnia and Herzegovina. She joined the Faculty of Architecture-Department History of Architecture and Cultural Heritage Protection at University of Sarajevo as a teaching assistant in 1973, and was appointed assistant professor in 1979, associated professor in 1989, and tenured professor in 2001. She has also lectured at different MA in conservation studies and MA in architectural studies programs. She attended numerous international symposia and conferences on cultural heritage protection, conservation, restoration and revitalization and actively sought exchange of knowledge, experience and ideas. She is a member of expert bodies dealing with protection, conservation, restoration, and revitalization of architectural and urban heritage. She works on conservation projects and provides consultation on the revitalization of historic cities, especially on the integration of old and new. Mrs. Sankovic Simcic is the author of many articles on cultural heritage conservation, including the book *The Revitalization of cultural heritage, Integration old-new*.

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Antonia Theodosiou studied architecture and environmental engineering in Germany. In Cyprus, she received a certificate as a licensed tourist guide. She has been the supervisor of an EU project, during which, traditional buildings and places were restored and has worked for the Cyprus Tourism Organization, promoting soft tourism and the restoration of traditional dwellings. She undertakes projects on the restoration of traditional buildings, churches and ancient monuments, the rehabilitation of public spaces in traditional settlements and agro-tourism projects. She is a scientific collaborator in a private university in Cyprus and is involved in a number of projects concerning urban and rural planning and sustainable development. She is the author of publications on ecology and sustainable development, cultural landscapes, dry stone constructions and traditional architecture. She is co-author of a book on traditional architecture in Cyprus and co-author of a book to be published in 2009 on cultural landscape and the dry stone constructions. She received an award by Europe Nostra, was appointed by the Ministry of Education and Culture to represent Cyprus in the field of architecture in Italy, and was also awarded by the Association of Architects and Civil Engineers-Cyprus for her restoration work.

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Leïla el-Wakil is an art historian, architect and professor at the Faculté des Lettres, Université de Genève. She is particularly interested in the history of architecture, applied arts and monumental heritage conservation, her main fields of research and publication. She is involved in the Master in Advanced Studies « Conservation du Patrimoine et Muséologie des Beaux Arts » (Projet du Triangle azur plus) and teaches first- and final-year courses in the Department of Art History at the Faculté des Lettres, Université de Genève. She has been a member of the Commission des Monuments et des Sites attached to the DCTI and of Patrimoine Suisse (Société d'Art public). She participated in the editing of the *Monuments d'Art et d'Histoire du Canton de Genève* and was researcher of the FNRS (Fonds National de la Recherche Scientifique). Since 1998, Dr. el-Wakil has set up and organized a program of continuing education, « Patrimoine et Tourisme », in partnership with Genève-Tourisme, which has recently extended to the whole region of the Suisse romande (French-speaking region) and benefits from numerous collaborations. Dr. el-Wakil has been involved for a long-time in the history of western architecture, particularly in Geneva and Switzerland. She has been working for the last few years on the history of Middle Eastern architecture. She is presently editing a collective publication on the Egyptian architect Hassan Fathy, to be published in 2009.

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Elise Yakuboff served as an international relations liaison at the Embassy of France for the French National Center for Scientific Research (CNRS) in Washington, DC prior to joining to the Getty Conservation Institute (GCI) in 2007. She has experience coordinating scientific seminars and cultural conferences; facilitating international research agreements and exchanges of researchers; and organizing international delegations and field campaigns. She earned a Bachelor of Arts with honors in English Literature & French from Providence College and a Master of Arts in French from Middlebury College's graduate program in France. Elise interned in Paris at the Organisation Internationale de la Francophonie (OIF) in parallel with her master's thesis on cultural diversity in Francophonie. At the GCI, she coordinates the Earthen Architecture Initiative, the China Principles and Mogao Wall Paintings projects, and the Injection Grouts for the Conservation of Architectural Surfaces: Research and Evaluation project. She has also supported the Iraq Cultural Heritage Conservation Initiative and the Middle Eastern Geodatabase for Antiquities-Jordan project.