

TERRA EDUCATION 2010 INTERNATIONAL SEMINAR: EDUCATION FOR EARTHEN ARCHITECTURE

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Theme 9: Education, Dissemination and Outreach
Keywords: Didactics and pedagogy, priorities and strategy

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Abstract

In the year 2010, from May 24th to May 29th, the National Superior School of Architecture of Grenoble (ENSAG), France, with the CRAterre-ENSAG Research Unit and the UNESCO Chair Earthen Architecture, organized an international seminar on education for earthen architecture. More than 40 university lecturers, researchers and experts in education, coming from Europe, Africa, America, Asia, representing the interface of numerous international, regional and national specialized networks (such as PROTERRA, UNESCO Chair, Cedterra, DachverbandLehm e.V, ASterre, TerraKorea), universities and faculties of architecture or engineering, research units, training centers, and NGOs, were invited. During six days, they shared their experiences, debated the state of the art in the field, and developed a joint reflection. This allowed envisioning the future development of higher education and research (didactics and pedagogy, PhD programs), and vocational training and actions aiming at promoting awareness for the general public regarding earthen architecture, its conservation and its contribution to sustainable development. Based on 22 presentations, prepared by 96 contributors, this collective reflection was then developed within four thematic workshops, as follows:

- Workshop 1: Reviewing the types of higher-education and vocational-training curricula available, educational tools and learning methods;
- Workshop 2: Strategic directions for research and doctoral programs: what research priorities to develop in order to meet the expectations and needs of society?
- Workshop 3: Methods of evaluation and validation of skills learned; certification of professional qualifications;
- Workshop 4: Difficulties, gaps and blockages/instances, and acceleration of education-development actions and specialized training in earthen construction and architecture.

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1. INTRODUCTION

In October 2001, the First UNESCO Chair - TERRA Consortium International Workshop on the subject of “Earthen architecture education in the world: Current status and future action” took place in Grenoble. The results of this first meeting confirmed the existence of a dynamic network of international higher education and vocational-training structures in the field of earthen construction and architecture, while revealing the achievements obtained through great effort, hard work and dedication on the part of individuals and institutions involved. These results also contributed towards building a foundation of ideas by specifying essential recommendations and conclusions for a better integration of earthen-architecture education as part of institutionalized curricula. The idea is that the people trained may better fulfill a social role as future trainers and professionals, and as local sustainable-development

‘facilitators’. At that time, it was developed a clear awareness of the need to promote earthen architecture in connection with core social issues: the fight against poverty, access to decent housing and the improvement of living conditions, the boosting of local economies and the valorization of local resources, knowledge and expertise, as well as the preservation of cultural heritage and the natural environment. Almost 10 years later, how far have we come individually or together? How have we addressed, through the prism of our field of action, increasingly strong social issues? What are the new occurrences that seem to amplify the presence of an earthen-architecture movement internationally? How are reexamined the needs for more in-depth education practices and the impact of research, both fundamental and applied, dealing with the design and construction of architectural projects? What skills

and possibilities for action are we building? How do we handle the shifts and developments required to make a qualitative leap, without which the future could, in many respects, be threatened? These are questions that challenge our attitudes as teachers, trainers, researchers, and professionals in the field.

2. A BROAD PARTICIPATION AND INTERNATIONAL REPRESENTATION

The TerraEducation 2010 seminar, brought together 41 participants from 23 countries, in Africa, America, Asia and Europe:

- Africa: Angola, Cameroon, Morocco, Nigeria, South Africa, the Democratic Republic of the Congo, and Uganda;
- America: Argentina, Brazil, Chile, Colombia, El Salvador, México, Peru, United States of America, and Uruguay;
- Asia: Bangladesh, India, and the Republic of Korea;
- Europe: France, Germany, Italy, and Portugal.

Workshop participants represented a wide range of institutions: international organizations, public universities and faculties or departments of architecture, planning and/or engineering; private institutions; architecture, engineering or archaeology research centers and laboratories; vocational training centers; NGOs, private foundations, professional associations and representatives of international, regional and national networks.

2.1 The seminar: background and objectives in brief

The goal of the seminar was to better evaluate the strengths and weaknesses of the actions developed in recent years while facilitating sharing and collective thinking. Through these objectives, the seminar aimed to develop the following contributions:

- Allow an analysis of experiences in earthen-architecture education at all levels;
- Consider the evolution of teaching methods for a better transmission of knowledge;
- Reflect on a frame of reference of the skills involved in earthen construction and architecture, and on the ways of assessing these skills;
- Assess the impact of research on teaching, including doctoral research in the field;
- Contribute to the establishment of an international platform of excellence in education for earthen architecture;
- Define a common vision of the international development of education in the field.

2.2 Activities and working methods

The first two days were devoted to the presentations of participants into six themes:

1. Curricula/higher-education programs;

2. Curricula/professional-training programs;
3. Education and doctoral research (PhD);
4. Didactics;
5. Outreach in schools and for the general public;
6. Skills references and validation systems.

On the third day, the participants visited the Grands Ateliers de l’Isle d’Abeau, where they attended the activities organized by students from the post-master DSA-Terre and the Master “Eco-habitat and building cultures” of ENSAG, as part of the eighth annual festival “Grains d’Isère”. The fourth and fifth days were dedicated to group work, within the four workshops mentioned above. At the end of the fifth day the results of the workshop were presented during a plenary session.

3. REPORT OF THE SEMINAR-WORKSHOP

3.1 Evolution of societal issues and responsibility of educational institutions

The present era is marked by a distinct shift in societal needs, which demands both global and targeted solutions, to cite a few such problems:

- The dramatic expansion of poverty, a growing low-income population, social injustice in access to employment affecting many nations, and the consequent difficulty in accessing decent housing, which is exacerbated by urban growth and the shift of the poorer population towards the urban outskirts;
- Lack of access to primary, secondary and tertiary schooling for children from the poorest families, augmented by a weakening public sector: the privatization of educational institutions further exacerbates social injustices;
- Accelerated degradation of natural environments and alarming decline of non-renewable resources and energy, and their correlated pollution and climate-change problems;
- Loss of built heritage and age-old building traditions with the frenzied growing production and use of building materials with high environmental impact;
- The international financial crisis: loan inflation, real-estate crash, stock-market crisis, public and national debt, economic crisis and falling investments.

In this context of strong pressure on today’s society, alternative responses with the potential and ability to answer social, environmental and economic needs must be pursued. Earthen architecture has a crucial role to play in terms of access to housing for the poor, the development of local economies, and for long-term sustainable development (environmental and energy alternatives). However, much must be done to upgrade the raw earth-building culture, its evolution and adaptation to the current needs and demands of modernity, constructive and architectural quality, and energy efficiency, all in a global context that is increasingly exposed to strict normative framework. In terms of architectural and vocational training for earthen architecture, a huge gap in competencies and professional skills must be filled in order to develop business, social and



Fig.1 Group visit at the *Domaine de la Terre* and the *Grands Ateliers*, Villefontaine, North Isere (credits: Hubert Guillaud, 2010)

economic recognition. As such, educational institutions have a heavy responsibility to meet the challenge of specialized education to transmit their learning. This responsibility, in the field of earthen architecture, is broken down into several levels identified by the seminar TerraEducation 2010:

1. The global-paradigm shift and its local applications;
2. Institutional legitimacy of the education systems in the field;
3. Developing and strengthening networks;
4. Development of fundamental research, basic R&D, and action research;
5. Integration of specialized education in public policy;
6. The development of professionalism in the field;
7. Amplification of technical training;
8. Communication;
9. Community support.

3.2 The paradigm shift

If it is declared today that society has 'the right to use earth', it seems more appropriate to say that it has 'the right to housing and a healthy environment'. It is a change in the scale of what we perceive as our just dues that the paradigm shift imposes, that is to say, to 'think' of earthen architecture through the prism of a broader vision because it is no longer just a material, earth, or even 'earth architecture' but much more. What is in question is society, the peoples of the world, how to put our various building cultures (knowledge and skills) to good use, and the social and economic benefits we can draw from that. However, in many cases, the training let alone the diversity of different contexts. The 'global' reduces the characters of the 'local'. A radical change is needed and the entire pedagogical engineering must be revised to address this paradigm shift.

3.3 Institutional legitimacy of the education system

Despite a real willingness on the part of numerous educational institutions, these institutions do not enjoy adequate recognition, and their role is not yet perceived as being legitimate, thus hindering the development of earthen

architecture and construction, which now offers great potential for responding to the needs of society.

- Earthen architecture is part of the cultural, social, economic and environmental identity for a large part of the world population;
- Earthen architecture is a means to provide solutions for social vulnerability, environmental sustainability and access to social housing, better management of economic growth, more social justice, and self-determination of peoples.

The international networks should be more inciting and proactive to ensure that lessons are developed in universities and training centers by promoting the establishment of cooperative agreements focused on this goal with the institutional members of the network. The universities do not adequately fulfill their influential role to lobby public decision-makers and the private sector, while they have every legitimate reason to do so, this mission being part of their institutional mandate. It is, therefore, necessary to strengthen their influence with policymakers, teachers and researchers, professionals, and more widely, extend it to civil society.

They could hold a leadership position in these areas through:

- The setting up of systems for evaluating the quality of construction and architectural projects;
- Validation of best practices for interventions in the material domain (built environment, heritage), as well as immaterial (crafts, arts, cultural identities);
- Contributing to the visibility of achievements of excellence that would strengthen the credibility of earthen architecture with civil society;
- The fulfillment of a civic solidarity through the development of collaborative and participatory projects with professionals and civilian communities.

3.4 Developing and strengthening networks

Even if a large coordination effort has been undertaken over the past decade, especially in terms of sharing and dissemination of information, it is, therefore, necessary to:

- Strengthen existing networks, making them more active, share the information more effectively (dissemination of reports);
- Clearly identify the members, their status, and provide them with greater visibility;
- Take advantage of existing networks to find ways to raise funds;
- Organize seminars to assess the progress being made; for this, evaluation indicators must be defined.

There is also a lack of dissemination and implementation of new knowledge and educational tools and materials. This lack can be partly remedied by better information sharing within the network (intranet), by broadcasting at least a brief description of new tools and teaching materials that are produced.

3.5 For a better integration of education policies

Obviously, there is a significant gap in public policy and implementation of legislative frameworks on earthen architecture. This deficiency contributes significantly to:

- A lack of recognition and awareness of the societal value of earthen architecture among professionals, and more broadly in civil society;
- The biased weighting of high environmental-impact building systems;
- A lack of funding for the development of more substantial earthen architecture.

The move towards a better integration of earthen architecture in public policy directly concerns the universities and their full institutional legitimacy in education. They can better fulfill this mission by:

- Creating a shared platform to develop a real political agenda within the universities themselves, and in relation to policymakers, government bodies, NGOs, the public and private professionals, and representatives of civil society (associations, communities);
- Producing and sharing case studies that enhance the analysis of financial and wider socioeconomic benefits of projects completed;
- Producing and sharing of life-cycle analysis for environmental models;
- Adapting model indicators.

3.6 The place and role of research

Research in the field of earthen architecture focuses on three major problems:

- The lack of clearly defined relations between scientific research, the transmission of knowledge, and the varied realities of techniques applied in the field;
- The lack of sharing available research results to a larger audience;
- The need to develop more useful research, in tune with the real needs of society.

Obviously, while continuing to develop fundamental research on matter and material, it would be better to develop further experimentations for innovation, R&D and applied research, particularly in the context of pilot projects that directly involve professional stakeholders and beneficiaries. This contextualized and targeted research should also be used more in the development of teaching methods and teaching materials, which can be more shared out. There is also a huge lack of coordination of scientific research at an international level with a redundancy of efforts contributing to the waste of human and financial resources. Networks should play a more active role to reduce this waste and to establish a more visible coordination.

Doctoral research (PhD) is not structured enough, facing a set of priority issues, among which the following may be addressed:

- Analysis of the financial and economic benefits of earthen architecture;
- Analysis of case studies of architectural projects involving the use of earth and other actual building materials (hybrid-building systems);
- Studies on the traditional earthen architecture and building cultures;
- Evaluation of conservation and restoration actions for historical buildings;
- Studies on crafts and craftsmen's productions, their inventory, documentation and evaluation.

Publications on earthen architecture are mainly carried out by professional experts and are intended for that category of people. The paradigm shift mentioned above requires a heightened level of interdisciplinary approach for new studies, researches and projects.

3.7 A necessary development of professionalism

A lack of academic recognition of the value of earthen-architecture education is perceived. Strategies should be found and applied in order to:

- Better present the work carried out in universities to local populations;
- Facilitate collaborations between universities, their faculties and departments;
- Facilitate cooperation between different professional bodies.

Similarly, a lack of specific competences related to earthen architecture is noted in the academic field and among 'pseudo experts'. It is very important to legitimize the few institutions that perform quality work on the basis of an evaluation and of clearly defined indicators. Professionalism involves in addition to a vocational training, using adapted didactics and teaching materials suited for students. It seems particularly appropriate to:

- Identify, evaluate and share within the network (intranet) at least the titles, together with a brief description, of all didactic materials produced by the international academic community (while clearly addressing the issue of copyrights);
- Produce educational materials on the basis of accessible knowledge to all teachers, regardless of the contexts of use;
- Produce synthetic documents for students that are adaptable to different contexts (translated).

The development of earthen architecture also suffers from a lack of integration between professional and academic knowledge, as each is expressed through different languages. Educational research can play a decisive role to facilitate a better integration of both types of knowledge and produce educational resources better suited to both contexts. There is a clear imbalance between top-down and bottom-up approaches. A change in attitude is needed to better focus on a bottom-up approach of teaching methods and professional-training programs, aimed at architects mainly, who shall become the 'facilitators' of the development of earthen



Fig.2 Workshop 4: the group worked on strategic directions for research and PhDs (credits: Hubert Guillaud, 2010)
Fig. 3 the group worked on difficulties, gaps and blockages (credits: Hubert Guillaud, 2010)

architecture, providing support to communities. There is a lack of integration of interdisciplinary approaches in the teaching of earthen architecture and training programs that tend to be focused on the technical aspects of building only, barely taking into account the complexity and the many dimensions of the concept of habitat (holistic approach). All these lack areas imply the necessity to develop learning on the following subjects:

- Improvement of social housing;
- Building cultures, cultures of living, and customs;
- Reuse of existing buildings (historic or recent) to mitigate the necessity for building new structures;
- Earthen-architecture cultural heritage, tangible and intangible;
- Project management;
- Professional ethics;
- Interdisciplinary approaches,
- Crafts skills and business skills.

3.8 Developing technical and artisan-training programs

It must be noted that artisans and small-scale contractors are the main actors involved in the development of earthen architecture, and that their capacities in the field of earthen construction are still poorly recognized. This situation may change by:

- Developing educational programs that involve craftsmen more directly;
- Certifying the skills of craftsmen.
- Likewise, artisans suffer from a lack of viable markets in which to position themselves. To change this situation, several possibilities have been identified:
 - To develop craft skills and support their implementation;
 - To better identify and analyze actual and potential markets;
 - To promote projects that demonstrate craft and contractors skills: pilot projects and architectural references to facilitate a better integration of earthen architecture in development programs.

The loss and degradation of knowledge and traditional skills today poses a serious problem that contributes to hindering the development of earthen architecture. It is necessary:

- To develop training materials, specifically adapted to the training of artisans;
- To better study the production processes of local crafts through their inventory, documentation and qualitative assessment.

3.9 Developing communication efforts

The sector that invests in the field of earthen construction and architecture, whether academic or professional, is not sufficiently recognized. New strategies must be deployed to develop task forces acting at the interface between universities and governments, exerting a greater influence.

There are too few publications highlighting the diversity of earthen architecture and building cultures of the world, aimed at the general public. Besides, the launch of a high-ranking, interdisciplinary review is absolutely a key to direct proper significance to the subject area. It is also necessary to publish articles on earthen architecture in journals of other disciplines, in order to call attention to the relevancy of researching in earthen architecture and construction. Also, it is important to use and develop different media facilitating communication: exhibitions, videos, documentaries and films, radio programs, etc. Because our academic field is linked to a broad set of goals and objectives, it becomes absolutely necessary to extend our communication to policymakers, researchers, professionals and society, in general.

The articles and other documents that are produced to support this effort of communication must be written with a vocabulary that is adapted to targeted audiences, away from the canons of scientific writing, without being too general and banal.

3.10 Getting to know local and regional developments

Our academic field is not responding enough to the expectations and needs of communities. Universities need to better fulfill their social mission by facilitating the access to knowledge and creating knowledge-transfer opportunities aimed at those who should be the primary beneficiaries. To further develop this goal, it would be important to:

- Develop and support actions aimed at the most vulnerable populations;
- Value and promote crafts skills, contractors skills, and good practices;
- Promote and organize professional technical-training programs within communities.

4. CONCLUSION: EARTHEN ARCHITECTURE AT THE HEART OF A ‘POLITICAL AGENDA’

The work carried out during the TerraEducation 2010 workshop (AAVV, 2010; Guillaud, 2011) revealed a set of strategies that would contribute to remove the blockage, knots and resistance that are opposed to the development of specialized-education programs. It also pointed out the opportunities that educators, scientists and professionals, who are invested in the field, can use in order to gain access to new levels of recognition, visibility and efficiency in action. This international seminar contributed towards reinforcing and reactivating a network of skilled players, already active in national, regional or international groups.

The challenges ahead are both significant and substantial. However, the current expectations and needs of society, and the fundamental questioning of a model of industrial and socioeconomic development whose effects are obviously damaging, are a favorable ground to the development of earthen construction and architecture. The international political agenda of many nations has begun to take note of the paradigm shift and, in this context, the future of earthen architecture seems more and more open to provide relevant answers through the three pillars of sustainable development with culture and governance. In this respect, due to their institutional legitimacy in education and research, universities have an important and decisive role to play.

Major efforts remain to be made towards the development of sharing information and working tools (didactic materials) to enhance the communication of activity results for a better

coordination of human and material investments in research; more demonstrations of architectural quality and habitat projects; and local development involving a wider range of stakeholders, fully integrating the civil society.

Universities should develop and consolidate their links, partnerships, cooperation and collaboration agreements, not only among institutions – and through an interdisciplinary approach – but also among lecturers, researchers and students, as it has been noted. It should also encounter other stakeholders, such as policymakers, integrating different groups of skilled professionals, communities, self-builders and the general public.

More than ever before, great efforts must be devoted to the development and implementation of missions of solidarity and citizenship in universities. TerraEducation 2010 has helped to clarify this fact, as well as the need to disperse the least amount of energy, to reinforce networking and to reduce isolation and separation.

There is a ‘political agenda’ for earthen architecture today that universities, training centers, NGOs, professionals, associations and the civil society must bear full responsibility for, by joining efforts for a better federation of human and material resources.

Notes

- (1) Workshop 1: Isa Abdul, Umar Abdullahi, Romain Anger, Claudia Cancino, Kathleen Dardes, David Gandreau, Philippe Garnier, Hugo Houben, Thierry Murat, Islam Shariful, Horst Schroeder, Francisco Javier Soria López.
- Workshop 2: Gerhard Bosman, Mariana Correia, Marcelo Cortes Alvarez, Minchol Cho, Laetitia Fontaine, Mauricio Ganduglia, Luis Fernando Guerrero Baca, Hubert Guillaud, Eduardo Salmar Nogueira e Taveira, Jenny Vargas.
- Workshop 3: Robert Bidime’Nouga, Lydie Didier, Alexandre Douline, Rosario Etchebarne, Uta Herz, Serge Maini (Satprem), Adolphe Mayogi, Jean-Marc Mei, Michel Mourier, Elena Ochoa Mendoza.
- Workshop 4: Maddalena Achenza, Erica Avrami, Maria Fernandes, José Raul Moreno Cardenas, Ishanlosen Odiaua, Bakonirina Rakotomamonjy, Mirta Sosa, Abdelghani Tayyibi, Marcelo Washl, José Manuel Rivas Zacatares.

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