

## Events

## After the Damages: an International Summer School for Risk Prevention, Management and Design

Luca Rossato

The first edition of the Summer School “After the Damages” ended in July 2020. The initiative aimed at increasing both the resilience capacity (natural and anthropic) and the mitigating and management aspects in case of catastrophic or calamitous events.

Starting from the assumption that the damages caused by such situations and their consequences, which generally have a major impact on society, cannot be quickly solved, the training course worked on the limits of tolerance to their effects, aiming at their possible increase in order to reduce the level of potential disaster.

The course was organised by the Department of Architecture of the University of Ferrara, through the DI-APReM research centre (Centre for the development of integrated automatic procedures for the restoration of monuments), the LaboRA research laboratory (Architectural Restoration Laboratory), the LEM research laboratory (Building and Environment Maintenance and Management Laboratory) and the TekneHub industrial research laboratory (Technopole of the University of Ferrara). The course was carried out in collaboration with the University of Parma (Department of Engineering and Architecture), the University of Modena and Reggio Emilia (“Enzo Fer-

rari” Department of Engineering) with the support of the Unione Italiana per il Disegno. Moreover, the initiative has received the important support of the Agency for Earthquake Reconstruction 2012, the MiBACT Archaeologic Superintendence for fine arts and landscape, of the metropolitan city of Bologna and the provinces of Modena, Reggio Emilia and Ferrara and the IBACN (Institute for Artistic, Cultural and Natural Heritage of the Emilia-Romagna Region).

In this first edition, in the form of Summer School (which took place between 1st-15th July 2020), the event was a great success in terms of participation, collecting 62 participants from 18 countries and 4 different continents. The participants were guided during the two-week intensive course by experienced teachers in the different areas of emergency management, reconstruction and innovative intervention on cultural heritage affected by catastrophic events. Notwithstanding the current pandemic limitations that led to online teaching, participants had the opportunity to experience an active confrontation via an effective distance learning system capable of making people divided by even 10 hours of time zone work together. The seminars dealt with issues such as resilience, national governance and international regulations, socio-economic

impacts, inclusiveness and participatory actions in support of communities, integrated digital documentation, monitoring, digital modelling, vulnerability analysis, and risk mitigation, integrated design and related technologies applied to the conservation of historical buildings and cultural heritage.

The course offered intensive training for different categories of actors involved in emergency management: public administration managers, government personnel, agencies, international organizations, researchers, professionals and specialists.

The Summer School was also an opportunity to discuss and launch an International Academy aimed at promoting an interdisciplinary and integrated approach to risk management with reference to existing heritage.

Capitalising on the experience gained in the recent earthquake in Emilia-Romagna in 2012 and the related reconstruction process by the involved partners, the project brought together an interdisciplinary group of Italian and international experts with the role of lecturers and members of the scientific and technical-scientific committee, including some members of the *Unione Italiana per il Disegno* who have contributed to the documentation of cultural heritage. The aim was to highlight recent

innovations in the field of post-disaster management by providing more up-to-date expertise with the objective of enabling participants to play an active role in disaster risk management and responding more effectively through mitigation strategies.

The project, funded by the Emilia-Romagna Region in the framework of the Call for proposals for three-year

advanced training projects in the cultural, economic and technological fields, is part of Emilia-Romagna's strategy of smart specialisation, implemented in collaboration with the High Technology Network, the Clust-ER BUILD, the Technopoles of Ferrara, Parma and Modena. The training project has a high-level Scientific Committee composed of experts from Italy, Morocco,

Brazil, France, Ecuador, China, Armenia, Spain, Greece, Belgium, Germany, Denmark, Turkey, India and Slovenia.

Through the Summer School, international approaches on the topic were shared at different scales, using a wide audience of experts who revealed case studies, research and results of their work in the academic and professional fields.



Fig. 1. Flyer of the Summer School "After the Damages" 2020. Photocredit After the Damages.



Fig. 2. Some images of the case studies analysed during the course. Photocredit Claudia Pescosolido / After the Damages.

Among the most interesting topics, it is possible to highlight the vulnerability of the cultural heritage of some Asian regions due to natural and man-made events that have caused both wonderful architectural complexes and the rich local vernacular heritage to suffer. Experts from India and Nepal emphasized how the concept of intangible cultural heritage can play a fundamental role as a form of local post-disaster resilience, thus supporting the need to increase activities related to intangible culture, also as a channel of social support to the community.

The interventions dedicated to technologies useful for risk prevention and management have focused attention on the use of sensors for remote control and tools capable of returning point clouds with high geometric consistency and high precision for the restoration and analysis of seismic vulnerability of buildings but also of entire historic centres, with case studies from Mexico, UK and the 2012 earthquake area in Emilia-Romagna. Once again, the reliability of documentation and representation of heritage plays a fundamental role in the processes of management and rapid intervention on buildings endangered

by unexpected and sudden events.

The inclusive approach to the resilience of cultural heritage has been the subject of debates and interventions among various experts and researchers in the sector, who have highlighted the need for a holistic approach based on community participation and the idea that heritage should be maintained in order to resist to damage but also respects the pillars of sustainability (economic, social, cultural and environmental). In these terms, an interesting discussion was launched on the innovative theme of identity documentation for the construction of immaterial resilience in historical urban contexts, a subject worthy of further development.

During the course there was also space for a more technical comparisons on methods and strategies of intervention on the heritage damaged by catastrophic events, especially starting from the Italian experience in Emilia-Romagna, Abruzzo, Tuscany and Umbria, with interesting insights on the mechanisms that can lead to the loss of portions of buildings during an earthquake, the various masonry behaviours, and first aid interventions to counteract further subsidence or losses.

The risk of coastal erosion and flooding has also been the subject of dedicated focus on the theme, which has shown how the implications of climate change are putting entire coastal cities at risk. Therefore, a case-by-case assessment through targeted policies and specific urban and environmental analyses appeared extremely important.

The involved experts highlighted and showed participants how low-cost interventions to maintain or increase future flexibility in responding to climate change must be identified and implemented as part of an integrated approach to coastal management. Again, on the subject of hydro-geological risk, the discussion shared interesting examples from the experience of natural disasters in Brazil that have endangered entire historic towns in the country whose reconstruction has placed the focus on safety, but also on selective choices about "what to keep".

One of the emerging themes of the Summer School related to the possible solution of the financial fragility of cultural heritage was the concept of cultural ecosystems based on connections and interactions among different actors

in an integrated perspective. Cultural ecosystems can be key factors to enable the valorisation of the potential of cultural heritage and increase its resilience to calamitous events.

The guided tours included in the initial educational project were also carried out through virtual tours of the four case studies, one for each province (Ferrara, Modena, Bologna and Reggio Emilia) affected by the 2012 earthquake in Emilia. Among the visits in Ferrara, there were the virtual tour inside the Palazzo Schifanoia, which highlighted the consolidation of the wooden

structures and the restoration of the walls, and the on-line visit to the Cathedral of Mirandola, the most extensive reconstruction work of the entire crater in Emilia.

The last days of the initiative were dedicated to a final workshop among the participants, engaged in a project action able to simulate possible interventions starting from the knowledge acquired during the course. The subdivision of the participants into groups of 5-6 components supervised by a reference teacher, led to 12 final proposals that showed how the participants of the in-

itiative have effectively expanded their knowledge on the central theme of the Summer School but also on digital documentation techniques.

"*After the damages*" will be implemented through a new call for proposals also for the 2021 edition, but in the meantime for the month of December, three events called winter focus (1, 2 and 15 December) have been planned. During these three webinar thematic case studies related to governance, comparison with companies in the sector and BIM technologies for existing assets will be presented and discussed.

#### Author

Luca Rossato, Department of Architecture, University of Ferrara, luca.rossato@unife.it