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**RECONSTRUCTION, RECOVERY
AND RESILIENCE OF HISTORIC
CITIES AND SOCIETIES**

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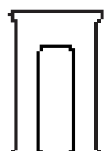
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RECONSTRUCTION, RECOVERY AND RESILIENCE OF HISTORIC CITIES AND SOCIETIES

ABSTRACTS

Mounir-Sabeh Affaki, University of Coimbra

[RECONSTRUCTION OF HERITAGE AND SPIRIT: MENDING THE SCARS OF ALEPPO.](#)

Keywords: Reconstruction Strategy, Social Recovery, Built Environment, Heritage, Aleppo

Whether the cause was natural or man-made, it is highly expected that reconstruction works would generate a prolonged controversy between the different components of the society, especially in cases of inter-communal conflicts where complications accumulate due to the sensitivity that the word reconstruction might carry; it might help and advance the process of social healing and recovery, but it might also hinder it. It is a matter of public perception and approval of the new reality with its different affiliations, a major concern that haunts every expert and decision maker working on reconstruction with fears of failure and hopes for the sustainability of what is to be reconstructed.

This paper intends to go through this discussion and investigate the role of built heritage and the reconstruction of historic centers in social recovery and cohesion, and seek to find a reconstruction strategy designed to meet that purpose. It predicated on lessons learnt from international examples, the strategies and procedures that has been taken for the reconstruction of post-conflict cities. The outcomes of these experiences will be projected on the Old City of Aleppo as a case study- a World Heritage Site that has been heavily destroyed and is now going through a state of precarious peace. Questions of what to rebuild and how to rebuild, of preferences and choices combined with funding problems, property issues, demographic change, and bureaucratic and legislative procrastination, will be addressed along with the ongoing reconstruction works and public opinion and participation in the process.

This paper will document and discuss these issues with the aim of extracting a strategy for a sustainable reconstruction that contributes to social recovery from an architectural perspective, focusing on the tangible heritage but also taking into consideration the social and economic factors. The particularity of this work comes from the case study it presents. Hopefully it will influence more research and bring new considerations to the table for up-coming reconstruction processes, especially in Syria.

Patricia Alarcón, Mario Benumea, M.Cristina Garcia-Nieto, Marcos Martínez-Segura, Universidad Michoacana de San Nicolás de Hidalgo, [SEISMOCONTROL S.A. DE C.V., UNIVERSIDAD POLITÉCNICA DE CARTAGENA](#)

[SEISMIC BEHAVIOR OF THE STRUCTURE OF THE CONVENT SAN JUAN BAUTISTA DE TETELA DEL VOLCAN, DURING THE EARTHQUAKE ON SEPTEMBER 19, 2017, WITH EPICENTER IN AXOCHIAPAN, STATE OF MORELOS, MEXICO.](#)

Keywords: Seismic Behavior, Earthquake, Non-Linear Analysis, Heritage Monuments

This work describes the seismic behavior observed during the earthquake that occurred on September 19, 2017 in the convent of San Juan Bautista de Tetela del Volcán. Several records of accelerations obtained in this seismic event with epicenter in the vicinity of Axochiapan Town, Morelos State, Mexico, are analyzed, and the one considered representative of the movement of the seismic phenomenon in the site is selected. With this record, the seismic behavior observed in the structure of the Temple and Convent under research is studied.

Field research consisted of structures studies and geophysical assays with non-destructive tests, which allowed to determine propagation velocities, dynamic elastic modules and periods of vibration of both the soil and the structure. Due to the heterogeneous characteristics of the masonry, the study was carried out through numerical analysis techniques that incorporated in their approach the non-linear behavior of the structure through the use of the Abaqus CAE program. The results of the resistance and deformation demands were analyzed, as well as the results of the field evaluation of the damage level of the structure, comparing the behavior of the structure during the seismic event and the theoretical model of nonlinear analysis performed. The possibility is raised that this type of analysis can predict the seismic behavior of heritage monument structures, for mitigation actions that can be carried out before seismic events.

Patricia Alarcón, M.Cristina Garcia-Nieto, Manuel Navarro, Marcos A. Martínez-Segura, Universidad Michoacana de San Nicolás de Hidalgo, Universidad Politécnica de Cartagena, Universidad de Almería

SEISMIC MICROZONATION AS A PREVENTIVE MEASURE FOR THE CONSERVATION OF HISTORICAL HERITAGE.

Keywords: Masw, Vs30 Structure, Seismic Microzonation, Historical Heritage

Several earthquakes have been taking place around the world, e.g. 2009 in L'Aquila (Italy), 2011 in Lorca (Spain), and 2017 in Axochiapan (Mexico). They verified the vulnerability of monumental buildings as well as the urgent action to protect them. Murcia Region is located in southeast Spain. This Region is classified as a seismically active zone with small to moderate magnitude earthquakes. Different seismic events recently occurred in the region: 1999 (Mula), 2002 (Bullas), 2005 (La Paca) and 2011 (Lorca), with magnitudes (M_w) of 4.7, 5.0, 4.8 and 5.2 respectively and macroseismic intensity (I_0) ranging from VI to VIII (EMS-98 scale). The Lorca earthquake generated catastrophic damages to historical buildings.

Recent studies of seismic microzonation conducted in the southeast of Spain have highlighted the importance of soil conditions in the observed damage distribution. From the geological point of view, the city of Murcia is composed mainly of alluvial fans of different generations, constituted by sands and gravels, with silts and clays. The urban area of Murcia is located at Vega Media of the Segura River on the sediments of its floodplain (current river streambed). Owing to its features and the geographical situation, Murcia is a suitable zone to characterise the local site effect through the Vs30 values.

This study is divided into two phases. Firstly, the metropolitan area of Murcia was characterised in terms of shallow Vs structure by using Multichannel Analysis of Surface Waves (MASW). Five long profiles were carried out following the different geological structures present in the study area. They have been performed by using the active and passive modes simultaneously. Secondly, the subsurface of the Tower of the Cathedral of Santa María will be characterised in the same terms. The Tower of the Cathedral of Santa María de Murcia belongs to the historical heritage of the Region, and is protected as a Cultural Interest Property in the country. The primary goal of this paper is comparing the Vs30 values obtained at large scale (metropolitan area) with the one obtained at small scale (under The Cathedral) by using MASW method. The comparison of results will reveal the influence of the scale factor on the seismic microzonation studies to approach the preventive analysis of historical buildings, with application beyond the Murcia Region.

David Alexander, University College London

LONDON'S GRENFELL TOWER TRAGEDY INTERPRETED AS A CASCADING DISASTER.

Keywords: High-Rise Buildings, Fire Disaster, Cascading Disaster

Disasters and major incidents that involve buildings which are more than 20-storey high are surprisingly common. Cases such as the destruction of New York's World Trade Center in 2001 have received world-wide attention. However, there are many other instances of fire and structural collapse that have not been so widely recognised and studied. High-rise disasters can have particular root causes and distinctive aftermaths. The relationship between the root causes and the situation after disaster has struck can be remarkably insightful. This paper concentrates on one example, which has had many interesting ramifications in terms of how the aftermath and recovery process were handled.

On 14th June 2017, a 24-storey residential block in London (UK), Grenfell Tower, caught fire and burned for three days. Seventy-two people were killed and many more were made homeless by the fire. The tower, built in 1970, had recently been renovated with flammable cladding and a distinct lack of basic safety features. It is situated in a relatively poor part of the UK's richest municipality, the London Borough of Kensington and Chelsea. Hence, one of the first effects of the fire was to demonstrate the effects of huge wealth disparities at the local scale. Neither the emergency response nor the immediate recovery efforts were handled well. The results of this could be found in the form of persistent discrimination, deprivation, toxic pollution, psychological problems and marginalisation. Although a major public enquiry was launched, survivors seemed to have little faith that it would help them materially and enable them to achieve closure.

One root cause of the Grenfell Tower disaster was the erosion of building codes and their enforcement, which led to the proliferation of dangerous practices in the building trade. Coroners in previous lethal high-rise fires had repeatedly tried to call attention to the hazards, but to no avail. After the disaster, some 457 residential tower blocks were identified as being at risk, and 311 of them needed immediate remedial work to bring the fire hazard under control. This led to 'panic evacuations' in a number of localities around the country. It also led to vociferous debates about who was responsible for funding remedial work and the stipends of fire wardens. The debates took place against a background of recrimination and counter-recrimination connected with the Grenfell Tower fire. In this manner the effect of the fire proliferated across the country as a cascading disaster.

There is a common perception that the aftermath of disasters is a 'window of opportunity' in which positive change is achieved in the name of greater safety. In reality, neoliberalism and austerity are busy undermining safety, creating situations of risk, and laying the foundations of future disasters. Grenfell Tower begs the question of who is safety for? The dismantling of welfare not only creates poverty and marginalisation, it can also create lethal risk. In Kensington and Chelsea, safety is evidently a luxury for the rich, not a right for the poor.

Avar Almukhtar, Oxford Brookes University

POST-WAR URBAN RECONSTRUCTION AND CULTURAL HERITAGE IN RELATION TO NATIONAL IDENTITY; THE CASE OF ERBIL-IRAQI KURDISTAN.

Keywords: Cultural Heritage, National Identity, Post-War Reconstruction, Iraqi Kurdistan, Erbil, Urban Design

Many nations are composed of multi-ethnic cultural groups that share the same geographic location. In many cases, these ethnic groups, be they the majority or the minority, have their own distinctive culture, history and local identity. Unfortunately, when different political ideological movements practiced by dominant ethnic groups repress a minority group, the minority culture and identity is often neglected, changed or destroyed. In an attempt to protect their culture, traditions and identity, such groups sometimes resort to military armed conflict.

Mesopotamia, the cradle of civilisation, is such a location that has hosted different ethnic groups throughout various periods of history. More specifically, Iraqi Kurdistan, which is located on the flank of Mesopotamia, was one of the first sites of urban organisations. Since the beginning of the twentieth century, Kurds have been involved in political and military conflict with the Arab government to protect their right to practice their culture and maintain their identity. Kurdish national identity is connected with the building of the nation-states in the region, from which the Kurdish and other minority identities were excluded.

In many emerging nations, various elements of the built environment are used to promote the national identity, especially heritage sites which are often used to flag nations. The Kurdish region hosts cultural heritage sites that have played a significant role in shaping Kurdish identity. However, since the 2003 post-war urban reconstruction, the Kurdish Regional government has aimed to construct a modern nation in which its capital could be positioned on the global map by promoting a global image rather than building on the local cultural heritage that represents people who fought for decades for their identity. Therefore, it is important to understand during post-war urban reconstruction, to what extent the balance between heritage and modernity, between local and global has been achieved.

This paper presents a study that investigates the impact of and the relationship between local heritage and global values in Erbil during the post-war reconstruction period in relation to national identity. It employs a morphological analysis of the city combined with key informant interviews with local residents, policy makers, and stakeholders in order to explore the impact of the intensive post-war urban development process on the Kurdish national identity. The key findings of the analysis indicate that the post-war reconstruction process has ignored local values in the evolution of the Kurdish national identity in which state politicians and bureaucrats have increasingly adopted a global architectural language in order to rebrand Erbil and Iraqi Kurdistan. Arguably, they have sought to reflect a globalised image and they have ignored the historic morphological traces the city has acquired through centuries. Therefore, there is an urgent need for a comprehensive approach that could guide the urban reconstruction to be locally rooted using cultural heritage to promote national identity both locally and globally. An approach that can actively involve people in the post-war urban reconstruction to rebuilt an emerging nation that express them and their cultural values as well as being part of today's globalised world.

Rosabella Alvarez-Calderon, Pontificia Universidad Catolica del Peru

WATER GIVES, WATER TAKES AWAY. CULTURAL HERITAGE AND MEMORY AS WAYS TO BUILD RESILIENCE IN ENSO-VULNERABLE HISTORIC LANDSCAPES IN THE NORTH COAST OF PERU.

Keywords: Peru, El Niño Southern Oscillation, Prehispanic Societies, Moche, Chimu, Resilience, Memory, Archaeology, Trujillo

The Moche and Chicama valleys, located in the north coast of Peru, comprise a rich cultural landscape with a history spanning thousands of years. The societies that inhabited these valleys were skilled at understanding, adapting and transforming these diverse territories, and created great urban settlements, architectural monuments and infrastructure for water and agriculture, most notably the Moche (200 – 700 A.D) and the Chimu (1000 – 1450 A.D). Today, the main economic, political and tourist hub of the region is the city of Trujillo, founded by Spanish conquistadors in 1534. These valleys offer many conditions that encouraged the development of complex societies, including a year-round temperate climate, abundant natural resources from the land and the sea, and fertile valleys.

The north coast, however, is also particularly vulnerable to climatic disruptions caused by ENSO (El Niño Southern Oscillation) events. El Niño can be a boon to some communities and ecosystems, as the increasing frequency and intensity of rains mean more water in what is usually an arid landscape, the expansion of green areas and vegetation, and even the creation of new ecosystems, like the El Niña lake in the Sechura valley. El Niño, however, can also be catastrophic, as intense rains and flooding can destroy cities, fields and irrigation canals; droughts can devastate agriculture, and elevated sea temperatures disrupt marine fisheries and even the entire coastal food chain.

The societies of the prehispanic period perceived this geography as sacred, inhabited by deities who controlled and regulated water, fertility, resources and climate. During both the prehispanic and historical periods, the communities of the Moche and Chicama valleys developed different ways to address the ebbs and flows of water, and thus increase their resilience. This was done through both technological and architectural approaches, and religious and performance-based approaches, like negotiating with these supernatural beings through offerings and sacrifices, both to give thanks, and to ask for relief.

Modernity has, however, led to increased vulnerability, as the city of Trujillo continues to expand into ancient ravines and riverbeds located upvalley, which are prone to flooding. The city's historic centre has flooded several times in the past century, as recently as the year 2017, which highlights the urgent need to increase Trujillo's resilience, to explore ways to harness the possibilities of more water while decreasing risk, and especially the necessity of going beyond a strictly techno-managerial approach focusing on disaster recovery and reconstruction. This is where cultural heritage and the region's rich archaeological and historical past has the potential to offer valuable lessons in both success and failure to address these challenges, especially in a context of climate change and urban expansion. In what ways can memory and cultural heritage lead to rethinking the way we relate and interact with water, in order to introduce creative and efficient possibilities to understand phenomena such as ENSO not as catastrophes to be avoided, but as scenarios in which modern societies can adapt and even thrive?

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THE EARTHQUAKE OF L'AQUILA AS AN OPPORTUNITY FOR BUILDINGS' STRUCTURAL AND ENERGY RETROFIT – MULTIDISCIPLINARY APPROACH FOR THE FORMER S. SALVATORE HOSPITAL

Keywords: Earthquake, Structural and Energy Retrofit, Multidisciplinary Approach

Earthquake represents one of the most disastrous natural phenomena both for social and urban issues. In a few seconds, the building stock suffers a radical destruction. The consequent need to recover buildings from the disastrous may represent an opportunity for their structural and energy retrofit, particularly for listed structures or those representing the architectural heritage. However, energy optimization, seismic protection, and cultural heritage preservation of the building stock may be conflicting. Therefore, a multidisciplinary design is needed to consider all the aspects involved in the retrofit process.

The aim of this work is to develop an Operative Design Tool (ODT), a methodology based on multidisciplinary approach and sustainability principles whose output is represented by Guidelines for proposing interventions for seismic and energy improvement. Such guidelines can be of help for policy makers and designers for the renovation processes. The applicability of the proposed multidisciplinary approach is highlighted through the analysis of a specific case study: the former S. Salvatore Hospital of L'Aquila, which is a complex city district made by buildings of different eras, harshly hit by the 2009 earthquake.

In detail, the Operative Design Tool would like to identify, for the selected case study, the best practices of energy improvement, which simultaneously allow seismic renovation actions, and cultural conservation and valorization of the multiple buildings. The ODT is structured in five phases, constituting a multidisciplinary methodology. The first one is represented by a detailed diagnostic analysis, performed by means of Non-Destructive Testing (NDT) applied to predetermined homogenous areas of intervention. The second phase consists in the identification of the most suitable scenarios designed to satisfy the needs observed during the survey phase. The third phase is the dynamic simulation modeling of the analyzed buildings, in order to evaluate both energy and environmental effects based on the unavoidable and essential seismic interventions. In the fourth phase, a matrix of possible interventions is defined, and scores are assigned to each of the possible combinations according to the different objectives achievable: seismic renovation, greenhouse gas (GHG) emissions reduction, management of heating and cooling requirements, indoor thermal comfort, minimization of construction costs and execution times. Based on the results obtained, the fifth and last phase is the drafting of Guidelines for the integrated design of seismic improvement and energy optimization of the former S. Salvatore Hospital, as a tool usable by policy makers and designers.

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THE REPRESENTATION OF RESILIENT CITY. THE CASE OF AMATRICE'S RECONSTRUCTION.

Keywords: Resilience, Historic Urban Landscape, Heritage Information Modeling, Reconstruction Protocols, Pattern Book, Amatrice

The study presents integrated methodologies of documentation and representation of historical urban landscapes, defined by the UNESCO Recommendation (2011), Recommendations on the Historic Urban Landscapes, defining a protocol of typological and parametric representation supported by the BIM process for cultural heritage.

A knowledge-and evidence-based approach is applied promoting the in-depth knowledge of site conditions (survey and visualization of its evolution and conformation) and on the application of information models that describe technological solutions resilient to seismic events but also guarantee the maintenance of the character of places; it is therefore important to simulate and visualize the typological, aggregative and functional solutions in respect of the regeneration of the social value of the places how it is expected by the community.

Recent references refer to the paper Enhancing Not-Outstanding Cultural Landscapes in a European Perspective: A Challenge for Digitization by Rossella Salerno (Amoruso G (ed) Putting Tradition into Practice: Heritage, Place and Design. Springer),

al numero speciale Built Heritage: Conservation vs. Emergencies (S. Brusaporci, G. Amoruso. BUILDINGS, BASEL: MDPI, ISSN: 2075-5309) characterizing the role of representation and knowledge through survey in emergencies and how to involve local communities after a disaster, and to the book Heritage Building Information Modelling (Routledge, 2017) presenting best practices on BIM for cultural heritage.

The strategy proposes the inclusion, in decision-making processes, of the modeling of project information through HBIM and simulation and the dissemination of toolkits for visualizing the recommended solutions based on architectural repertoires such as pattern books. The heritage information modeling system allows simulations that integrate the environmental modeling, the semantic representation and the typological documentation of the settlement. The project also supports the regeneration of the local identity of Amatrice: among the tangible and intangible benefits, a greater knowledge of the urban landscape and local expression, an impulse to the regeneration of memory also through the reproduction of physical models and integrating participation activities active.

Valeria Annibaldi, Federica Cucchiella, Giuseppe Ferri, Marianna Rotilio, Vincenzo Stornelli, University of L'Aquila, DIIE
[REHABILITATION OF EXISTING BUILDINGS USING SMART SENSORS AND ICT TECHNOLOGIES.](#)

Keywords: Smart Sensor ICT, Rehabilitation, Sustainability, Existing Buildings

In recent years there has been a strong attention, and a growing number of national and international research projects, towards the development of new products and new technologies of living environments and for the quality of life in general. Especially at the community level, where a strong interest in this topic was observed, there have been consequences of a social, economic, occupational and technological nature. The data published by the Internet of Things Observatory of the School of Management of the Politecnico di Milano in February 2018 relating to the Smart Home business in 2017 confirm this interest, highlighting the boom that home automation is having at a community level. This is due to the expansion of the Internet, to the digital literacy of families, but also to the profound changes undergone by the house over time, from the point of view of the use, the arrangement of the spaces and the roles that the different environments assume both for the individual for the family. This last statement is even more important in a context such as that of the territory of L'Aquila in the immediate post-earthquake. In this context, the quality of life, which passes from the quality of the domestic environment, is certainly a priority and qualifying element to give a 'Smart' connotation to the reconstruction of the city, following modular and scalable approaches, sustainable even from an economic point of view and financial. The combination of smart sensors ICT and reconstruction technologies is an absolutely current challenge. In light of these considerations, this paper intends to illustrate a research in progress that aims to create advanced tools that allow greater control over existing environments, greater energy efficiency and a significant improvement in living well-being. Moreover, these systems will facilitate the production of specialist solutions and will be characterized by ease of management and accessibility as well as compatibility with the values present in existing buildings, belonging to the consolidated historical fabric. This research will help to increase awareness of historical centers and to provide methods and tools for their sustainable use.

Valeria Annibaldi, Marianna Rotilio, University of L'Aquila, DIIE, Università Degli Studi di L'Aquila
[ENVIRONMENTAL CRITICALITIES AND ENERGETIC POTENTIALS IN THE POST-EARTHQUAKE RECONSTRUCTION.](#)

Keywords: Post-Earthquake Reconstruction, Sustainability, Historical Buildings

Directive (EU) 2018/844 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency and Member States will have to implement it by March 2020. This update was necessary to achieve the ambitious goal that European nations have set themselves i.e. to reduce greenhouse gas emissions further by at least 40 % by 2030 as compared with 1990. To meet that goal, Member States need measures to increase the proportion of renewable energy consumed and the energy efficiency and to decarbonise the building stock, which is responsible for approximately 36 % of all CO₂ emissions in the Union.

In particular, at the beginning, point 18, an explicit reference to the existing consolidated contexts appear for the first time, with reference to which the Member States should encourage research into, and the testing of, new solutions for improving the energy performance of historical buildings and sites, while also safeguarding and preserving cultural heritage.

At last, at European level, there is a sense of awareness of the importance of historical buildings and contexts, which for architectural, technical-constructive and environmental values we have the duty to protect and preserve. To date, in fact, the current legislation presents two scenarios. One concerning the monumental buildings for which it is possible to derogate, the other concerning the historical buildings for which compliance with the legislative prescriptions is required, often very restrictive and difficult to achieve. But these scenarios have both revealed deep criticalities over time, which have become extremely evident during the post-earthquake reconstruction. In this context, in fact, issues and practices that focus on sustainable process should be embraced. This theoretical position supports the introduction of principles that will allow us to use what technology makes possible and all the scientific and technical knowledge now widely available.

The implementation of sustainability policies must be based on the territory knowledge that allows to highlight environmental

criticalities and energy potentials. In this article, therefore, we intend to illustrate a methodology applied to the city of L'Aquila which allows the identification of homogeneous areas from the environmental behaviour point of view, in which specific strategies could be carried out. These strategies will have to take into consideration the analysis of the values, of the transformable elements, of the needs of the new user, of the state of the damage as well as of the recent technological solutions regarding environmental sustainability. In this way it will be possible to identify compatible design solutions, developed through case-by-case sensitivity.

Ayda Majd Ardekani, Sophia Labadi, Rocio Von Jungendorf, University of Kent

[EVALUATING VISITORS' EXPERIENCES AT ST AUGUSTINE'S ABBEY \(CANTERBURY\).](#)

Keywords: Digital Reconstruction, St Augustine's Abbey, Visitor Experience, Authenticity, Realism

This paper discusses part of ongoing research based on the evaluation of visitors' experiences at St Augustine's Abbey before and after projecting reconstructed imageries of non-existent abbey artefacts on site. It refers to pro and anti-restoration manifestos regarding whether we have the right to restore an archaeological or historical object created in the past or not. It also refers to the museum domains and the relations between the on display objects and the visitors as well as the possible impacts of reconstruction on viewers at heritage sites such as St Augustine's Abbey. It is followed by the evaluation of visitors' experiences based on the current display settings. This paper analyses the visitors' experiences, specifically their understanding and learning from the site and the museum offerings before encountering digital and creative installations on the abbey ruins. The evaluation is based on primary data gathered from abbey visitors which includes individuals who observed the site themselves or attended a guided tour offered by the abbey site manager. It is based on four predominant subjects. Firstly, the demographic features of the visitors including their interest in and frequency of visits to heritage sites. Secondly, the comparison between visitors' expectations prior to their visit and the experience itself; whether their visit is in line with their expectations of what to see and learn about the site or not. Thirdly, the efficiency levels and usability of the available technological gadgets such as the Virtual Reality headsets and the audio guide for better and more comprehensive learning about the site. Ultimately, what are the visitors' views on authenticity and realism and by what means they relate these concepts to reconstructed imageries. St Augustine's Abbey was found in 597 AD by St Augustine who was sent on a mission to re-introduce Christianity to the people of Southeast England by Pope Gregory. It is part of a UNESCO World Heritage Site in Canterbury designated in 1988. At present, the abbey has come down to its foundations and only some of its principal masonry structures from different periods of its timeline remain on the precincts. As part of the future workflows, this paper presents digital reconstruction methods for abbey artefacts. It suggests a number of augmented reality displays originated from notions and types of authenticity as solutions to revive historical artefacts through onsite projections.

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[LINKAGES BETWEEN RECONSTRUCTION, HERITAGE AND URBAN PROCESSES: BAM, HOI AN AND TACLOBAN](#)

Keywords: Reconstruction, Disaster Management, Vietnam, Philippine, Urban Heritage, Organisational Architecture

Theoretically, post-disaster reconstruction and disaster management activities must take into account how to deal with the historic built environment, and cultural heritage while dealing with the urgent needs of disaster-affected population and the complexities of reconstruction that are widely acknowledged. Yet, in practice, adding a historical layer to the already complex reconstruction systems adds further expectations from reconstruction activities on 'what' to achieve, while the main issue of 'how' to achieve still remains problematic. There is imbalance in disaster literature for understanding the reality of organising reconstruction activities. This paper will share an ongoing research about the examination of overlapping areas of urban heritage processes, urban development and reconstruction processes as part of disaster management in three cases: Bam in Iran, Hoi An in Vietnam and Tacloban in Philippines. This research aims to understand the overlapping areas of urban processes, reconstruction processes and heritage processes, and practical implications of the way those overlapping areas have been addressed during the implementation of reconstruction activities in the case study countries.

The research examines three cases of plans: two case study will be based on an already happened disaster and past urban post-disaster reconstruction activities, including Bam in Iran, after the 2004 earthquake; Tacloban in Philippine, after the Typhoon Yolanda in 2013. Another case is an examination of plans and strategies in place as part of the disaster management preparations for post-disaster reconstruction activities for potential future disasters. The case study is Hoi An, a world heritage city in Vietnam.

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RESULTS AND PROBLEMS OF LOCALIZED HOUSING RECOVERY IN JAPAN USING TRADITIONAL CONSTRUCTION METHODS.

Keywords: Housing Reconstruction, Traditional Construction, Japan, Disaster Recovery

Construction of houses in Japan can be roughly divided between those built by carpenters and builders and those by housemakers –Japan’s massive housing manufacturing corporations. However, especially in rural areas, even now local carpenters and builders play an important role in housing construction. These local carpenters use traditional construction methods exclusively, creating the landscape of residential areas in Japan and forming many beautiful townscapes. Starting about 40 years ago, regional housing plans have been promoted for local revitalization as well as the creation of a sustainable society by using this strongly localized construction industry. Within this trend, a localized recovery housing model was designed for the housing recovery of Yamakoshi Village, which was severely damaged by the 2004 Chuetsu Earthquake. After the Great East Japan Earthquake, the concept of a localized housing reconstruction making use of local resources (people, goods, technology) was incorporated first into government-provided housing recovery support, such as wooden emergency temporary housing and disaster recovery public housing, and also into housing recovery in general. However, the volume of housing recovery needed after the massive damage caused by the Great East Japan Earthquake, which devastated communities along a vast area of Japan’s northeastern Tohoku coast on March 11, 2011 far exceeded the ability of local carpenters and builders to build houses. Many of the new housing units rebuilt after the tsunami, especially for homeowners rebuilding their homes using the private market, were contracted and supplied by national housemaker corporations. The purpose of this paper is to clarify issues related to the passing down of traditional construction technology and the related economic ripple effect within housing provision after major natural disasters in Japan.

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THE LOCAL HERITAGE AS A MEAN TO BUILD RESILIENCE: THE CASE OF ARQUATA DEL TRONTO IN THE MARCHE REGION.

Keywords: Earthquake, Heritage, Resilience

The recent seismic events have caused extensive damage to cultural heritage in the inland areas of the Marche region, showing the extreme fragility of the territorial system, with strong consequences on the economic and social contest. In historic villages, the high seismic vulnerability of the building has caused the most significant damage; it’s particularly complex to apply regulations and design tools aimed at protecting and preserving historical-cultural values and also the strategies of re-building are very complex. Therefore, it’s necessary to start again from a expansive knowledge of the peculiar features of the historical system of the central Apennines, mostly unknown, to identify recurrent types and techniques through which the foundations and subsequent development of the building were laid. Through these analyzes it’s possible to derive the necessary elements to guide a conscious reconstruction of the founding characteristics of the places, in order to develop new resilient strategies.

In the present research, a methodology is proposed for an evaluation of the resilience of historic villages, analyzing in particular historical building techniques, to verify the effectiveness for seismic purposes and to propose an increase in safety, on which to base a conscious reconstruction. The aim of the research will be to propose sustainable measures, both from a technical and an application point of view, considering the historical and cultural value of the building. In general, the development of specific risk assessment methodologies is necessary to propose strategies to increase the resilience of historic centers. In this context, the research can make use of specific models, methods and analyzes to simulate the effectiveness of vulnerability reduction systems. With this purpose, the area of Arquata del Tronto is taken as a case study. The territory is rich of ancient testimonies, tangible and intangible assets. It’s a stratification of cultural and figurative elements, which start from the pre-classical age and, through the Middle Ages, reach up to the modern age, in a continuum of life and agro-silvo-pastoral activities.

The complexity of the district, already in major crisis before the seismic events, has been analyzed, highlighting a series of issues which are still open. For many of the destroyed or severely damaged sites, it will be necessary to identify a qualitative criteria of reconstruction: in some cases, minimum interventions, in order to improve the accessibility and the security of the context; in other cases, the reconstructions with the same volumes and on identical sedimentary areas are conceivable, referring to a repertoire of identity elements; in particular cases, a new volume may be proposed, preferring contemporary solutions that open the way for a new local development while ensuring the preservation of identity values. The different post-earthquake situations therefore require the development of a complex and articulated strategy to build resilience that takes into account the specific local conditions.

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HISTORICAL CENTERS AND POST SEISMIC RECONSTRUCTIONS: EXPERIENCES COMPARED.

Keywords: Historic Centres, Urban Fabric, Seismic Damages, Reconstruction, Conservation

The contribution proposes a comparison between the reconstruction in progress in Abruzzo (after the earthquakes of 2009 and 2016-17) and other experiences carried out on the occasion of various seismic events over a period of fifty years, which are particularly significant for the reflection on the preservation of historical architecture and the reconstructions in different times and contexts.

The practices carried out in the emergency phase for the safety of damaged areas and of built heritage are various; this determines different and sometime opposed orientations and normative criteria for the reconstruction.

For example, from the comparison of the current situation with the case of Belice (1968) - represented by the choices for the reconstruction of Gibellina, and the case of Friuli (1976) - considered today a model of reconstruction (but which actually presents lights and shadows from the point of view of safeguarding the historical-architectural heritage), new considerations emerge today on the practices carried out in Abruzzo during the recent seismic events (although they differ from one another).

The historical distance allows us to reason today in comparative terms with the aim of outlining more coherent intervention methods to be implemented in the future, less conditioned by the emotions linked to the dramatic emergency circumstances and to individual contingent situations.

The current fragmentation of the competences for reconstruction, given to different Regions, is likely to determine discordant outcomes that may be detrimental to the cultural values of historical buildings, in addition to slowing down the bureaucratic process that seems to start from the beginning each time.

The seismic history and the historical-architectural heritage that characterizes the Italian cities and landscape impose multidisciplinary considerations for the identification of the values to be safeguarded and the consideration of the actual vulnerability of the historical heritage, sometimes subjected to prejudice against conservation.

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RECONSTRUCTION AFTER A PROGRAMMED DISASTER: THE CONSTRUCTION OF A DAM. THE CASES OF ZURI AND CANTALUPO LIGURE (ITALY).

Keywords: Reconstruction, Flooded Settlements, Urban Planning, Dams

In this paper we present two case studies of the research The 'osso' of Italy. The case study of the submerged settlements: restoration, reconstruction and translation of memories whose main objective the deepening and comprehensive study of a common case study to Italy and Spain: the submerged settlements as consequence of the construction of water reservoirs. These operations, which are mostly located between the '30s and the '50s of the XX century, triggered three phenomena: the disappearance of villages and its rediscovery for tourism purposes; the construction of new population centres with the relative problem of the production of memories; the translation into the new villages of buildings, or parts of them, dismantled before its submersion.

One of the first cases of reconstruction due to a programmed flooding known in Italy is the village of Zuri in Sardinia in the early 20's where due to the construction of the Tirso dam, the church of San Pietro was dismantled and reconstructed and the whole settlement was reconstructed. We study this case in relation with the later project of flooding Cantalupo Ligure (Alessandria), never carried out due to economic problems, which follow the design of Zuri for the urban planning of the new village as if the reconstructed village of Zuri were considered a 'model of reconstruction' for this cases.

The planned disaster which represent the construction of a dam is a good opportunity to analyse the reconstruction plannings that historically have been dealt with the population and constitutes an opportunity of reflection on the needs of the population when their homes are about to disappear. It allows us to reflect on the topic of collective memory in order to build new concepts through which to analyse (and design) very contemporary fields of study, themes and topics such as those related to villages in areas with high seismic risk or hydro-geological instability.

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HDD: HERITAGE DEBRIS DESIGN. DEBRIS BETWEEN MEMORY AND REUSE.

Keywords: Debris, Cataloguing, Cultural Heritage, Basilica of San Benedetto

The seismic events that struck central Italy bring back the risk of loss of cultural heritage to the attention of the technical and scientific debate, reopening the questions on the most appropriate methods of knowledge, protection and intervention addressed to it. If the application of technological developments to the protection of historical buildings is now established (in particular, the reference is to technological developments in the field of survey making possible to record the complexity, with increasing rigor and precision) otherwise, is largely unexplored the application of similar technologies when the object is in a state of ruin.

Can knowledge of the debris be subject to equally rigorous assessment methods?

Starting from this question, the proposed contribution is aimed at communicating the developments of a research project still underway at the Department of Civil and Environmental Engineering of the University of Perugia, as part of the safety of the Basilica of San Benedetto di Norcia following the collapse related to the earthquake of October 2016. The San Benedetto site was chosen as an exemplary case study for two reasons. On the one hand, the symbolic value and social impact connected to it make reflections on the recovery of debris central (as material evidence to which a strong sense of history and identity is attributed), on the other hand, the delicate operations of disposal of debris are representative of operational aspects that unite the similar interventions in post-emergency conditions. If the piles of debris are a problematic aspect in terms of safety, recalling the extreme speed of operations, it is undeniable that they represent a precious material memory, often forgotten also because of the apparent cancellation of the differences between the fragments in the state of ruin. In this sense, the cataloguing of debris is extremely important for an appropriate knowledge aimed at outlining future chances of regeneration and transmission, or in ensuring a physical and cultural continuity. The proposed method was aimed at integrating the well-established procedures (such as the fast sheet and the descriptive sheet, aimed at identifying and cataloguing the element through written notes and photographs) with the techniques of laser scanning survey, offering a digital copy of the debris in an expeditious, detailed and non-invasive manner, or compatible with the condition of urgency that characterizes the phase immediately following the occurrence of the calamitous event. From an operational point of view, the scheduling of the important stops was closely linked to the state of progress of the removal of the debris: these were removed according to a logic of stratified recovery, proceeding in successive stages that have been documented in a systematic manner.

The information obtained is useful both in the case of reuse of debris in the reconstruction of the asset (where the digital copy makes possible virtual operations of image recomposition as well as analysis of dimensional, material, chromatic, etc..) and when it becomes necessary to dispose of it (where the digital copy is configured as a fundamental memory document).

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STREETS AND SQUARES ARE NOT IN OUR PLANS: REFLECTIONS ABOUT URBAN PUBLIC OPEN SPACES AND POST-EARTHQUAKE RECONSTRUCTION.

Keywords: Spatial Planning, Disaster Risk Reduction, Post-Earthquake Reconstruction, Urban Public Open Spaces, Urban Vulnerability

During the post-disaster phases following 2009, 2012 and 2016 earthquakes in Italy, attempts have been made to implement the formerly inadequate or missing disaster risk reduction measures at the urban scale, with the aim to mitigate vulnerabilities and increase resilience from the reconstruction stage. However, most of the reconstruction efforts to tackle urban vulnerability lean toward a prevalently building-focused restoration, apparently overlooking the unbuilt component of settlements and its contribution to the functioning of urban systems.

Yet, urban public open spaces are proven to play key functions within a city both during its ordinary functioning - since they enable movement, facilitate social and cultural interaction and foster the sense of place - and throughout the earthquake emergency - when the unbuilt component supports evacuation or accommodates temporary gathering and sheltering. Italian planning policies often fail to endorse such a significant role, reflecting a global trend in the international as well as national policy arena where the spatial discourse and consequent spatial planning have little consideration. This neglect results into a fragmented landscape of norms and lacks in regulation which, at the local scale, may influence design and management of urban spaces, affecting ordinary and emergency functioning of a given spatial configuration, thus nurturing its inherent spatial vulnerability.

The implications of a building-focused reconstruction overlooking spatial planning and preserving the regulatory immobilism concern both master planning and Disaster Risk Reduction (DRR), raising the interlinked issues of:

- The neglect of space – particularly, the urban public open spaces - within national as well as local planning policies
- The lacking integration of DRR and spatial planning, and
- The inaccurate segregation of concepts such as post-disaster and pre-disaster master planning.

This paper aims to unfold the three questions presenting some preliminary reflection about the spatial discourse - encompassing configuration, governance, and use of space – within four historical settlements affected by the 2016 Central Italy Earthquake.

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THE PRESERVATION OF RURAL LANDSCAPES AS A TOOL FOR BUILDING RESILIENCE IN THE CONTEXT OF SMALL TOWNS: INSIGHTS FROM NORTH ITALY.

Keywords: Rural Landscape, Resilience, Small Town, Heritage

The 2012 United Nations Conference on Sustainable Development (Rio+20) has well acknowledged how the well-being of local communities is strictly depending on their cultural heritage, especially for the most vulnerable actors. Furthermore, like biodiversity for natural systems, cultural diversity has the potential to act on the resilience of social-ecological systems, whose heritage can play a key role for facing or adapting to new and old disturbances, such as a disaster or a long process of urbanization. Namely, heritage «can contribute to sustaining and increasing the adaptation and resilience of rural landscapes by supporting rural and urban inhabitants, local communities, governments, industries, and corporations as integral aspect to managing the dynamic nature, threats, risks, strengths, and potentialities of such areas» (ICOMOS-IFLA Principles Concerning Rural Landscapes As Heritage, Adopted by the 19th ICOMOS General Assembly, New Delhi, India, 15th December, 2017).

This paper is part of a bigger project, the Reach Culture H2020 project, led for the Italian pilot action by the Italian Ministry of economic development (MiSE), in collaboration with the Department of architecture, built environment and construction engineering (DABC) of the Polytechnic University of Milan. The aim is to help some communities of Italy whose cultural identity has been put in danger by disruptive events or has experienced a gradual period of a downturn due to changes in the social and economic fabric. We identified two communities threatened by two different disturbances, which can potentially have similar effects on their rural heritage. The first addressed community is a network of small towns in Central Italy (in the area of Norcia and Amatrice) hit by the 2009 and 2016-2017 earthquakes. The goal is to help restoring and maintaining the rich cultural identity and values connected to tangible and intangible heritage, namely the varied local handcraft activities and rural manufacturing processes that connote this area. The other addressed community is located in the area of Ticino Park, in Northern Italy. In this area, a traditional agricultural productive technique, the marcita (in Italian), has been developed and it is at risk of disappearing due to over-industrialization and to the construction of a highway. In past centuries, the marcita technique, originating from this area, has also been passed down to Norcia by monks that invented it. The aim of our paper is to focus on the latter community, analysing how institutions and local actors' engagement in the construction and preservation of rural landscapes can play an active role in adapting or resisting to the potential loss of tangible and intangible related heritage. Our purpose is also to explore the extent to which the legacy of rural landscapes can potentially help people recover from a disaster.

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BEYOND THE DAMAGE, THE RECONSTRUCTION OF L'AQUILA.

Keywords: Reconstruction, L'Aquila, Project, Identity

After 10 years from the earthquake which hit L'Aquila, it is time to evaluate its reconstruction from a qualitative point of view. The case study of L'Aquila demonstrates how the persistence of the physical sense of a place, the high concentration of episodes of historical-artistic interest and the quality of the built environment characterize the historic centre as an irreproducible identity nucleus, on which to base the material and immaterial reconstruction (Bravaglieri et al 2016). In particular, nowadays this identity risks to be compromised by interventions not intended to safeguard authenticity. On the opposite, they are supported by anachronistic hopes of recovery of the ancient splendor, as well as by actions that reveal uncertain cultural presuppositions and a misunderstood continuity with the past. This leads to a falsification which also undermines the identity renewal linked to its material counterpart, sometimes causing its exploitation. With these premises, the research aims to investigate how the actors of the reconstruction have preferred to convey the historic centre of L'Aquila as if the earthquake had never happened. Therefore, we observe interventions on the architectural heritage that completely remove the painful memory of the catastrophe and deal the theme of seismic vulnerability only through an engineering-oriented approach. This of selective memory is the ordinary attitude in a post-disastrous phase, as a result of the desire to remove an event as an attempt to move forward. What emerges from this approach is the reluctance towards the architectural project as a tool for reinterpretation and renewal of the meaning conveyed by historical architecture.

The safety of the past is displayed, liquidating the value of the architectural addition. This strategy is making the city a mere copy of a presumed original with «ghosts of architecture disappeared or never existed» (Dezzi Bardeschi 1994), losing glorious palimpsests by preserving only a few selected. The richness of all the traces is then lost, including the earthquake's one.

This approach is partly due to the age-old inertial willingness to keep things as they are, man's inability to accept sudden changes (Holtorf 2015). In the specific case this is manifested with the reconstructed monuments of the city to recite an appearance of normality. The institutions took advantage of this simpler path as a tool to prove their efficiency. One could wonder whether the possibility of an absence would be more meaningful, or at least more reversible.

Finally, the reconstruction of L'Aquila as it was before the earthquake appears as an act of memory manipulation, with an approach of *damnatio memoriae*, in order to create the identity of a new community which pretends the earthquake never happened and starts a new phase of the city, forcing the time to recede ten years.

Alessandro Bruccoleri, Silvia Covarino, Girne American University, Northern Cyprus

THE URBAN REGENERATION OF NICOSIA, THE BORDERS CITY.

Keywords: Urban Resilience, Conflict, Borders and Marginal Urban Area, Social Mapping, Public Space, Habitat

The forgotten island of Cyprus is the third biggest in the Mediterranean Sea. It is located in a strategic position and the real situation of this ancient site is the presence of the last divided capital in Europe, Nicosia. Walled City shows different layers of historical architectural heritage. Historical cities had the capacity to absorb successive transformations without losing their essential structure. However, since 1974 Nicosia's urban core is interrupted by the presence of the Buffer Zone which created an unresolved conflict.

The complexity of this urban fabric is not only physical separation. Today we have two different cities: Turkish Cypriot called their city Lefkosa (Northside), recognized only by Turkey and the Greek Cypriot Lefkosia (Southside), part of the European Union. The interesting contrast between an unrecognized country and a European one is its division under military control of the United Nations, Turkish and Greeks troops.

This research is focused on the two different images in terms of urban spaces and social cohesion. The European side acts as an active space, feels the contemporary urban life and architecture (J. Nouvel and Z. Hadid in progress). Public spaces are the result of an urban design process. On the other side of the island, the Northside appears as a very different urban environment, the life and the community are more conservative and the urban quality is spontaneous and not liveable. Moreover, urban projects are developing especially in the public spaces influenced by the opening of new gates which are generating different processes of regeneration. Meanwhile, in the middle of both sides, the Buffer Zone is a silent and controlled area, where the time stopped in 1974. The presence of this filter area between the two cultures will be analysed in terms of resilient area where the architectural heritage is protected in some way. The actual masterplan was born in 1985 with a bicomunal strategy still working for the reconstruction and acting as part of the talk for the reunification. Organizations and Committees are really active, and sensitive to the cultural heritage (UNDP, Europa Nostra), also there are many initiatives bottom-up to work in a sort of participatory planning, where the citizen is included and involved. In this scenario, we are looking at this border as an opportunity to establish the future of the island. The studies are a focus on a multidisciplinary approach, urban perceptions through different methods like mapping, sketching, urban walking, interview, and data and graphics information. The direct experiences and applications have been developed with an international group of students and researchers, in different level and time, using a different scale, to recognize the portrait in progress of the divided city.

Giulia Brunori, Michele Zampilli, Dipartimento di Architettura-UniRoma3

KNOWLEDGE OF HISTORICAL HERITAGE AS A BASIS FOR A CONSCIOUS AND RESILIENT RECONSTRUCTION. THE CASE OF ARQUATA DEL TRONTO (AP).

Keywords: Resilient Reconstruction, Cultural Heritage Conservation, Safety Improvement, Earthquake in Central Italy

The earthquake of 2016-17 hit a large area which is suffering due to depopulation already before the catastrophe.

The size of the disaster appears clearly: 140 municipalities affected, 48,000 displaced persons and more than half of the existing collapsed or unusable building.

A failed reconstruction, and a consequent further abandonment, would lead to disperse definitively a cultural heritage of great value for the whole of humanity.

The historical centers of the central Apennines, heirs of the network of medieval free communes, represent one of the most advanced models of urban organization of the modern European cities and preserve testimonies of civil, religious and military architecture among the most significant of Italy.

The settlements in the municipality of Arquata are characterized by an unexpected and widespread architectural richness presumably due to the presence, around the XVI century, in the Central Apennine territory of the Comacini masters of Lombard origin.

The spread of these special architectures are added to a landscape heritage resulting from the millennial interaction between anthropic and natural structures, within the framework of the Upper Tronto Valley where the system of the Sibillini Mountains meets the Laga Mountains.

A land inhabited since ancient times and furrowed by the important Roman line of the Salaria and therefore always been the center of trade between the two coasts of the peninsula.

The reconstruction of these places and the refund to collective enjoyment represents an indisputable premise for a moral and material compensation to the people who have kept these villages for so long and who have been deprived of them suddenly. The situation of Arquata del Tronto and its 13 parts is quite catastrophic. Almost half of these have been completely destroyed and those with a minor damage risk to receive further anthropic ones, due to an uncontrolled reconstruction. For this reason it's essential to start a reflection on the methods for the historical center knowledge as a necessary condition for a conscious intervention on historical buildings that combines the improvement of housing and safety standards with the conservation of the material (and immaterial) identity of places.

The method proposed is that of the typological-procedural research which, through a multi-scalar approach (landscape,

settlement, urban fabrics, building types and techniques) operates a reading of the historical stratifications and of the processes of transformation of the villages.

The aim of this approach is to detect the identity characteristics of the building and urban-fabric in order to understand their transformations over time.

Following this method we want to define the typological-architectural features and the original structural functioning including the weaknesses induced by a prolonged reuse.

The objective is to outline the interventions of recovery (and/or reconstruction) consistent and in continuity with the historical and material development of the settlements.

The contribution proposes differentiated design practices based on the scenarios of damage: from the integral reconstruction of the historical center of Arquata, to the restoration of Trisungo and Spelonga up to the enhancement of the ancient site of Pescara that will have to be dislocated.

Enrica Brusa, Politecnico di Milano

THE EMERGENCY MANAGEMENT AFTER THE EMILIA ROMAGNA – LOMBARDIA EARTHQUAKE (2012): A COMPARISON BETWEEN THE REGIONAL EXPERIENCES.

Keywords: Reconstruction Between Past and Present: Comparing Historical Cities, Safety Countermeasures for Built Cultural Heritage, Emergency Management

The earthquake that stroke the North of Italy in 2012 has interested different region, with different level of damages for the buildings. The most damaged region was Emilia Romagna, which was the nearest to the epicentre of the earthquake. In addition, also the Lombardy was subjected to high damages, especially in the south-area of Mantova's territory. A large number of Cultural Heritage buildings – on which this article will focuses on - were damaged in both these regions

Damage surveys started few days after the earthquake, and they took a few months to be concluded. The execution of surveys depended on different public entities and technicians, such as Civil Protection, Fire Brigades, Superintendences, and it requested a high level of collaboration and synergy among all the involved experts. After the surveys, the reconstruction works had begun with different modalities and periods.

The article will focus on the procedures that were elaborated to restore the damaged Cultural Heritage after the earthquake in both the involved regions. It will analyse which offices and competences had been developed; which fonctioners and technicians were involved and how they had worked together. The analysis examines the measures developed both in Emilia and in Lombardy, aiming at identifying which were the best practices that have been established.

In fact, when an earthquake occurs, after the rescue of human life, it's very important to guarantee a prompt intervention to secure the buildings, in order to avoid further collapses. The awareness of the importance of this process has become more relevant after the earthquake that struck the Centre of Italy (2016), showing us what kind of damages could be created by aftershocks to our Cultural Heritage, if any safety countermeasure had been settled. For this reason, also the analysis of the procedures developed after the Emilia – Lombardy earthquake could help us to establish an efficient strategy that will consent us to react promptly after a future earthquake, reducing damages to our Cultural Heritage.

Lina Calandra, Università dell'Aquila

AN ASSESSMENT OF THE PARTICIPATORY ACTION-RESEARCH EXPERIENCE IN L'AQUILA TEN YEARS AFTER THE EARTHQUAKE.

Keywords: Participation, L'Aquila, Earthquake

Purpose: The purpose of this presentation is to critically report on the experience of the Participating/Participatory Research Action (PPRA) conceived and applied in the context of post-earthquake L'Aquila from 2010 up to this day by citizens, academics, students, and informal and formal groups of people. A number of researchers, PhD candidates and students of the Cartolab Laboratory, Department of Human Sciences (DHS-Cartolab) of the University of L'Aquila also involved themselves. In the PPRA, the two terms, research and action, are reversed: the PPRA is not exactly a research aimed to galvanizing action in order to deal with problems identified, as traditionally participatory action research is conceived; the PPRA consists rather in an Action conceived as a research process that incorporates the principles of participation or an Action based on participation as a research method.

Design/methodology/approach: In the frame of different communication and participation process self-promoted or promoted by public administrations, a mixed approach (qualitative and quantitative) and a range of methods and techniques (questionnaires, interviews, open-ended or semi-structured conversations, focus groups, public discussions, etc.) were used in the different stages of the PPRA. This presentation uses participant observation, PPRA reports, existing legislation, and other official and unofficial documentation to evaluate the PPRA experience from the point of view of Action, Research, and Participation.

Findings: From the point of view of Action at the local level, the PPRA has had moderate to good success: formally several political

and institutional results were achieved, but the formal decisions have not always been adequately carried on over the years by the political and administrative officers. Instead, promising results concern youth education and social learning. Research has had good results in terms of production of a shared knowledge focuses on places and practices of everyday life, through the pre- and post-earthquake comparison and in a comparative perspective between adults, young and elder people. In reverse, Participation has had bad results depending on the lack of integration of the participation principles in the governance system for the reconstruction and socio-economic recovery of L'Aquila after the earthquake.

Practical implications: The PPRA experience in post-disaster L'Aquila has shown that it is possible, through the integration of the action at the local scale, the research process, and the participation principles, to engage people in a continuous process of a share interpretation and representation of reality with the aim to make local government decisions more compliant to the social context. An extensive use of the PPRA would be advisable to produce significant actions to make people more collective aware and responsible about their own places of life starting from the construction of common narratives of people's places, practices, lives after the disaster.

Originality/value: In Italy, there is no other experience of the PPRA so articulated and comprehensive concerning a post-disaster context.

Stefano Cecamore, Department of Architecture, University 'G. d'Annunzio' Chieti-Pescara

EARTHQUAKES AND RECONSTRUCTIONS. HISTORY AND IDENTITY OF HISTORICAL CENTRES AND TOWNS OF THE APENNINE RANGE.

Keywords: Earthquakes, Historical Centers, Reconstruction

The seismic swarm, resulting from the disastrous events in Norcia and Amatrice in 2017, highlights yet again the complexity and vulnerability of the Apennine range as well as of its historical and architectural heritage. While a real scenario of rebirth for the 'crater' in L'Aquila is still far from being tangible, the present after-seismic scene meets further issues and problems related to security and to feasible strategies planned for the reconstruction which is often revealed to be far away from the purposes for restoration and conservation.

The study of the historical and architectural heritage and the definition of the overall picture of the damages recorded in the historic centre of L'Aquila, made through the analysis of the situations following the main past seismic events, highlight a clear connection between the vulnerability of the built environment and the persistence of settlement methods and building construction techniques. The Abruzzo territory mainly consists of historic centres characterized by a widespread building industry long experienced by numerous seismic events prior the one in April 2009 and subject to constant reconstructions and burdened by the abandon and subsequent progressive loss of the residential and productive functions of the buildings.

Constructions subject to recent interventions of consolidations and structural adaptation incompatible with the local building culture, resulting from the constant patterns, traditional techniques and materials, such as the cut stone, which associates minor buildings to public buildings.

Most of the damages found following the earthquakes is, indeed, mainly ascribable to the heterogeneity of the load bearing structures due to constant changes and overlapping, as it can be observed by studying religious and civil emergencies.

The selected case studies are representative of a continuously evolving complex reconstruction which embraces an architectural heritage enriched of typological experimentations and building techniques recognizable through the analysis of articulated compositions. The research, carried out by the means of studies of the scenarios following the disastrous events of the past and the interpretations of the structural complexity of the buildings in the Abruzzo county town and of the numerous stratifications in the smaller urban centers, represents an essential path to identify the particularities and weaknesses of the historical construction. Furthermore, it allows to study and update experiments and traditional technologies concurring with the functional needs and development of the modernity.

Simonetta Ciranna, University of L'Aquila, Department of Civil Engineering, Building-Architecture, Environmental (DICEAA)

THE MARSICA ONE HUNDRED YEARS LATER.

Keywords: Earthquake 1915, Reconstruction, Marsica, Urban Plan, Abandonment, Restoration

The reconstruction following the terrible earthquake that, in 1915, destroyed large part of small and medium urban centres of Marsica, gives us important points to be considered on the topic of the international conference 'Reconstruction, Recovery and Resilience of Historic Cities and Societies'. The main reason of the significance of that reconstruction is related to the specific historic period when it happened. More exactly, the quake struck the Region – destroying its main urban centre of Avezzano – in years of economic and social progress and of attention to planning and growth of cities.

A debate that, looking back on huge important transformations of the principal town and European capitals, since the National Unification and stronger in the first decade on Twenties Century, putted in discussion the possibility of historical centres to adapt themselves to the necessities and canons of modernity. An economic and social progress pushed the upgrading of infrastructural

nets and residential settlements. Growth and debate which collided with the scarcity of economic sources of local administrations and, after the quake, with the obligation to address the emergency and primary needs of survived population.

The emergency, moreover, felt down in a warring state following the entrance of Italy in the First World War. The reconstruction, therefore, started slowly and went faster only during the Twenties with the fascism regime.

A reconstruction characterized by different urban planning solutions: from the complete demolition of the historic centre (including the main church) and its reconstruction only after the creation of a new urban addition (moreover planned before the quake), such as Avezzano, to the partial abandonment of settlement and its reconstruction in a nearby safer area, as in the case of Aielli, up to the design of urban planning in accordance with the theories of Camillo Sitte (Gustavo Giovannoni at Celano).

As well as the above, by divergent principles of restoration and conservation of historical heritage: from the abandonment to the ruin and sacrifice of the architectural heritage, to displacement and relocation of architectural and sculptural elements considered of particular beauty and value, up to works of restoration and conservation.

Jeff Cody, Getty Conservation Institute

INTRODUCING 'HISTORIC CITIES: ISSUES IN URBAN CONSERVATION', A NEW BOOK RELATED TO THE CHALLENGES FACING L'AQUILA AND OTHER 'SILK CITIES'.

Keywords: Urban Conservation, Detailed Survey, Public Participation

This presentation will focus on the edited, richly illustrated book just published by the Getty Center in Los Angeles, entitled *Historic Cities: Issues in Urban Conservation*, the eighth book in the 'Readings in Conservation Series' sponsored by the Getty Conservation Institute. The purpose of this presentation is not only to introduce this new book to an audience of scholars and practitioners who would likely enjoy it, but also to emphasize certain key aspects of the book, in particular the importance of 'reading the [historic] city' in detail and with sensitivity to a city's deep history, and the importance of implementing careful planning measures that facilitate continuity in historic contexts instead of hastily implemented, misguided and often regrettably irreversible projects carried out in the name of 'progress'.

The presentation will highlight one of the book's arguments -- that sustainable urban conservation is a distinct field of activity that is related to, but different than both heritage conservation and urban planning. The book's 67 excerpted readings include not only some of the most influential cases of good practice, but also many virtually unknown selections from many cultural contexts. This is a book global in scope. The readings are clustered within eight parts (chapters), covering topics such as geographical diversity, and international reactions to the transformations of traditional cities, the search for values, and the challenges of sustainability.

Two parts of the book, in particular, relate directly to the challenges L'Aquila currently faces: (1) how to 'read' the historic city so that planners and residents can 'know' it more thoroughly as they advance the process of reconstruction; and (2) how, through the appropriate inclusion of residents' ideas and participation, can they once again own L'Aquila after this long and dramatic interruption.

The book also highlights the experience of conservative urban intervention from within Italy's distinguished planning tradition, which continues to offer lessons and inspiration for L'Aquila and many other historic cities. These Italian practitioners and historians – whose words have been translated into English to expose them to a more global audience – include Gustavo Giovannoni, Leonardo Benevolo, Giovanni Astengo, Cesare Brandi and Pier Luigi Cervellati. Finally, the publication includes an extensive commentary of international conventions, recommendations and charters related to urban conservation.

This presentation is not simply a book launch; instead, the fact that the book is arriving simultaneously with the Silk Roads 2019 conference reflects a significant coincidence at a time when L'Aquila is considering a new future based on a rich past. The book's contents relate directly to this urban challenge, and to the crucial role of history and continuity in shaping the destiny of our cities.

Eva Coisson, Lia Ferrari, Federica Ottoni, Università di Parma

BELL TOWERS UNDER (SEISMIC) ATTACK: HOW TO SAVE A SYMBOL, ONCE IT TURNED INTO A MENACE.

Keywords: Historical Masonry Buildings, Bell Tower, Provisional Devices, Emergency Tools, Structural Securing, Strengthening Techniques, Seismic Damage, Emilia Earthquake

The numerous high and slender bell towers that characterize the skyline of our historical city centres turned out to be particularly vulnerable in occasion of the 2012 seismic shocks in Northern Italy. The danger of collapse of these constructions, besides representing a technical structural problem, had also strong social implications, generating fear and uncertainty in the population. Indeed, the prospect of overturning of a high tower can involve a large number of surrounding buildings, imposing the demarcation of wide off-limits areas.

Therefore, many Mayors after the Emilia earthquake required the authorization for the demolition of these peculiar buildings, as this looked like the most rapid and cheapest option to reinstate the normal activities in their city centres. However this solution is more complex than it looks like, not only from an operational point of view, but also from an ethic one. Indeed, bell towers represent, as all monuments, a historical document and, even more than other monuments, they are a reference point and a symbol for

the community. The Regional Offices of the Ministry for Cultural Heritage therefore blocked most of the demolition applications, addressing the managing institutions towards first aid interventions to guarantee the safety of the damaged bell towers and of the surrounding buildings.

Nevertheless, the lack of an adequate knowledge about this type of interventions soon emerged and the Regional Offices decided to contribute appointing a commission of experts in restoration and building techniques from the Universities of Parma, Bologna and Padova. The commission analyzed tens of bell towers, defining for each case some guidelines for fast interventions aimed at combining conservation and safety issues: these projects were rapidly designed, financed and realized.

The type of provisional interventions were various: the most common was hopping the trunk of the tower with different type of materials (metal tie-rods, composite materials, polyester bands); in other cases a structural scaffolding or a steel lattice structure was inserted to avoid overturning; more rarely, the masonry was strengthened with spritz-beton. Clearly each of these technologies have pros and cons.

The present paper will analyse some of the most meaningful case-studies of emergency structural interventions on bell towers after the 2012 earthquake, comparing the indications supplied by the Regional commission with the real works and discussing the implications that these interventions, often carried out in urgency situation without time for an adequate reflection, can have on the definitive intervention, both in terms of economy and function.

Quirino Crosta, University of L'Aquila, DICEAA

POST-CRISIS MASTERPLANNING: THE PUBLIC SPACE FOR A NEW APPROACH.

Keywords: Public Space, New Dimensions, Society

Ten years passed since the 2009 earthquake and the city of L'Aquila is now facing a collective reconstruction that is also an architectural, urban, territorial and social, cultural and political recomposition. It can be considered is a median city, because of its polar role within the wider territorial context of inner areas. The network of villages (most of which are damaged and not yet rebuilt), the settlement landscape (whose hyper-fragmentation makes the management of services and endowments even more complicated), the agro-forestry-pastoral system of parks. Not only have the public and private material reconstruction been concerned in the aftermath, but also the population and the related territorial fragility (both environmental and social). This broad context which is often managed and designed through rather obsolete planning tools, had already become into a crisis even before the earthquake, both because of the ineffectiveness of its instruments – unable to cope with socio-urban models completely different from those present at the time of their conception - and for the lack of a general and integrated vision from the current governance. There is therefore a need for a deep update of the reasons behind a plan, both political and cultural ones. An integrated design is needed, able to grasp local needs, to accommodate the territorial singularities without providing for them individually, to coordinate general needs for projects, by taking care of public and private actors, of intersectional administrative institutions, of multidisciplinary and trans-scalar departments. The concept of urban perturbation clearly describes the current situation. The urban fracture of the aftermath is added to the urban fracture that had separated the center from the peripheries, eventually causing a social fragmentation. This approach thus provides a clear and different perspective. The prospects for recovery and reconstruction do not need to refer to a theory of economic growth but to a more concrete theory of social development, they do not need to conceive normative instruments starting from the general theory of justice but from the approach of a renewed theory of well-being. This is why the solution involves public space also on a social level: public space should gain a new centrality in the life and management of the city, in a new way. That is looking at the new existing socio-urban model and its possible evolutions. It must be interpreted according to contemporary changes (of which the research has collected significant case studies) and build a pedagogy for public space that in turn makes a pedagogy of public space tightly related to the society using it, accepting its new demands, facilitating its recomposition of the relational tissue and therefore providing new urban planning equipment. This is a crucial issue, in the historical city as well as in the peripheral ones.

Giulia De Cunto, IUAV Venezia

BONDINGS BETWEEN URBAN FABRIC AND CAPACITY OF COLLECTIVE RESILIENCE: THE CASE OF TALCA HISTORIC CENTER.

Keywords: Settlement Model, Disaster Collective Response, Social Risk Mitigation

This paper addresses the issue of the relationship between the community's ability to develop mechanisms for collective response to the catastrophe and the pre-existing settlement model, presenting as a reference the case study of the historic centre of Talca, destroyed by the earthquake which, followed by a tsunami, hit south-central Chile in 2010.

Before the earthquake, the historic centre of Talca was the nerve centre of the city and it was characterized by a certain heterogeneity of artefacts, inhabitants and activities. All around the centre, a series of satellite neighbourhoods began to appear, starting in the 1980s, mainly born from private enterprise without a clear public design, characterized by strong mono-functionality, clear distinctions by income brackets, large commercial buildings and large road infrastructures. The reconstruction

has encouraged the development of these new districts, while the centre has been reconstructed in an uneven way: in part it has been destroyed, partly affected by densification interventions. Even though the historical nucleus is not very recognizable today, the liveliness of the centre's public life has succeeded in resisting, for a while, through the mobilization of the inhabitants in defence of some symbolic buildings. Particularly interesting is the process that led to linking the building of the Escuelas Concentradas to have the same function and form that it had before the earthquake, through a mobilization around the value of public and inclusive school. The research was conducted through direct observation of the spaces, a series of field interviews with activists, academics and local politicians and a bibliographical research concerning the sociological aspects of the disaster and the literature produced on the specific case of Talca.

The results of the study highlights:

- a) How a process of collective awareness in the post-catastrophe is closely linked to the pre-disaster scenario, as amply emphasized in the literature.
- b) How the connection between settlement pattern and ease of relationship between inhabitants.
- c) How complexity of the daily practices and relationships that develop in the historic city are, at the same time, a tool for mitigating social risk.

Federico De Matteis, University of L'Aquila

ANCIENT CITY OF THE FUTURE. NOTES ON THE RECONSTRUCTION OF BEIRUT.

Keywords: Beirut, Post-war Reconstruction, Architectural Heritage, Atmospheric Spaces, Urban Design, Place Making

In approaching the 30th anniversary of the end of the Lebanese Civil War, the reconstruction of Beirut's center can be said to be complete from a physical perspective, but is still ongoing in terms of the social and economic aftermath of the conflict. The massive, market-driven rebuilding of the devastated urban core has been a widely contested operation, criticized for its deliberate intent of creating an aseptic, neutral space devoid of conflict, implicitly representative of Lebanon's post-war amnesia (Nagle 2017). Today, it still produces repercussions in relation to the citizens' acceptance of the newly created exclusive enclaves, and in the ripple effect that is spawning similar isolated islands in other neighborhoods further away from the historic center.

Response to this dynamic has played out on multiple levels. From the early stages of rebuilding, groups of activists advocating a more inclusive approach to the reconstruction have campaigned to preserve a better balance between private real estate interests and collective good (Leclair-Paquet 2013). Various initiatives have focused on the protection of historic heritage, rallying to preserve the few remaining vestiges of pre-war Beirut (Naeff 2016). Several architects have used forms of critical design to highlight the aggressive character of private redevelopments, proposing alternative ways of giving voice to the urban memory of the conflict embedded in the city (Pirazzoli 2008; De Matteis 2013). Finally, Lebanon's fragile economy and politics, along with the troubled geopolitical situation of the surrounding region, have exacerbated sectarian tension, and the ensuing social conflict has largely been staged in the city's public space (Hourani 2015).

The quality and rationale of Beirut's post-war reconstruction has been widely assessed, especially in relation to the preservation of the historic fabric, a largely one-sided project controlled by Solidere, the public-private partnership overseeing the entire operation (Fricke 2005; Haidar 2006; Arif 2009). In this paper, I wish to discuss the repercussions of this specific type of reconstruction on the urban life of Beirut's center and on the spatial perception experienced by inhabitants and visitors. The description will be based on a phenomenological method, with specific reference to the lived dimension of urban space (Hasse 2015; Schmitz 2016; De Matteis 2018). The question of architectural heritage and its restoration/reinterpretation will be placed at the center of discussion.

Alessandra De Nicola, Piero Magri, Franca Zuccoli, Dipartimento di Scienze Umane per la Formazione, Università di Milano-Bicocca, Presidente di Terre di Mezzo, casa editrice che organizza Fa' la cosa giusta

FÀ COSA GIUSTA! EXHIBITION: AN OPPORTUNITY TO CREATE SYNERGIES BETWEEN SCHOOLS, MUSEUMS AND OUR HERITAGE.

Keywords: Museum, Cultural Heritage, School, Participation

Organised by publisher Terre di Mezzo Fa' la cosa giusta! has taken place for the last 16 years in Milan and has become the largest national exhibition on ethical consumption and sustainable lifestyles. Over the years the exhibition has kept a particular focus on cultural and educational processes.

For the past 2 years, together with the teachers of Officine Scuola we have dedicated part of the exhibition to a project called Sfide-la scuola di tutti (Challenges-a school for everyone) which has promoted training sessions for teachers, students and their families to explore the role of schools and the education system and its potential for innovation.

This year within the Sfide project, in collaboration with the Department of Human Science, University of Milano-Bicocca, we introduced a new format to present educational and training opportunities that resulted from a collaboration between schools and museums. Over 2 days we proposed morning round table style conversations where 12 museum representatives and

teachers presented significant educational projects designed to explore and make use of museum resources. Common traits between the different projects were: inclusivity, cross curricular approach, collaboration between schools and museums, innovative education methods.

During the afternoons a few of the most original and experimental projects were showcased and a workshop area provided, where museum education officers and teachers could meet, exchange experiences and start collaborations.

The exhibition took place from 8th to 10th March 2019 in 32.000 mq of Fieramilanocity and welcomed 65.000 visitors, 700 exhibitors, hosted 450 meetings as part of its cultural programme, employed 200 volunteers and 100 students on job experience. 2.400 participants and 150 speakers took part in the 110 meetings organised within the Sfidare la scuola di tutti project.

Our intention is to explore potential collaborations between schools and museums in such an informal setting as that provided by an exhibition. And our experience shows that an exhibition can become the place where ideas, projects and conversations are shared among museum representatives, teachers and a diverse public of participants.

Donato Di Ludovico, University of L'Aquila

CITIES IN TRANSFORMATION. SMARTER RECONSTRUCTION IN HISTORIC CENTRES.

Keywords: Historic Centre, Smart City, Reconstruction

The physical and social reconstruction of a city following a catastrophe can be considered an exceptional accelerator of urban transformations, especially when there is a large availability of financial resources that are also spent to realize projects that refer to the principles of Smart City. It is a theme in strong evolution and the effects of which have still little explored consequences both in the field of technologies and urban studies, and which require a clear vision of the future of the city.

The reconstruction of the city of L'Aquila represents a paradigmatic experience of urban innovation, in which many financial resources are dedicated to new technologies, including in this context even then cultural heritage and with it the area of the historic centre, one of the largest and most important of Italy (160 ha within the medieval walls). This process can count on the presence of a University which, due to its size and the scientific areas it covers, is an essential factor in the development of the territory. As a consequence of this, innovation-oriented initiatives in the urban context and its historic centre are naturally addressed following research and experimentation logics while there is a significant lack in the ability of the local context to transfer technologies and innovative solutions now mature and consolidated into effective services for the citizen. Furthermore, this innovation is taking place without a real government, excluding also integrated strategies and new opportunities for a city and a territory of high fragility and economic crisis.

The research presents analyzes the effects on the historic centre of these highly innovative projects. It is a research that also concerns the territorial level, and which aims to analyze the effects of the strong acceleration of the urban transformation of reconstructed cities such as L'Aquila, and to formulate a reflection on the consequences of new technologies and the needs of the society and the contemporary city, articulating the new rights of citizenship. In fact, if on the one hand the interaction that technological innovation in its various components can produce on settlement plants in accelerated transformation (instability) must be analyzed, taking effects that in other contexts would be less obvious, on the other hand these same effects we believe can recompose the traditional rights of citizenship that urban planning translates into spaces and relationships. It is a remarkable field of experimentation in which, however, scientific insufficiencies are compared, not only with urban planning and design, and in the case of L'Aquila, the absence of a development model that governance has failed to identify and build.

The paper will present the first results of this interdisciplinary research, which integrates Urban Design with new areas such as Telecommunications and Earth Sciences, in which the national and international cases of urban innovation resulting from post-catastrophe reconstruction are analyzed. The main themes will be compared, exploring the impact on historic centres and the oldest parts of cities.

Giorgia Di Marcantonio, Pamela Galeazzi, Caterina Paparello, University of Macerata

THE RECOVERY OF ARCHIVES IN THE AREA OF THE MARCHE CRATER.

Keywords: Archives after the Earthquake, Community, Identity, Marche, Memory

As it is known, the seismic events of Central Italy between 2016 and 2017 have torn the lifeblood of many territories between Marche, Umbria, Lazio and Abruzzo. The most affected area runs along the area of the Sibillini Mountains and the upper Tronto valley. Even if the emergency state is exceeded, there are still many interventions to be implemented. Naturally, the first allocations of funds must be directed to the physical reconstruction of the territories but it is also appropriate to deal with the restoration of social and identity memory. For this reason the cultural heritage and, specifically, the archives one are essential to guarantee the survival of the memory of those communities that have been heavily damaged or even completely destroyed. Hence the need to create a scientific project shared between territories aimed at preserving the vast documentary heritage that lies, after seismic events, in highly precarious conditions.

The objective of the proposal, which we present here, aims to return the methodological principles and the actions related

to the project The recovery of archives in the area of the Marche crater that involves, with a view to a collaborative network, more than 12 local authorities, the University of Macerata which will take care of the scientific coordination, the company Gallo Pomi SRL specialized in digitalization services, the Carima Foundation and the Marche Region as co-financiers. The first phase of the project will be dedicated to the description, reorganization and inventorying of selected archives; subsequently the papers will be enhanced through a narrative strand aimed at reconstructing the identity profile of the communities damaged by seismic events so that citizens fully understand how the possible loss of archives is also equivalent to a loss of memory itself.

The purpose of the intervention is to share practices, objectives, principles and critical issues in an area, such as L'Aquila one, which experienced the same tragedy in 2009 so that a fruitful scientific exchange can be stimulated.

Nada Elfeituri, University College London

THE SOLIDERE EFFECT AND THE LOCALIZATION OF HERITAGE RECONSTRUCTION IN POST-WAR TRANSITIONS.

Keywords: Reconstruction, Public Space, Arab Cities, Solidere

In the wake of mass urban conflicts across the Middle East and North Africa today, the most pressing question today is been how reconstruction can be achieved on a large scale. Cities such as Benghazi, Aleppo, Sana'a and Mosul have witnessed widespread destruction that will take billions of dollars and years – if not decades – to repair. With such a momentous task, many Arab governments appear to be looking towards the Solidere model of reconstruction which took place in downtown Beirut after the Lebanese civil war.

While there have been countless criticisms of the Beirut model of reconstruction since its inception 20 years ago, the region offers few other examples of successful reconstruction projects. Indeed, with the current climate of authoritarian rule, it is the central governments rather than residents themselves who have decision-making power to shape the reconstructed city. These decisions are driven not only by economic opportunities but by socio-political strategy; namely what should be forgotten and what will remain. However, citizens of these cities are not just passive observers to the reconstruction process but key actors in it. They are often the first to initiate the reconstruction of their own homes and properties, as well as to the public space around them. In historic districts, this often means that conservation and reconstruction of heritage buildings and sites are done by residents themselves. What is unique about these areas is that many residents of the city take part and not just the dwellers of those particular neighbourhoods, as these areas are seen to be linked with the 'soul' or identity of the city. This cultural value, along with its corresponding financial value, also makes them the first targets for reconstruction-as-redevelopment projects such as Solidere's Beirut project.

The aim of this paper is to investigate local reconstruction efforts of public space in historic cities of the Middle East and North Africa region as an alternative and a resistance to the Solidere model of reconstruction. It will analyze the drivers and potential outcome of the 'Solidere effect' in the region by investigating how Arab regimes utilize reconstruction as a tool of shaping identity and memory. It will then look at current local efforts of heritage reconstruction, using as a case study the reconstruction of 'Plaza of the Tree' in the old city of Benghazi, Libya. It will conclude by attempting to answer the question of what place local reconstruction has in national visions of urban redevelopment in cities affected by conflict.

Federico Eugeni and Luana Di Lodovico, Università degli Studi dell'Aquila

REBUILDING: URBAN AND SOCIAL RECONSTRUCTION. L'AQUILA AND THE SEISMIC CRATER TEN YEARS LATER.

Keywords: Earthquake, Sustainable, Development, Citizens, Participation

The 2009 L'Aquila earthquake not only caused tangible lesions to the built environment but also intangible ones to citizens. Whereas the first are being healed day by day from 2012 thanks to the reconstruction process, the others have been spreading in time unweaving the social fabric of a yet expanded city with many polarities. After 10 years now the result of these scars is a sort of extended maquillage that masks a molecular fragmentation since first months after the shock. Several virtuous processes have been activated in this scenario by students, universities, the National Institute of Urbanism (INU) and by citizens moved from the desire to take part to create wellness in L'Aquila. In some cases people have been driven from a leading sense of responsibility translated into projects, researches and events that interact synergically. In the paper will be portrayed two research projects: the first one has been developed during the XXVII doctorate cycle of DICEAA (Department of Civil, Environmental, Building Engineering and Architecture) by Ing. Luana Di Lodovico; the second one is "Habitat: Inclusive Nature" project, developed by Ing. Federico Eugeni. Both projects propose reconstruction models that focus not only on the built environment but also on public spaces, territories and citizens keeping together tangible and intangible issues of the reconstruction process itself. Several experiences have been fundamental to develop these projects, especially the ones gained with AnTEA Laboratory from DICEAA, LaUrAq from INU (Urban Laboratory for L'Aquila reconstruction) and with VIVIAMOLAq association. Both projects propose a sustainable development model adaptable to all the territories hit by natural disasters.

Alireza Fallahi, Seyed Hassan Taghvaei, Ameneh Karimian, Shahid Beheshti University, Iranian Relief Association
INTEGRATING GREEN SOLUTIONS INTO POST-EARTHQUAKE RECOVERY OF BAM, IRAN.

Keywords: Green Recovery, Bam Earthquake, Garden-House, GRRT

The 2004 Indian Ocean tsunami drew attention towards the inevitable need to incorporate environment and ecosystem in Disaster Risk Reduction (DRR) strategies. Shortly after the disaster the Green Recovery and Reconstruction Toolkit (GRRT) was developed by World Wildlife Fund (WWF) and American Red Cross through an innovative five year partnership. With a cohesive approach the Toolkit takes into account environmentally sensitive practices and relies highly on community participation and engagement to succeed. Simultaneously, other green adaptation emerged around the world within post-disaster reconstruction policies. In the aftermath of the 2003 earthquake, because of the exceptional urban fabric of Bam, safeguarding environment and cultural landscape in forms of garden-city and garden-houses were acknowledged as one of the top priorities. In practice, however, it seems that integrating too many complex principles into this multidimensional reconstruction caused a setback to fully achieve the initial prospects such as preserving the unique characteristic of the city.

With an archival research methodology and careful field observation, the paper aims to study the global experiences and promote green solutions in Bam reconstruction with a special focus on a) revitalization of gardens and qanats; b) recycle of wastewater; and c) reuse of solid waste in the geographical scope of the garden-houses. Data collection is based on reviewing related literature within undertaking several field surveys followed by generating an integrated SWOT technique. Accordingly, a number of strategies for green reconstruction of garden-houses are proposed towards preparing an action plan based on 'Project Cycle with Opportunities for Introducing Environmental Sustainability Principles into DRR Projects' model as per introduced in GRRT. The paper concludes that environmentally responsible practices can be combined with vernacular heritage to significantly improve the results in both fields. The findings of this study show that in the newly built houses, both green solutions and sustainable traditional techniques were overlooked to a certain extent and mostly the structural engineered measures were adopted. Whereas, in the post-earthquake preserved vernacular houses, a trace of environmental approach can be detected. Therefore, it seems that there is an opportunity to incorporate new green measures to already existing environmentally sound practices which may lead to a more resilience and sustainable unit and concurrently promote safeguarding the identity of the garden-houses in the city Bam.

Piero Farabollini, Francesca Luger, University of Camerino, Institute for environmental protection and research
RISK MANAGEMENT AND SOCIAL PARTICIPATION. AN ITALIAN QUESTION.

Keywords: Risk, Society, Earthquake, Italy

One of the most complex and delicate questions for the Anthropocene's society is about how to clearly understand and make understandable what risk is, and how to effectively communicate and manage it.

The recent dramatic events, in Italy as well as in the world, confirm such problem. The concept of risk has long been poorly defined and subject to interpretation. Nowadays, thanks to the Probabilistic Risk Analysis approach, the process of risk assessment (or the determination of the extent of damage) is based on the assumption that the real risk results from the product of the probability of occurrence of a certain event for the extent (magnitude) of its harmful consequences.

The risk, therefore, expresses the consequences of a particular harmful event; the expected number of loss of life, material damages to buildings and infrastructures, destruction of economic activities or natural resources, in other words, the risk is the product of the probability of an event occurring due to the size of the expected damage.

The dialectical definition of risk integrates and clarify the analytical expressions: ... the possibility that human actions or events lead to consequences that have an impact on what men consider relevant (Renn 98). It is clear that we cannot escape from the disturbing awareness that the action of man is often at the base of those events with disastrous effects. Referring to the current situation, in Italy, the risk management strategies must be in a close relationship with the social tissues.

Such condition constitutes the most relevant aspect of effective risk management, which is thus determined by at least four factors: objective characteristics of the risk; risk perception by stakeholders; credibility of the guarantor of the potential source of risk; involvement and decision-making tools.

In parallel, the basic elements identified as useful for risk management can be summarized as follows: identification of nature and the extent of public concerns; the structuring of the public debate and conflict resolution; advance knowledge of public reactions to the introduction of new technologies; public education and information; planning and implementation of systems and policies related to the environment and health. In this work, we'll analyze some cases of risk management, reconstruction experiences and social-environmental resilience in Italy, referring to the last central Italy earthquake

Marco Felli, University of L'Aquila, DICEAA

RESTORATION STRATEGIES AMONG ITALY AND UNITED STATES AT THE BEGINNING OF TWENTIETH CENTURY. POST-TRAUMA RECOVERING OF MONUMENTAL BUILDINGS.

Keywords: Restoration, History of Architecture, Earthquakes and Hurricanes, Reinforced Concrete

According to the themes of the session, the proposed paper intends to compare the approaching methods in post-trauma reconstruction of the first years of twentieth century among Italy and United States, focusing in particular on Marsica, seriously damaged in the recent history by earthquake events, and Texas, interested by hurricanes and flooding. The period of the current study includes the thirty years of twentieth century, characterized by natural disaster, such as the earthquake of January 13th 1915, which destroyed the city of Avezzano, in L'Aquila province, and its neighborhood, the hurricanes and flooding phenomena, typical of Texan climate, and the disasters caused by World War I.

After some experimentations, as the first restoration works in central Italy and California after quake events, in the analyzed period, with a more conscious use of the material and from the international theories, both areas are characterized by the use of new technologies in restoration intervention, such as the reinforced concrete; from the Athens' Chart for Restoration of 1931, this component became considered as the most important material in structural recoveries. The introduction of different case studies for each area of interest explained how the use of reinforced concrete structures spread all over the world in the same period, taking as references two restoration interventions, achieved respectively in 1936 and 1937.

In Texas, United States, thanks also to a research conducted in the interested area, it is interesting to analyze one of the most appreciated restoration interventions: the Franciscan mission of San José y San Miguel Aguayo, whose restoration had been directed by the architect Harvey Smith, represents an interventions in which concrete structures were used for replacing structural elements, in this case the collapsed dome, due to the damages caused by hurricanes and flooding.

The Italian case study is located in Magliano De' Marsi, L'Aquila province, and it is the main church of the city, Santa Lucia, which in large part collapsed with the earthquake of 1915. The restoration intervention, conducted by the architect Cesare Sabatini and the engineer Francesco Pietrangeli, aimed to recreate a previous state of the church, using the earthquake as a purification event, which removed the baroque decoration, caused the dome and the upper windows of the main nave to collapse. In this case, the reinforced concrete had been used in the new frame structural conception.

The paper aims to show the different used strategies in both contexts, also according to the restoration international theories, which aimed to redefine the new technologies with an innovative role, about not only the recovery of structures, but also the recreation of the form: this could be found in the analysis of the Franciscan missions as well as in the Italian case.

Alessandra Ferrighi, Università Iuav di Venezia

THE INVERTED PYRAMID. THE RECONSTRUCTION OF VENZONE AFTER THE 1976 FRIULI EARTHQUAKE.

Keywords: Earthquake, Venzone, "as was where was"

In 1976 Friuli was severely hit by an earthquake swarm with epicentre in the area between Gemona and Osoppo. Venzone is located slightly north of that area and is a small town at the narrowest point of the Tagliamento river valley. Thanks to its strategic position, Venzone became an important and wealthy market town. Even though its decline started already in the first half of the XV century, after the area had become a part of the domains of the Serenissima, it can still boast of some valuable, although minor, residential buildings, enclosed by a double defensive wall interrupted only by the three city gates and by the towers.

The value of Venzone as a historic monument was recognised in 1965, when it was listed by the Soprintendenza (Monuments and Fine Arts Office) by virtue of its state of preservation and of the peculiarities of this town. The original urban layout of the town centre was razed to the ground in 1976 by the May and September earthquakes, together with the few architecturally notable structures of the cathedral of Sant'Andrea, the church of San Giovanni and the town hall.

Venzone is arguably the only case in Italy of a post-earthquake reconstruction on an as was where was basis. It came about through the will of its inhabitants, who recognised the identity and cultural value of the Venzone buildings and streets before the earthquake. All the citizens and intellectuals of Venzone joined together in a committee that fought to enforce their requests. The town's identity had to be preserved, so a generic reconstruction would not do: what they wanted was to rebuild the houses exactly as they were before collapsing. The heritage of stones was to be preserved through reconstruction. The houses were the only assets of the people of Venzone, but what they wanted was not simply to get any viable house, they wanted their own homes, built with those stones.

This immediately started a long bottom-up process, helped by many volunteers that saw the recovery of the stone mouldings from the rubble, the shoring up of the surviving buildings and a series of surveys, combined to lay the foundation of a possible reconstruction. The Venzone heritage had to be reconstructed because of its value in the eyes of its inhabitants. The urban plans were therefore developed in order to fulfil this requirement, i.e., to rebuild on an as was where was basis. Prof. Romeo Ballardini was appointed to draft the detailed Plan subsequently adopted on 23rd April 1980. Such plan was developed starting from all that was known about the town centre, and shared with those who would later inhabit the restored buildings. The reconstruction of the town centre ended after ten years, the cathedral church reopened for worship in 1995. In 2017 Venzone was awarded the title of Italy's most beautiful town.

Francesca Fiaschi, Université de Montréal

THINKING ABOUT RECONSTRUCTION: FUNCTIONALIST RECONSTRUCTION OR IDENTITY RECONSTRUCTION? FOLLOWING THE GREAT POST-WORLD WAR II RECONSTRUCTION AND THE RECENT ITALIAN POST-EARTHQUAKE RECONSTRUCTIONS, WHAT IS THE CURRENT MODEL FOR RECONSTRUCTION?

Keywords: Post-disaster Reconstruction, Urban Continuity, Identity, Functionalism, Earthquake, Conflict, Urban Planning

The reconstruction of cities is an unavoidable dimension of urban history. The choices that it makes possible create an opportunity to better understand urban reality and to improve the urban setting.

The proposed reflection focuses on the reconstruction of the historic center of contemporary European cities, which, like a palimpsest, are the result of a millennial stratification of urban forms, signs and identities specific to the community that inhabits it. The natural or man-made disaster which, without warning, destroys a city generates a discontinuity in the evolution of the urban form, in its meaning, in its functioning. How can it be restored?

Following war or a natural disaster, reconstruction is always confronted with the same question: should we reconstruct identically or from within a functionalist framework based on a contemporary urbanistic and architectural language?

This is the vexata quaestio that has not yet found a unique answer, especially if we think of the object of reconstruction as a stratified urban fabric. The latest Italian reconstructions have renewed the interest of the scientific community in the problem of the preservation of historic centers, a problem that had previously been raised during the great post-Second World War reconstruction.

In light of both the models of reconstruction adopted in the past and those developed to deal with the recent Italian earthquakes, we seek to understand how the identity of place has been considered in reconstruction plans. We will critically review the history of reconstruction to understand what lessons can be learned, especially with regard to the inevitable negotiations between positions that are often difficult to reconcile.

Catherine Forbes, Amanda Ohs, Australia ICOMOS, ICORP, GML Heritage, Christchurch City Council, ICOMOS New Zealand

LOSS, RECOVERY, RESILIENCE AND HOPE FOR CULTURAL HERITAGE IN CHRISTCHURCH

Keywords: Cultural Heritage, Lost Cultural Identity, Post-disaster Recovery, Rebuilding Community, Building Resilience

Between 2010 and 2012 Christchurch, New Zealand, was severely impacted by several large and thousands of small earthquakes. The loss of built heritage was immense as iconic landmarks, historic city streetscapes and culturally significant urban spaces were severely impacted. The city's urban landscape was transformed as historic, cultural, religious, commercial, institutional, administrative, residential and industrial buildings were destroyed by the earthquakes and the subsequent authorised demolitions that occurred in the aftermath. The loss severely impacted the city's character, identity and sense of place. As a result, Christchurch communities lost their connections to place, the past, one another, individual and collective identity, and their culture, as well as access to the social, economic, environmental, cultural and psychological wellbeing benefits that heritage provides.

The cultural heritage of the city was highly vulnerable due to its predominantly unreinforced masonry construction. However, as the result of a broad range of issues, it received little protection during the emergency response, and was it not prioritised in the early phases of recovery, where the focus was on primary infrastructure, housing, the economy and planning a new city. Yet, several of Christchurch's significant heritage places are re-emerging from the ruins, being strengthened against future risks, and becoming a focus for community recovery and hope for the future.

As New Zealand is situated on the Pacific Ring of Fire and several of its major cities are highly exposed to seismic events, the approach to heritage in disaster situations is being reviewed. Protection of cultural heritage is now being written into emergency management and disaster recovery legislation and included in emergency response manuals and Civil Defence training exercises. Māori heritage is also gaining greater recognition.

The paper will provide a progress report on the recovery of Christchurch's cultural heritage and its impact on the community. It will introduce case studies that illustrate different approaches adopted to reconstruction and recovery, and include the community's response to regaining its heritage. It will also consider the future of cultural heritage protection in New Zealand in relation to disaster situations.

Cesare Fregola, Sara Gabrielli, Università degli Studi Roma Tre, Sapienza University of Rome

SCHOOL AS RESILIENCE TUTOR: A DIDACTICAL PATH IN THREE DIFFERENT CONTEXTS.

Keywords: Resilience, Didactic, Complexity, School

This research aims to build resilience in children experiencing a crisis (Cyrulnik and Malaguti, 2015; Lo Coco e Inguglia, 2013) or facing adversity and complexity in the 21st century (Ceruti, 2014). Examining the Italian literature, a debate on resilience was first developed in Emergency Pedagogy (Isidori and Vaccarelli, 2013), a discipline born to respond to natural and environmental catastrophes and to today's crises.

The international, European and Italian legislation (WEF, 2015; CE, 962/2006; MIUR, DM 742/2017) introduced this construct inside the school context, referring to competences and skills (Masten, 2011).

In this framework, the image of the school system as *tutrice di resilienza* (resilience tutor) is emerging: an educating community where each teacher symbolizes a protective shield (Garmezy, 1991), sharing expectations that lead to self-believing, and the improvement of self-esteem, self-efficacy and autonomy.

The purpose is to develop an educational and didactic path in order to promote resilience, which could be introduced into teaching, and to verify the effectiveness of this formative path.

The research project aims to understand the possibility to influence the connection – in the real student – between learning and the affective/cognitive/psychological variables, especially promoting resilience. The teaching contents were chosen by considering the need to create a solid connection between theory and practice. Resiliency was connected to scientific thinking, history, geography, sport and storytelling, and the didactic planning (60 hours in total) was articulated into learning units – preceded by 20 hours of observation – using different methods and instruments. Part of the activities was conducted in blended mode, with Edmodo. The project focused on problem solving and creativity, and it also employed humor, in order to recognize resources at three levels: personal, classroom and environmental. Activities and learning intentions are more deeply analyzed in the conference paper.

The research involved 78 students (41 males and 37 females – aged 8/9) in three different contexts:

- 1) A Spanish school: experimental group (15 children: 3 males and 12 females), control group (16 children: 10 males and 6 females);
- 2) A school involved in the 2016 Italian earthquake: experimental group (19 children: 10 males and 9 females);
- 3) A school in Rome: experimental group (17 children: 10 males and 7 females), control group (11 children: 8 males and 3 females).

The Child and Youth Resilience Measure (CYRM, Ungar e Liebenberg, 2011), adapted to Italian for research purposes, was distributed as pre and post-test. CYRM is a questionnaire composed of 26 items and eight subscales. Each item requires expressing frequency on a 3-point Likert scale (1=no, 2=sometimes, 3=yes). Resilience scores significantly increased in experimental groups ($p=0.02$) and did not in the control groups. In the first context, the increase was 1.6; in the second, 0.79; in the third, 0.72. Thanks to the synergy with curricular planning, students did not perceive the project as something extraordinary: it helped to establish an ordinary normality which these territories need.

Flavia Fulco, University of Toyama

KATARIBE-STORYTELLING IN POST-DISASTER JAPAN: REBUILDING PLACES AND COMMUNITY RESILIENCE FROM PERSONAL NARRATIVES AND LOCAL KNOWLEDGE.

Keywords: Disaster Recovery, Resilience, Community Rebuilding, Kataribe, Storytelling, Cultural Memory, Collective Memory, Oral Narratives, Place-making, Earthquake, Tsunami

This paper analyzes some aspects of the recovery process ongoing in the region of Northeast Japan after the tsunami of March 2011. Having destroyed approximately 400 km of coastlines, it affected the lives of many communities. The three most damaged prefectures were Fukushima, Miyagi, and Iwate. Due to the scale of the catastrophe, commonly known as 3.11 triple disaster (magnitude-9 earthquake, tsunami, and nuclear accident), and also to the socio-cultural characteristics of the large area involved, communities were affected in different ways. What is peculiar about tsunami's damages is that it left a huge void in the space-time continuity of the local communities. It is a physical, but also a psychological void. In some regions, more than 70% of the buildings were destroyed by the tsunami and the rest was demolished as a direct consequence of the damages. Even though constructions are proceeding, the procedure takes time and affects the geography of the town constantly, provoking a sense of displacement among the population.

Drawing on some of the findings of my fieldwork, I analyze the connection between the personal memories of the disaster, the shaping of shared collective memory, and the future of the local communities. In particular, I look at *kataribe*, a practice of storytelling about the disaster experience and at its role in place-making/rebuilding along the recovery process. In the past the word *kataribe* conveyed the idea of reporting a story from a distant past; while in modern *kataribe* (started with post-war storytelling after the atomic bombing), the emphasis is given to stories from a recent past as first-hand account. The undeniable importance of storytelling in community (re)building and disaster recovery has been observed since the last decades of the twentieth century, along with the growing attention towards oral narratives by social sciences and humanities. What makes *kataribe* a distinctive practice to observe these dynamics, is its role in shaping the memories around which new communities rebuild their post-disaster identity. *Kataribe* practice is situated at the core where public community and individual discourses and narratives relate to each other, allowing to observe the interaction between official discourses managed by politics and people invested of an official role, such as tourist associations or NPOs, and public narratives of common people. The role of *kataribe* is particularly important in determining those places that convey relevant experiences of the disaster and giving them meaning within the rebuilt towns. Rebuilding planning, in fact, includes discussions about the possibility of maintaining the buildings damaged by the tsunami as memorials of the disaster. The Disaster Prevention Office Building in Minamisanriku (prefecture of Miyagi) is one example of this debate, culminating in the decision of keeping it temporarily for twenty years, at Miyagi prefecture's expenses, while discussing its permanent future. *Kataribe*-storytelling giving meaning to places and experiences enhances the connection between the individual and the community and attempt to create a new formula of resilience to future disaster through the construction of a shared memory.

Margherita Ganz, Politecnico di Milano

ARCHITECTURAL HERITAGE AND EARTHQUAKES: A LONGSTANDING RELATION.

Keywords: Cultural Built Heritage, Past Earthquakes, Seismic Protection Technique

A monument, per definition, represents the memory of a community. A monument in a seismic zone it is not only the representation of a community, but it is also the tangible evidence of its troubled history. When a devastating earthquake occurs, the image of the most iconic damaged monument becomes quickly the image through which the affected community identifies itself. However, it is not just a matter of images rather a matter of identity, values and culture. The destruction of the scenario where the society acts is perceived as the collapse of the society itself, whereas cracks and ruins well personify the common feelings of people afflicted by earthquakes. Therefore it's not surprising that the architectural heritage represents the core around which the reconstruction phase orbits. Architecture should be the safe place where life is enabled, not the place where life is taken away. Although historical communities couldn't explain earthquakes without appealing for superstitions and misbeliefs, they were aware of this simply concept and they made great efforts over time in order to be capable of coexisting with disasters such as earthquakes. They understood the vital importance of make their houses safer by reinforcing their structures. Thanks to Historical Seismology and Archaeoseismology it is now possible to study this kind of knowledge, which is called local seismic culture, a proof of how communities stricken by earthquakes were able to regenerate themselves continuously.

An overview regarding how historical communities dealt with earthquake disasters and post-earthquakes recovery will be presented. Major events between 14th and 18th centuries will be considered to highlight the social and the technical solutions adopted by the affected communities against future events. The connection between society and cultural heritage will be discuss in order to point out how in hard times the shared cultural background has always been the most solid foundation where reconstructing both cities and societies from past times until today.

Francesco Giancola, UNIVERSITY OF L'AQUILA

RECONSTRUCTION BETWEEN PAST AND PRESENT: COMPARING HISTORICAL CITIES - THE RECONSTRUCTION OF THE URBAN FABRIC: TWO PARALLEL STUDY CASES TOWN HALL SQUARE IN RIGA (LATVIA) AND SANTA MARIA PAGANICA SQUARE IN L'AQUILA (ITALY).

Keywords: Authenticity, Urban Renovation, Urban Fabric, Reconstruction

In the decades following the Second World War, the city of Riga the capital city of Latvia, which suffered a large-scale destruction during the conflict, was subjected to an urban reconstruction that led to the reappearance of entire sections of its traditional urban fabric. The issue of how to reconstruct the built fabric of towns and cities, whether Individual buildings, blocks or entire districts, has been a major concern for all who have suffered war or natural disaster.

In the city of L'Aquila and in general in all the small villages around the city this issue was placed very clearly after the 2009 earthquake. The need to reconstruct after war or natural disaster is clear but that requirement does not prescribe how it should be done. Refer to past could be very useful to understand the mechanisms and dynamics that have made possible experiences like the city of Riga that is, with it's center, world heritage site since 1997.

Debates have tended to polarize around two alternatives: rebuilding in a contemporary style, signifying a new beginning, eradicating the errors and accretions of the past; or reinstating in a historicist style (replicating original appearances and materials) the buildings which have been lost, for reasons of continuity and identity.

Between these two extremes, a third way — restoring traditional scale, massing and detailing (often simplified) within a modern setting — provides a compromise solution.

This paper focuses on a practice developed in parallel to this prevailing tendency:

comparing two study cases in two different country: the cities of Riga and L'Aquila (Italy) and in particular two squares: the Town Hall Square has been completely re-built, since during the World War II the square and its historic buildings were destroyed and Santa Maria Paganica square in L'Aquila where almost all historic building were damaged by the 2009 earthquake.

Barnaby Gunning, Barnaby Gunning Studio Ltd, Lucia Patrizio Gunning, University College London

REBUILDING ENGAGEMENT FROM THE GROUND UP.

Keywords: Prosumer Technologies, Post Disaster, Recovery

In the period following the 2009 L'Aquila earthquake, most of the city's inhabitants found themselves, physically excluded from the city centre, psychologically separated from a core part of their lives and disenfranchised from the processes of reconstruction and recovery. This period coincided with the emergence of social media platforms and a growth in consumer facing tools to map, model and share images and video.

This paper looks at four projects that took advantage of these web based and 'prosumer' technologies to provide a means for local people to engage with the post disaster situation and to record and share the state of the city.

It examines the logistics of organisation and the challenges of fund raising in a period of funding fatigue as well as the strengths and limitations of citizen driven initiatives.

Learning from these projects and at the rapid evolution of the consumer IT landscape and of social media it looks at how similar techniques can be used to promote recovery and to create resilience to future disaster.

Jamal S.Hashemi, Hamidreza Jayhani, Parichehr Shafie, University of Kashan

MASTER PLANS AND ITS IMPACTS ON THE URBAN HISTORIC AREA OF THE BAZAAR OF KASHAN.

Keywords: Urban Master Plans, Historical Area, Kashan, Bazaar, Space Syntax

More than half a century has passed since urban master plans (provided according to modern movement thoughts) have been prepared in Iran and applied to historic urban areas. These plans have focused on the road network improvement, new streets, urban access and housing. In recent decades, these plans have led to the destruction of traditional structure of Iranian cities. During these changes, a historic city like Kashan which dates back to pre-Islamic era, has been affected by urban development plans. In this paper, we have tried to study the impacts of the role of new roads on historic areas of Kashan and especially on the district of Bazaar as the main spatial and social structure of the old city. For this purpose, spatial configuration of historic area of the city in different periods of time, was studied by space syntax software. In order to analyse the spatial configuration, three plans of Kashan which are provided in 1920, 1960 and 2015, was studied respectively by space syntax technique according to four factors: Integrity, Depth, Connection and Choice. These research findings show that changes caused by new streets had negative effects during the last century which has led to disintegration of historical areas of Kashan. The integrity of Bazaar of Kashan has also been ruptured in terms of spatial and social aspects. By studying the changes of these plans during this period of time, we concluded that some parts of Bazaar which are next to new developed routes has faced a decrease in integration value and a decrease in social and economic value subsequently. For example, a newly constructed street called Bab al-ava'ej has had a profound impact on the middle part of Bazaar. Current situation of this growing street shows that probably developing of the street will cause a lot of problems for the Bazaar and its central parts in the future.

Abhishek Jain, Jamia Milia Islamia University

INTANGIBLE CULTURAL ECONOMY A MOULD FOR TANGIBLE URBAN BUILT FABRIC - CASE OF SHAHJAHANABAD - BRIDGING INDIA AND THE SILK ROUTE.

Keywords: Mahalla, Cultural Economy, Organic Morphostructure

Organically grown historic Cities have always been known for their culture and lifestyle which helps in generating tangible urban fabric and built character. Residential quarters of such historical cities based on trade communities. Usually grew organically with time and leads to interdependency of tangible urban fabric and intangible sociocultural pattern. Such living pockets are known with different names in different organically grown old cities of India like Mahalla, Katra, Bara, Pol, Ahata etc. Research envisions futuristic urbanism for traditional trade based residential pockets in Old cities of India through revival of their cultural traits, especially the ones which have a direct connection with Silk route crossing through India as being an important trade center in past, till present. These cities have proved to be an interesting webs of such trade based residential pockets which acts as a laboratory for evolution of cultural traits based on communities having direct relationship with trade and trade routes especially in case of India.

Paper illustrates that these traits based on cultural economy generating richness and diversity in old heritage trade community based neighbourhoods is the main key which signifies the cultural heritage in historic old cities which come up as bye product of trade routes. Research has been restricted to current cultural, social and spatial characteristics, to study Puras of Shahjahanabad, organically grown living neighbourhoods and its intangible heritage in City of Shahjahanabad (Old Delhi). Here historical transformation of Mahalla (neighborhood) in relation to city also plays an important role to understand its significance as how intangible heritage of trade based community plays an important role in giving birth to a tangible one in form of urban built fabric. Research is relevant in terms of understanding qualities of physical organic character of organically grown trade community based

neighbourhoods in old cities especially when they are in their transition period, of historic trade towns to contemporary commercial zones of expanded city. Paper explores the idea of cultural economy in old city of Shahjahanabad in India through study of organic morphostructure of trade based community neighborhoods and their intangible traits in relationship with silk route.

Hidehiko Kanegae, Kohei Sakai, Ritsumeikan University

A STUDY ON EVACUATION METHOD USING AGENT SIMULATION BASED ON TOURISTS' BEHAVIORAL INTENTION.

Keywords: Evacuation, Agent Simulation, Tourist, Behavioral Intention

Today, there are many cases of damage to tourist areas in Japan. Further, the number of tourists from not only domestic but also foreign countries is increasing year by year. Even in such circumstances, it is important to find what kind of action they conduct in the event of a disaster and how we should guide them to evacuation areas.

In this research, we propose an evacuation method at a tourist site using a method combining sampling survey using by the scene imagination method and agent simulation. In previous evacuation researches, it was assumed that the evacuees would only move to the evacuation site and multiple situations were not considered, but the originality of this research is that evacuees do not always aim for evacuation sites, and the behavioral model in various situations is implemented in the agent simulation in this research.

First of all, the survey was conducted for 375 Japanese tourists and 102 foreign tourists in Japan. They answer their behavioral intention under various disaster scene scenarios such as guidance, road width, other tourist behavior, route walking experiences. Based on the survey results using decision tree analysis, we built some tourists' evacuation behavior model considering Japanese and foreign tourists. Next, the study developed the evacuation agent simulation and proposed the evacuation method were made in the case of the Kiyomizu Temple area, which is a sightseeing spot representing Kyoto, Japan.

As a result, it became clear that many tourists would flow out of the Kiyomizu Temple area after disasters, it was needed to set up guidance staff to prevent it, and information provided during tourism time is not effective.

As mentioned above, in this research, agent simulation was constructed based on the sampling survey using the scene imagination method, and the study suggested the practice plans of the evacuation method.

Arezoo Khazanbeig, Nima Tabrizi, University of Tehran

REGENERATION, INDIRECT APPROACH TOWARD HISTORICAL URBAN RESILIENCE AND RECONSTRUCTION.

Keywords: Regeneration, Hands-on Work, Bottom-up Approach, Bilateral Cooperation, Cultural Heritage, Reconstruction

Nowadays, in which the environmental crisis together with excessive urban development has dominated the lives of people. Villages of Iran which mostly based on vernacular construction are forgetting their wise and sustainable methods of living. They are transforming from main producers to mass consumers. Neglecting the value of their vernacular heritages, they replaced these historical buildings with incompatible constructions and gradually the rural population is leaving to the cities. As a consequence, villages left abandoned for the sake of unbalanced development. This enormous number of immigration from rural neighborhood to cities not only threats tangible heritage and historical building in rural neighborhood, but also results in deterioration of intangible cultural heritage and social disintegration both in cities and villages.

Trying to overcome the issue, a team work procedure called Workshop on REGENERATION has been designed by a group of young architects in Iran. The workshop aims to frame the problems in the contexts of conservation, sustainability, indigenous fabrication, and resiliency. In addition, it will investigate the possible solutions through discussions, and hands-on work. This is a start point for interdisciplinary collaboration and realistic effectiveness to regenerate this valuable cultural heritage.

The first workshop held in Taar, a mountainous village in the central part of Iran (Sep 2018). This case study not only point to sustainable architecture and building material, but also tried to educate younger generation about tangible cultural heritage and reconstruction (students and locals) through real experience, understanding and hands-on works. Also through communication living experiences in the village increasing awareness about intangible cultural heritage.

This continues programs aimed to launch a bottom- up approach in the field of regeneration and reconstruction, and target to improve living condition of all resident to stay in their rural neighborhood and be proud of their cultural heritages through education and communication and raising awareness.

Bilateral cooperation between professionals and locals in the restoration and conservation process, and use of traditional methods of construction can lead to a new system of rehabilitation on rural neighborhoods spontaneously.

The procedure is planned to be continued periodically in the future, in Taar as the pilot village and in other rural neighborhood in different parts of Iran.

Although this procedure is not directly influenced on resilience of urban cultural heritage, but its continuity by improvement of awareness and contribution in recovery and reconstruction of historical rural neighborhood can result in balanced relation between cities and villages and enhance historical cities resilience indirectly.

The whole Idea is a try to conceive how we can globally think and locally act, with a respect to traditional cultural heritages and modern achievements. It would be practical through an educational process which could inspire local population and future professionals to take action.

It should be mentioned that in the case of abstract acceptance, short video and some pictures from the procedure of workshop will be shown during the presentation

Miwako Kitamura, Tohoku University

THE ROLE OF TRADITIONAL DANCING IN REVITALISING DISASTER-STRICKEN AREAS AFTER THE GREAT EAST JAPAN EARTHQUAKE: A CASE STUDY OF FUDAI VILLAGE IN IWATE PREFECTURE.

Keywords: The Great East Japan Earthquake, Tsunami, Culture Activities

Japan is one of the most advanced countries of the world confronting the issue of decreasing populations and ageing communities in rural areas. This study emphasises that after the recent catastrophic earthquake in 2011, many local inhabitants of rural regions realised that indigenous cultural activities created civic pride in survivors and helped them to understand the communal importance of traditional art forms.

This investigation pertains to kagura dancing in disaster-stricken areas. This performance form began more than 1000 years ago and was vital to the transmission of much meaning for the daily lives of the region, including information about the occurrence of tsunamis. Unfortunately, many locals neglected regional cultural activities after the Second World War and focused increasingly on economic development. This study elucidates the manner in which traditional regional cultural activities disseminate awareness of natural disasters. It further examines the role of cultural activities in revalidating a sense of community in disaster-stricken regions.

Methodology

The performance form kagura was studied through a literature review. Next, statistical data pertaining to kagura activities were compiled from national governmental offices. Further, the authors interviewed a significant kagura performer who conducted numerous recitals after the Great East Japan Earthquake of 2011.

Findings

The results of the investigation revealed the importance of local cultural activities and the statistical data and interviews confirmed that such traditional regional forms of entertainment and education led to the revitalisation of disaster-stricken areas. Cultural activities were also found to exert a positive influence on the economic and fiscal aspects of disaster-stricken areas. Many young practitioners have joined such cultural activities after the 2011 disaster.

Conclusion

Cultural activities play a pivotal role for communities at all times, particularly after the occurrence of calamities. The results of the present study confirm that traditional and indigenous cultures are worth perpetuating. Traditional cultural activities conducted after the recent catastrophe in 2011 resulted in survivors rediscovering the significance of living within their communities.

The involvement of the younger generation in such cultural forms has had a particularly positive effect on Japan's disaster-stricken rural regions. The promotion of traditional regional performance arts could represent a possible solution to the problem of decreasing populations and ageing communities in the interiors of Japan.

Karlygash Kuralbayeva, Krisztina Molnar, Concetta Rondinelli, Po Yin Wong, Kings College, Norwegian School of Economics, Banca d'Italia, Norwegian School of Economics

SHAKING PREFERENCES: EARTHQUAKES AND IMPATIENCE.

Keywords: L'Aquila, Earthquake, Patience, Risk Preference, Savings Behavior

The trauma of natural disasters can have devastating impact on individuals, even if they are not economically effected. We exploit the panel structure of a nationally representative survey in Italy to explore plausible mechanisms linking traumatic experience to individual attitudes towards time and risk. Combining the household survey with city level impact data of the 2009 L'Aquila Earthquake, we identify households who felt the shake but had no substantial changes in their economic circumstances. We elicit their patience using a survey measure about their willingness to pay for immediate realization of a future payment, and their risk aversion using a survey measure on investment preferences. Our difference-in-differences estimates show that affected individuals become more impatient and risk averse compared to similar individuals who did not feel the shake. Consistent with this finding, the same households also make impatient savings choices that have long lasting effects on their investment portfolio. We also find a rebalancing of savings towards safer assets, consistent with an increased risk aversion.

Azadeh Lak, Soheila Sadeghzadeh, Shahid Beheshti University

THE EXPERIENCE OF PLAY STREET: APPLYING TACTICAL URBANISM TO URBAN RESILIENCE APPROACH IN IRAN.

Keywords: Tactical Urbanism, Play Street, Placemaking, Urban Resilience, Tehran, Iran

Among the viral worldwide concepts in today's science, is a resilient city which is one of the most debated ones. In recent years, a new approach of intervention in urban spaces, called tactical urbanism has been introduced to solve current problems of urban neighborhoods. The main purpose of this approach is to meet the needs of citizens in urban spaces and achieve more resilient neighborhoods in the shortest possible time.

This study aims to investigate the experience of Play Street as one of the tactical urbanism project in a deprived area in District 10 in Tehran, Iran. The project is titled The Street in the children's hand. The study uses a qualitative, case study (general single case study) approach to analyze the potential for the enhanced presence of children in urban spaces. The project uses tactical urbanism to accomplish urbanism objectives for human-environment interaction in order to meet the demands of residents, particularly children, and adolescents. It proposes an approach comprising small-scale, provisional measures to respond to the problem of sociability for the children and adolescents living there. The case study was conducted in November 2017. The data were collected using participant observations and semi-structured interviews with 13 experts and 15 participants in the project and then analyzed via content analysis. Besides participant observation, documentary study and interpretative data analysis were used to discover the reason(s) behind the studied phenomenon. The reports were compiled according to the project procedure and the authors themselves participated in the Street Festival event.

The findings indicate that tactical urbanism can be planned and evaluated according to a design thinking process in five steps: empathy and compassion, subject definition, idea creation, performing the initial sample, and testing. It can lead to a systematic process as a primitive example to ultimately improve environmental quality and quality of life (the main objectives of urbanism) via appropriate measures. In this regard, all these make the community more resilient. Such contemplation and review shows that future actions for better performance require better coordination between urban management bodies, better familiarity of urban management with such actions, public management (controlling public commuting), better flexibility in regards to the demands of participants and local residents and businesses, providing sufficient resources and means and in general, all-out support by urban management via a strategic plan to provide a unified approach to the measures.

Silas Lamai, Girne American University

URBAN RESILIENCE IN THE INFORMAL SETTLEMENT: MAKOKO RISK AND ADAPTATION.

Keywords: Adaptation, Risk, Informal Settlement, Slum, Coastal

Coastal informal settlements are vulnerable to various challenges and threats such as flooding, rising sea levels, forced eviction, overpopulation and disease. Habitat for Humanity believes that by 2030, 1 in 4 people on the planet will live in an informal settlement and Sea level continues to rise at a rate of about one-eighth of an inch per year. A strong potential of informal settlements is that they are highly diverse culturally and influence the cultural and natural Heritage of that area they are situated in. Makoko, an informal settlement situated partly on the coast and partly floating on the Lagos lagoon began as a small fishing village. Over the years till date it has transformed to a floating informal settlement and is now threatened to be demolished and be added to the continued expansion and development for the Lagos Megacity. The paper focuses on two events; first, the development of an informal settlement due to the high rates of urbanization and a heritage which could be demolished and forgotten to give way for real estates which both threaten the environmental and sociocultural aspects of the area. The article explores the transformation of the community due to these events and also seeks to discover the adaptive strategies implemented by the community. This research will provide further insight into the process of adaptation of coastal informal settlements to risks in the global south.

Ashley E. Lazzar, University of Massachusetts, Boston

COLLECTIVE STORYTELLING AS AN APPROACH TO INFLUENCE POST-DISASTER POLICY DEVELOPMENT.

Keywords: Storytelling, Collective Trauma, Disaster Management, Policy Development, Post-disaster Recovery, Social Inclusion, Resilience

Disasters leave communities in devastation, not only impacting their livelihood but also leaving emotional wounds for generations. The shared experience of an unexpected event with tragic outcome among community members creates a chain of collective trauma.

According to the UN, people who experience disasters are 90% more likely to live with a mental illness. In cultures like Italy and Haiti, where there is a stigma on mental health, psychological interventions can often be interchangeable with storytelling. Sharing narratives through storytelling, which builds resilience after a tragedy, is a historical tradition. Storytelling has the power to

restructure community perspectives and understand the experience of marginalized groups. It also has potential to be utilized to influence policy development and how governments respond to issues of social inclusion.

The similarities between the 2009 earthquake in L'Aquila, Italy and the 2010 earthquake in Port-au-Prince, Haiti include collapsed buildings, thousands of casualties, and displaced populations. Many Italians and Haitians expressed feelings of anxiety depression, and post-traumatic stress from losing their family, homes, and livelihood. Although there has been a number of humanitarian aid interventions focused on psychological needs after both earthquakes, these groups vulnerable to mental illness have been reluctant to utilize available mental health services. Subsequently, both governments have been unresponsive in addressing the post-disaster needs of the people, contributing to mental health issues.

This paper will analyze how storytelling can be used to build resilience of collective trauma victims, with the potential to promote social development through policy. I will examine the history of storytelling in Italy and Haiti as psychological interventions and provide a perspective on how collective storytelling could be used as a post-disaster community healing intervention and tool to influence policy development.

Judy Mahfouz, UIC Barcelona

ALEPPO'S OLD SOUKS: POST CONFLICT HERITAGE RECONSTRUCTION.

Keywords: Post Conflict Reconstruction, Cultural Heritage, Identity, Narratives, Memory, Healing, Community Resilience

The Battle of Aleppo that took place for four years had finally ended in December 2016. This conflict had destroyed many areas of the city and in particular the old city of Aleppo (the historical city that was listed as a World Heritage Site by UNESCO in 1986). The built heritage and the urban fabric of the old city is in a critical situation because they have been in a very poor condition with threats of falling any moment. Not only did the built environment of the heritage site suffer from the brutal conflict but also its people, the Aleppines. There are numerous consequences of the destroyed heritage on the social and cultural aspects that activated the old city of Aleppo for hundred of years. One very troubling consequence to the people of Aleppo is this lost heritage means that they have lost their identity. They valued their heritage that represented their identity with deep appreciation and respect. Fortunately, the reconstruction and rehabilitation process have started on the ground such as the reconstruction of the Grand Mosque's Minaret and Al Sakkatiyyah Souk and some other projects. On the other hand, the reconstruction process that is lead only by experts has its shortcomings especially when it comes to including the communities voices into the process. The current reconstruction has obscured the fact that the heritage has the capacity to heal communities' war wounds if reconstructed with their cooperation. This research aims to bring the voices of the Aleppines into the process through the collection of Narratives, from both the experts and non experts, and ultimately to build the foundations for a common vision. For this research, 17 semi-structured interviews were conducted in Aleppo using the old Souks from Bab Antakya to Aleppo Citadel axis as the object of the research. The questions were divided into three themes: past, present, and future. First, the past theme aimed to collect the memories and activities of the participants before the conflict. Second, the present theme questioned their current feelings towards the lost heritage and investigated the existing limitations. Third, the future theme addressed their aspirations concerning the reconstruction of the destroyed sections of the souks. With all the collection of the narratives, the research analysed the results by identifying drivers that underlie the interrelations between the people of Aleppo and their lost heritage. Then, this research grouped the results into the most relevant and repeated attributes that should be considered in the reconstruction projects. In conclusion, it is certainly urgent to engage the community in the reconstruction of their lost heritage in the context of Aleppo through building a common vision derived from the diagnose of the interrelations and meanings between the people and their heritage. This form of empowerment is contributing in creating not only resilient communities but also resilient cultural heritage.

Simona Manzoli, Università degli Studi "G. d'Annunzio" Chieti-Pescara

PHOTOGRAPHY FOR THE CITY.

Keywords: Photography, Cultural Heritage, Earthquake, Cultural landscape, Civic Identity

My proposal for the international conference on Reconstruction, Recovery and Resilience of Historic Cities and Societies involves three major themes: Managing reconstruction, heritage and city planning, City recovery: Social, Psychological, Economic and Cultural Heritage and Linking urban resilience and cultural heritage by analysing the potentials of an extraordinary means: photography.

Photography reproduces a variety of contexts and events; daily intimate ones such as family photos, public identity-making ones such as celebrations and religious rites that take place in strategic places within the city, such as squares and churches. With reference to the latter, photography stands as a direct witness to unknown settings and transformations, as memory of the lost heritage during restorations and catastrophes, thus assuming great documentary value.

The earthquake which struck L'Aquila in 2009 gave the opportunity to highlight the documentary value of the photos. The aim of my proposal is to draw attention to the importance of both analogue and digital photos, by using the example of the earthquake of 2009. The project of a large historical photographic collection about the cities which were struck by natural disasters represents the source and the underlying theme for reconstruction and also the occasion for citizens to regain their collective consciousness: it requires

civic participation and public commitment since everyone has got photos and can effectively contribute to the project. This leads to a real civic recovery of the heritage and therefore shortens distances between the old and the new generations on the one hand and the cultural heritage on the other hand.

The awareness of the importance of the heritage and of the broader concept of cultural landscape are the basis for the rediscovery of the civic identity, for the material reconstruction of the city and are also a stimulus to recovery, in terms of social cohesion, psychological well-being and resilience.

Iole Marcozzi, Antonella Nuzzaci, Ilmiofuturo, University of L'Aquila

DROPOUT, RESILIENCE AND CULTURAL HERITAGE: A FOCUS OF THE ACCESS PROJECT IN A HIGHLY FRAGILE AREA.

Keywords: Dropout, Resilience, Cultural Heritage, Territorial Fragility, School

The contribution starts from the Erasmus + project ACCESS (KA2), which consist of universities, schools, research and training institutes in Italy, Portugal, Lithuania and Romania. The project is finalized at tackling the problem of early school dropout and scholastic factors connected, such as the negative school climate, which includes conflicts with teachers and peers, poor school results, lack of motivation, by of students, etc. Based on the emerging evidence of ACCESS, the paper focuses on issues related to the risk of dropout by students in upper secondary schools in the highly fragile area and examines the reasons relating to their perseverance to attend school or not, to their ability to be able to graduate and to not leave formal education. It investigates the relationship between earthquake, resilience and dropout in terms of the environmental well-being of students, especially in reference to the need to introduce innovative strategies by teachers to help students at risk of drop out to face the uncertainty that governs their action or non-action. These strategies concern the cultural heritage as an instrument of methodological innovation and disciplinary intersection, capable of contributing to removing some obstacles deriving from natural disasters that become individual and social catastrophes that undermine identity: the negative effects due to territorial fragility on the perception of individuals could be stemmed by focusing on an education in the reconstruction of memory and of individual, cultural and social identity. The question is whether and to what extent the dropout is related to the catastrophe situation and how it relates to the lack of certainty caused by the existential displacement linked to it (Nuzzaci, 2018). Dropout is a multidimensional problem, which can also be faced from the point of view of existential uncertainty, which is aggravated in subjects with low resilience, accentuating in them some difficulties: - the capacity or inability to achieve goals (use or non-use of personal resources); - the ability to ask or not ask for help when needed; the ability to establish positive relationships with teachers, peers and friends, highlighting certain limits when necessary; - the ability to plan, make choices and make decisions; - the ability to promote independent and responsible learning practices. It emerges of the ACCES results as for individuals residing in a highly fragile territory the risk of dropout becomes more pronounced. The territorial positioning of these subjects seems to reinforce the obstacles linked both to the realization of personal goals and to the ability to work with others to make significant long-term changes. It has become priority investigate how teachers can identify suitable forms of didactic support to help the students a greater risk of dropout to achieve educational success, using research data to support the decisions of teachers in context. Teachers can provide training support and motivate students in difficulty with incisive pedagogical approaches, employing the local cultural and environmental goods of the territory for educational purposes that better meet individual needs of students and direct independent and responsible learning practices (Brackenreed, 2010) and positive relationships.

Marco Marino, Università luav di Venezia

GIUSEPPE TORRES'S ASYMMETRIC PATENT FOR HOMES. THE ORIGINAL RECONSTRUCTION OF MESSINA AFTER THE EARTHQUAKE OF 1908.

Keywords: Giuseppe Torres, Earthquake, Reconstruction, Original.

The case of the Asymmetric Patent for Homes by Giuseppe Torres is a construction system for monolithic buildings with a circular, modular plan, used for the complete and original reconstruction of the City of Messina after the earthquake of 1908. This project is a unique testimony of a urban restoration attitude, which attempts to bring together technological innovation with the formal tradition, giving rise to new and original forms of the city. The study of the Torres archives, stored up at the luav Projects Archive, was essential for the research. The preserved drawings are the only evidence of an almost unknown project, which is an essential documentation for the reorganization of the design process that led to the Technical Patent in 1909, and the subsequent original urban composition. The attitude of Torres is an example of cities' reconstruction in which originality is represented by technological innovation and the consequent resulting form. The reconstruction, in the case of Messina, is an opportunity to innovate both from a technical and formal point of view that translates into a new rosy city with original shapes.

Barbara Minguez Garcia, The World Bank

ANTIGUA GUATEMALA, FROM HISTORY OF DISASTERS TO RESILIENT FUTURE.

Keywords: Cultural Heritage, Disaster Risk Management, History, Natural Hazards, Resilience, Antigua Guatemala

Disasters have marked the history of Antigua Guatemala since its foundation. Antigua's current location was actually the third establishment of Santiago de los Caballeros de Guatemala, the capital of the Captaincy General of Guatemala that encompassed and had jurisdiction over most of Central America through southern Mexico. The reestablished capital was transferred from the current Ciudad Vieja after a lahar from Volcán de Agua destroyed it in 1541. It lasted until the Santa Marta earthquakes in 1773, when the capital was transferred again and definitely to the current Guatemala City. Despite the destruction, transfer of the capital, and partial abandonment of the city in ruins, some of the inhabitants remained and slowly rebuilt their city and started referring to it as Antigua Guatemala (Ancient Guatemala City). From the mid-1800s, the area began to be repopulated because of the agricultural production, particularly coffee.

During almost three centuries Antigua Guatemala had been the cultural, economic, religious, political, and educational center for the entire region, acquiring an important number of monuments. Thanks to the partial abandonment of the city in 1776, and the regulations on reconstruction, the ruins and city's 16th century Renaissance grid pattern were preserved as signs of identity of Antigua Guatemala. In 1944 Antigua was listed as National Monument; in 1965 was denominated Monumental City of America; and in 1979 was included in the UNESCO World Heritage list.

Meanwhile, the action of natural hazards did not end in historic times; Earthquakes such as the M8.3 and M7.5 occurred in 1942 and 1976 respectively, hurricanes Mitch in 1998, and Stan in 2005, tropical storm Agatha, and mudslides from Volcán de Agua in 2010, and earthquakes and eruptions of Volcán de Fuego in 2017 and 2018, continue to affect the area, even more vulnerable due to urban growth and tourism development.

The volcanic eruption on June 3, 2018, emitted tons of ash that reached Antigua Guatemala, gathering over the historic cobblestoned streets, squares, and buildings. It affected particularly rooftops and drainage systems due to the heavy rainfall during the following days. The authorities realized the need to integrate cultural heritage into the recovery plan. Furthermore, the Executive Secretariat of the National Coordinating Office for Disaster Reduction (SE-CONRED) recently launched an initiative with the support of the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR), to work together with the Ministry of Culture on developing a strategy to integrate disaster risk management (DRM) for cultural heritage at national level.

This paper will present (i) an overview of the history and disasters that made Antigua Guatemala become World Heritage, (ii) a review of the DRM for cultural heritage methodology including international examples, applied to the Antigua case, and (iii) a reflection on the current situation after the eruption of Volcán de Fuego, and the proposal to strengthen resilience through heritage in Guatemala.

Vincenzo Mini, Università dell'Aquila

PUBLIC ADMINISTRATION VS SOCIAL MEDIA IN EMERGENCY SITUATIONS.

Keywords: Public Administration, Social Media, Emergency Management

The objective we set ourselves was to find out whether the use of site social networks, in particular twitter, has brought improvements in emergency management and post-emergency within public institutions - Public Administration (PA).

Certainly a use in the embryonic phase of the earthquake of 6 April 2009 but fully operational in the earthquake of August 2016.

We have put aside, a vision purely aimed at a political use of the twitter tool, focusing on the possibility of building a relationship of trust, that is, when this tool directly informs citizens even more in an emergency context.

First of all, we found that there is no legislation that obliges and regulates such use even in normal situations. Public administrations oblige and regulate the use of the tools that use the Internet (websites, e-mail) but not the use of social media.

Furthermore, we note that the social media cyclone does not adapt well to the rigidity inherent in the PA. At this point the effort was twofold: to relax the rigidity, remaining within the allowed, of the PA and harness, but not too much, the anarchy of social media.

This effort should not lend itself to compromises that distort the two components at stake. The analysis to be carried out on the institutions of the Abruzzo region, will have to respond, for example, if it has succeeded, in the emergency context to produce an effective and efficient communication to the citizens. The aspects to be investigated are many: the reference standards, guidelines, policies; the recognized sources of message production; intruders in the communication process? (citizens - citizen journalism) - (agitators - hate speech); the regulation of responses (feedback - hashtag). The initial part was the prerogative of a deepening on the existing documents in the concerned PAs.

The methodology used to detect the use of social media delimits elements of advantage and opportunity both from the point of view of the Public Administration and towards the citizens who choose to use the twitter tool (Effectiveness - Cost - Monitoring - Listening, Dialogue and trust - Transparency - Cooperation).

We also applied a further analysis scheme, which we could summarize in four areas: Popularity (we take the number of followers as an indicator). Creation (indication of the percentage of tweets purified by retweets). Interaction (presence of retweets).

Contamination (use of #hashtag and @mention).

The conclusions were not univocal since undoubtedly there are different approaches to the use of the tool, even within the same

institution. Once again and all entrusted to good will, to the sensitivity of a few people. There is no system vision as we continue to hope for. The tools, in this case we extend to all those usable on the Net, have a different degree of involvement and consequent results. Twitter, in the institutions we examined, did not create adequate citizen involvement.

Patrizia Montuori, University of L'Aquila

COVENTRY SHELL OR PHOENIX, CITY OF TOMORROW OR CONCRETE JUMBLE. FROM THE RECONSTRUCTION AFTER THE MONDSCHERSONATE OPERATION TO THE PHOENIX INITIATIVE.

Keywords: England, Coventry, Bombing, Historic Center, St. Michael Cathedral, Reconstruction, Identity, Modernism, Basil Spence, Donald E. Gibson

November 14, 1940: the operation Mondscheronate (Moonlight Sonata), a deadly aerial blitz of the German Luftwaffe that sarcastically borrows the title of the famous sonata of Ludwig van Beethoven, hits Coventry, in Warwickshire, an important workers' center but also one of medieval cities of England better preserved, inflicting it a profound devastation that Joseph Goebbels, Minister of Propaganda of the Third Reich, describes satisfied with the neologism koventrisieren (to coventrate), from then on used with the meaning of raze completely to the ground.

They still remain partially standing among the smoking ruins of the ancient center only the tower, the spiers and the outer wall of the historic cathedral of St. Michael, built between the end of the fourteenth century and the beginning of the fifteenth, around which focuses the need for the first and most immediate reconstruction intervention as a replica of the one that gone.

Despite the popular sentiment, the competition launched in 1951, however, will be an opportunity to explore a modernist and highly symbolic monumetality that, through the ancient-new relationship, between shell and phoenix, fully expressed by the winning project of Scottish architect Basil Spence (1907-1976), evokes the theme of Sacrifice and Resurrection.

Modernist, on the other hand, is also the reconstruction of the city, started by re-launching the pre-war plan drawn up by Donald E. Gibson (1908-1991); a reconstruction contrasting a Coventry of Tomorrow with concrete, towers, elevated walkways and flying cars to the idea of the historic center as it was where it was pursued in other European cities destroyed by bombing (Dresden, Warsaw, etc.). Today (2019), however, Coventry is a curious city with a leopard skin shape, with medieval traces, concrete buildings and urban voids in the ancient center so large as to accommodate the huge yellow and blue cube of Ikea; a city that in the nineties, has already tried with difficulty to regain its historical identity with the Phoenix Initiative (1996), an urban renewal intervention for the revival of the alienated historical center through a path, from the medieval remains neighboring to the cathedral to new commercial and residential districts, which metaphorically link past and future. Coventry is a city that in two dramatic moments of its history, the war and the recent economic recession, has chosen to reconstruct a new identity by relying on modern architecture and on two interventions born around the traces of the past, still not enough, however, to create a real urban center.

Osamu Murao, Tomohiro Tanaka, Tohoku University, Taisei Corporation

POST-TSUNAMI RECOVERY AND MITIGATION EFFECT IN THE COASTAL AREAS AFFECTED BY THE 2011 GREAT EAST JAPAN EARTHQUAKE AND TSUNAMI.

Keywords: The 2011 Great East Japan Earthquake, Tsunami Mitigation, Build Back Better, Levee, Relocation, Land-use Regulation

The 2011 Great East Japan Earthquake and Tsunami severely damaged to the coastal areas in north-east region of Japan. However, notwithstanding its magnitude of Mw 9.0, it seems less casualty than those caused by other recent tsunamis such as the 2004 Indian Ocean Tsunami. One of the factors of those disaster risk reduction was tsunami mitigation strategies which had been adopted along coastal areas in Japan since 20th century. Most of the mitigation system constructed along the Japanese coastal areas are based on what Japanese learned from the past tsunami disasters, such as 1896 Meiji-Sanriku Tsunami or 1933 Showa-Sanriku Tsunami.

In order to clarify the effect of tsunami mitigation strategies, this paper comprehensively gathers dataset of related construction situation such as levee, water gate, tsunami height, and damage conditions for each coastal district. Then it analyzes relationships between several tsunami mitigation strategies and damage conditions.

This research was conducted as follows. Firstly, the authors collected information on how tsunami mitigation construction or space had reduced tsunami disasters in the 2011 event from previous research papers, newspapers, and website, and arranged the dataset about those examples provided by Reconstruction Agency. Secondly, using the dataset, the authors grasped the basic information and tsunami damage level of the affected cities, towns and villages. Thirdly, we analyzed the relationships between damage conditions of buildings and casualties, and regional geographical environment. Finally, the dataset was compared with the damage conditions due to the 1896 Meiji Sanriku Tsunami and the 1933 Showa Sanriku Tsunami. As a result, most of the affected areas were more damaged than the past Sanriku tsunamis according to higher tsunami caused by the 2011 Great East Japan Earthquake.

However, the damage in Noda, Fudai, and Ishinomaki was reduced by tsunami mitigation strategies. This paper also introduces current urban recovery conditions after the 2011 event.

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DIFFERENT PATHS IN HERITAGE RECONSTRUCTION OF RURAL TRADITIONAL TOWNS IN CENTRAL CHILE.

Keywords: Pertinent Reconstruction, Earthen Architecture, Traditional Adobe Towns, Neoliberal Reconstruction, Chilean Earthquake 2010

The earthquake of 2010 (8.8 Mw) significantly affected a series of towns and cities in the central south area of Chile, whose historic centers were largely made up of adobe buildings. Their reconstruction, in several cases still unfinished, has had dissimilar results in terms of the conservation of urban and architectural heritage values and the restoration of earthen architecture. The different factors that have influenced the reconstruction process are reviewed through the analysis of five cases. Heritage loss was notorious in these towns (with few exceptions) and reconstruction has been influenced by the degree of social cohesion of the community, the participation of private sector, universities and NGOs, the existing regulatory conditions and the requirements derived from the degree of protection of some buildings or zones, aside from the provision of public resources for reconstruction, among other reasons. In addition, it was very relevant the state of conservation of the constructions, modifications made to the structures as well as their degree of obsolescence and even abandonment, which largely influenced damage suffered by buildings after the earthquake. Depending on how the process has been approached, the reconstruction has contributed to a greater or lesser extent to the recovery of these peoples in relation to their socio-economic development, particularly when architectural and urban characteristics of the towns were previously recognized and had become an asset for the development of tourist activity, for example, or when they were associated with other heritage elements such as festivities or handicrafts acknowledged at a regional or national level. Better results are obtained when synergies are produced among various actors with an interest in the territory as well as if there is previous recognition of local heritage elements as an identity constituent or because of its contribution to socio-economic development of local population. Although after the earthquake of 2010 there were modifications to regulatory framework allowing reconstruction of patrimonial buildings employing adobe, ignorance persists as well as the fear in the population that consider this constructive system insecure and not resistant to earthquakes. The recognition of heritage values by professionals in architecture, urban planning, conservation and other specialists is not enough if the population is not aware of them or they have been gradually forgotten, especially when people are overwhelmed after the occurrence of a disaster. In addition, competing agendas, bureaucracy and policies aimed for a rapid reconstruction and recovery (in terms of numbers more than quality) constrain capacities and interest for a pertinent reconstruction, which requires the confluence of actors, resources, knowledge and the aspiration of the communities to recover their heritage and their identity.

Silvia Nanni, Nicoletta Di Genova, Alessandro Vaccarelli, University of L'Aquila

EDUCATIONAL POVERTY FACTORS AND RESILIENT RESPONSES IN THE AQUILA YOUTH POPULATION; A QUALITATIVE STUDY.

Keywords: Resilience, Educational Poverty, Disasters

Disasters destabilize the lives of individuals and communities starting from situations of trauma and conditions of stress that not only characterize the first few months of emergency, but continue, with different manifestations, even in the years of post-emergency and reconstruction. In the L'Aquila earthquake, there was the problem both of material and cultural reconstruction, also in the face of social and economic dynamics that have severely destabilized the quality of life of individuals, groups (families) and educational institutions (school). In recent years, growing situations of educational poverty have become evident, especially in the younger age and in and school-age population. In this context, several studies have shown situations of social and individual fragility. In the while educational projects have been activated aimed to respond to situations of educational poverty, to the support of sociality and individual resilience. After 10 years it is possible to begin to have a retrospective look, especially with reference to those people affected by the earthquake in childhood or adolescence. It could be useful to try to understand which pathways, difficulties, which institutional responses or which resilient energies may have helped or hindered their educational growth in a reconstructing city. Fifteen girls and boys between the ages of 18 and 28 were interviewed to reconstruct educational biographies in the scenario of the reorganization of urban, family and school life, in search of the causes of educational successes or failures, to understand which forms of resilience (individual or institutional) or which factors of vulnerability have been at stake. These are individuals who preserve a memory of the city before the earthquake and who have a clear understanding of the relationship between the before and after, but also those who have not had sufficient time to fully develop their socialization in a context of life not altered by catastrophe and subsequent policies. A brief focus will be devoted to how study and education can constitute an individual resilience tool to relocate the life project on the level and perspective of the immaterial values of existence.

Yasuaki Onoda, Haruka Tsukuda, Tohoku University

THE HOUSING RECONSTRUCTION PLAN WITH USING VICTIMS' HOUSING RECOVERY OPINIONS AND THE INFLUENCES – COMPARISON WITH THE GREAT EAST JAPAN EARTHQUAKE AND L'AQUILA EARTHQUAKE.

Keywords: The Great East Japan Earthquake, Housing Recovery Opinions, Post-disaster Public Housing, Long-term Temporary Housing

In 2011.3.11, Japan experienced the Great East Japan Earthquake (GEJE). Almost 400,000 house units were damaged by this earthquake. In the reconstruction of the housing from this disaster, the central government requested the municipalities to confirm the victims' housing recovery opinions. Most of the municipalities have confirmed their intentions with high transparency, but it seemed that communication was not sufficient. This paper aims to clarify the gap the plan on the base of victims' housing recovery opinions and results by targeting the public housing reconstruction projects after GEJE and evaluate these projects quality by comparing with L'Aquila long-term temporary housings.

In the point of transparency, most municipalities took multiple surveys and reflected the results in the house reconstruction plan. However, because victims' opinions changed gradually and there was no binding for the answer, after construction, in the disaster public housings and lots of highland-relocation, not a few vacancies occurred. Further at a new home where they can live with peace of mind, solitary deaths were occurred. There are two possible causes for this, the big change of lifestyle by moving from the community where they lived, and the closed dwelling units that are different from the traditional housing style and have no awareness about their living.

By comparing with two cities, Ishinomaki City in Japan and L'Aquila City in Italy constructed a similar number housing units, approximate 4,000 units, after a disaster, the difference of these housing reconstruction policies and the results appeared. First is the speed. Although both cities could not reconstruct housings in the same area, temporary housing construction in L'Aquila finished within one year, but Ishinomaki spent time almost eight years. Second is the quality of units. In L'Aquila, enough unit side and basic plan for a family was realized regardless of constructors, but in Ishinomaki, the size or room layout suitable for each family lifestyle was not enough because of emphasizing the equality and the fairness. Especially, the closed plan caused some solitary deaths of a single or two-person household again. These differences were caused by government policies, how to use the victims' opinions and what to prioritize. In Japan case, the victims' housing opinions were used for the decision of the number of units mainly, and the quality of the space inside and outside units was not emphasized.

Eight years passed after the disaster in Japan, the victims' lives seem not to recover the same as before. Tohoku Region that is the main damaged area from GEJE had owned traditional life by multi-generation households and supported by the fishery. However, without fully considering the local circumstances, the reconstruction by using a modern method that only uses the victims' housing opinions as an indicator of the number of supplied units may not have always realized the reconstruction of life.

Satoshi Otsuki, Paola Rizzi, Sarunwit Promsaka Na Sakonakron, Laura Pistidda, Masahiro Shirotzuki, Kochi University, University of L'Aquila, Thammasat University, Diver s City, urbanlab, Nagoya University of Foreign Studies

THE LOUDEST SILENCE BEFORE A NEXT NANKAI EARTHQUAKE: DISASTER PREPAREDNESS IN SUSAKI TOWN, JAPAN.

Keywords: Preparedness Strategies, Empower Community, Living With Risk, Tsunami

This article provides university-local initiatives on tsunami preparedness that aims at empowering local inhabitants and relevant organisations in Susaki town, Kochi Prefecture, Japan . This town is situated in the Kochi Prefecture's coastal area, which potentially tends to be affected by substantial earthquakes and tsunamis as a devastating consequence. The local municipality has estimated that there will be 73 percent chances that a huge earthquake will be occur in another 30 years. Unfortunately, the severity of disaster occurrences tends to be triggered by a physical morphology of Susaki. Beside these imminent risks of natural disaster, the town has been suffering an economic crisis as a result of depopulation and disproportionate population. Over 54 percent of residents are over 65 years old, while net migration is projected to become the main driver of depopulation. Due to these matters, we conduct a series of international workshops and field surveys with local government, NGOs, and students to collect local data and to provide different points of view on innovative disaster preparedness strategies. Those strategies are incorporated into urban revitalisation projects, while at the same time rising risk awareness and motivating local disaster preparedness. We do not intent to provide a comprehensive solution but later to manifest potential possibilities of disaster preparedness in aging society. The article concludes that disaster preparedness shall not a stand-alone process or an extra activity. It can likely be integrated in residents' everyday life through urban revitalisation projects. To achieve these, critical analyses of contextualization in a term living-with-risk are essential in understanding inhabitant's risk perception and re-learning a way to motivate disaster risk preparedness. This can be regarded as a simple platform of vulnerability reduction and a foundation of urban resilience to disaster, which is intentionally more practical than principled.

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WHOM AND WHOSE CULTURAL HERITAGE? COMPARATIVE CASE STUDIES; RUDABAI AND DADA HARIR STEPWELLS, IN GUJARAT, INDIA.

Keywords: Stepwell, Rapid Urbanization, Cultural Heritage, Social Cohesion, Conservation, Management

The factual target of this paper is to portray a better understanding of the history, significance, and socio-economic values associated with two Indian Stepwells' case studies within their own contexts. It depicts those stepwells in order to identify their true authenticity and recognition as cultural heritage. The goal is to highlight the fundamental concerns about the actual role of diverse local actors involved in the conservation process of those cultural heritage.

The process of post-industrialization and rapid urbanization in the historical cities and villages of western India, affected dramatically the social, cultural and also economic structure of those contexts in which were very well rooted the underground water infrastructures such as stepwells. The stepwell was one of the most important fundamentals of traditional Indian life where men and especially women founded their principal social freedom inside the ritual of daily water collecting, in their harsh environmental condition. Nowadays, as those stepwells lost their original functions, either they are drastically ignored and abandoned or became centres of speculation for the real-estate market in order to sell the modernized quality of life and profit from either immigrants or wealthy clients and tourists. We can observe the same situation around the two stepwells under investigation in this paper; they have more or less the same physical, historical and architectural settings, although both of them are recognized as the national importance and are considered as the protected monuments/sites, as they were in two completely different contexts/policy and management tastes, they were dealt with totally different approaches in relation to their capacity to serve as cultural heritage for their people. Therefore, the main challenge which this paper is going to present, is the valid concerns about the identity of the beneficiaries from those two stepwells which are under investigation. Let's say, without any moralization, who could or better to benefit from those stepwells to be validated as cultural heritage and therefore from their conservation, on the contexts that severely affected or degraded under the process of post-industrialization and rapid urbanization.

To put it simply but not banally, is it enough for the stepwells to be recognized by central government or by the top down decision making systems, as cultural heritage? - to become the key point of attractiveness, creator of jobs and engines of local development, without considering the identity of the place, strategies and policies oriented to their conservation, protection and management. What about the potentiality of the social capital of those poor communities that could create the social cohesion in the contexts that suffered by the removal or reduction of local industrial activities? This paper will critically review the actual conditions, cause and effects of decisions made and to be made, and the opportunities and threats ahead of those case studies to become true cultural heritage for all.

Satoshi Otsuki, Hidehiko Kanegae, Paola Rizzi, Hiroari Shimizu, Kochi University, Ritsumeikan University, L'Aquila University, Ritsumeikan University

A STUDY ON ITALIAN DISASTER RECOVERY SYSTEM IN COMPARING TO JAPAN DURING LIVING IN TEMPORARY SHELTER.

Keywords: Disaster Recovery System, Risk Communication, Historic City, Quality of Life

The international disasters database (EM-DAT: Centre for Research on the Epidemiology of Disasters (CRED), University catholique de Louvain, Brussels, Belgium) reported number of (natural) disasters was less than 50 events in 20th century but increasing exponentially toward the end of 20th century, now reported natural disasters over 10 times from 20th century in 21st century in its World trend of natural disasters 1900 – 2010. In case of historic cities, it is really weak of city's vulnerability. It means that it is easier to being destroyed itself. At the same time, it also has vulnerability for resident's safety after an earthquake.

In this sense, it should be safe for resident's Quality of Life(QOL) in times which is temporary evacuation and temporary shelter life and so on. For instance, it is occurred many natural disaster especially an earthquake in Japan and Italy, are called earthquake country. In case of Japan, Kumamoto Prefecture had huge earthquake in 2016, there were many victims because of the earthquake, even if now. In case of Italy, L'Aquila had also huge earthquake in 2009 and 2015. Because both of the country has unique disaster recovery systems and its problems, it is necessary to be clarified each problems of disaster recovery system based on each characteristic, uniqueness, and so on.

In this research, it is clarified problems of disaster recovery system in Italy and Japan comparing to governmental disaster response to victims in case study of Kumamoto Earthquake in Japan and L'Aquila Earthquake in Italy by interview survey to municipality staff and victims. Especially, it is focused on phases from earthquake occurred to living in temporary shelter. In conclusion, there are some common problems in both of system. Especially, government including national and municipality didn't provide disaster information, such as necessary information for victims in post-disaster about traffic, lifeline, water supply, evacuation shelter's situation and so on, and planning information, such as planning decisions about reconstruction plan from earthquake happened to end of reconstruction. On the other hand, in case of Italy, there is superior point in post-disaster. This is introducing Certification System for volunteers organization. It means only volunteers organization certificated from national government can go to support in disaster area. In Japan, there is no this kind of system, so municipality staff has to manage a lot of volunteer organizations immediately, even if there are a lot of works in post-disaster, because if big earthquake happen in Japan, many volunteer organization is willing to support in disaster area.

Maria Vaiese,

[RURAL RESILIENCE. PIAGGINE, A CASE STUDY IN CILENTO GEOPARK.](#)

Keywords: GIS, Rural, Parametric

- Research questions

Is there a possibility to consider the internal areas in their specificity, disconnected from the main urban centres (usually taken as primary administrative references), to return a polycentric systemic vision of small centres, interconnected and strictly bound, in socio-economical terms, to the natural context they belong to?

Is it possible to build a specific taxonomy to identify the forms of the rural villages in order to classify their opportunities, their internal value and their connections in a polycentric 'urbain system'? Which tools can we take from the urban studies to focus on the specific topic of the internal rural areas aiming at forecasting a better and sustainable development of their economy?

- Methodology

The idea of investigating the new relationship between urban and rural and the emergence of not urbanized space as a value lead my research to the case study of Piaggine, a mountain village with 1300 inhabitants in the Cilento geopark. In order to reverse the depopulation trend, the reactivation of the village consisted of several actions related to mobility, building heritage and the relations within locally and territorially relevant itineraries, respecting all the restrictions of the geopark and of the complex administrative structure that regulates the Cilento area. The project of a "sector" of municipalities and thematic itineraries at different scales is linked to the organization of a varied and specific touristic offer, adapted to different timings and targets, and supports the logic of a system of villages interconnected where exchanges and professional relationships aimed at optimizing inherent supply chains. It is in this context that "La Via del Latte" has been developed: the definition of a thematic itinerary between municipalities which aims on one side at leading the Piaggine tourism to a rural, wine and culinary setting, offering local dairy products and reinterpreting a pastoral environment in a modern way, creating an economic synergy between rural tourism, research and high education programs, local products marketing and supports for local farmers. The management of the building heritage of the historical village is strongly linked with this enhancement and conservation of the landscape: in fact the project joins the reactivation of rural areas with the organization of a physical space in the town.

The technical base for managing the multiscalarity and multidisciplinary of the project has been provided by GIS tools.

The GIS systems allow territory analysis through different data sources offering a complex vision useful to identify relations between different phenomena and to create development opportunities. Using data from different sources and managing buildings through open and updatable spreadsheets, which includes also volumetric data, the reconstruction of entire villages becomes possible.

The integration of this tool with modelling software has permitted to improve the management of the buildings of the Village. The parameterization process allowed a detailed analysis of each building and an understanding of their volumes and materials. The resulting categorization generated a parametrical model of the village which allowed the automatic measurement of the energy consumption for each building.

Arianna Tanfoni,

[THE TREE.](#)

Keywords: Place, Resilience, Society

If a place can be defined as identity, relational, historical, a space that cannot be defined as identity, relational and historical will define a non-place. Non-places, Marc Augé.

What is a place and when does it stop being? A tree is a vital source for the inhabitants of the forest; it shelters from the sun and the rain, hides the nests among the leaves, offers a safe home. Then the tree gets sick and the animals run away, abandoning it to its fate. A place must be place before it is attractive and comfortable. The city of L'Aquila is like that tree. The psychology of the inhabitants after the earthquake led to an acceptance of the earth-colored plaster on a thermal coat, of a plaster stucco made with a mold and a rejection of contemporary architecture. Due to the disorientation of the workers who had to renovate ancient and prestige buildings with experimental techniques that had never been applied before and the local authorities that wanted a reconstruction as it was and where it was proposing a presumptuous anastylosis, the inhabitants of L'Aquila stopped at the moment just before the tragedy and they find themselves in front of fake buildings like the castles of Disneyland. The few examples of modern architecture in the city have been denied by a large portion of the citizens. The city fails to grow in parallel with the reconstruction of its historic center, which suspends L'Aquila in a non-competitive space-time with other cities in Europe. Ten years after the earthquake happens that the inhabitants are tired of waiting, complain about missed opportunities and delays and no longer believe in life inside the city walls. For many years they have been living an internal conflict suspended between despair and joy. Tourists, university students and foreigners who move to L'Aquila affected by the social fervor that lives in the streets of the historic center, even among construction sites, dust and trucks, remind locals of the strong identity that this city communicates. The reconstruction of the city is having unexpected implications because it's directed not only to the inhabitants of the place, but to the world. It's enjoying an incredible resonance that on the one hand devastates a category of professions and damages economically some ancient local activities, on the other it attracts international personalities, innovation and new forms of research and commerce. If it's true that people make the city it is also true that without the city people have what to do? Where could they

set their lives? A loud voice asks and therefore awaits the return of the historical heritage to give life back. L'Aquila, unlike the tree, however, has not lost its inhabitants, nor its identity, nor the idea of the future because the concept of place has never disappeared. The resilience of the city of L'Aquila, now famous in the world and evident in its motto *immota manet* which means to remain deeply rooted in the earth is precisely this.

Somayeh Zandieh and Vahide Ebrahimnia, Shahid Beheshti University

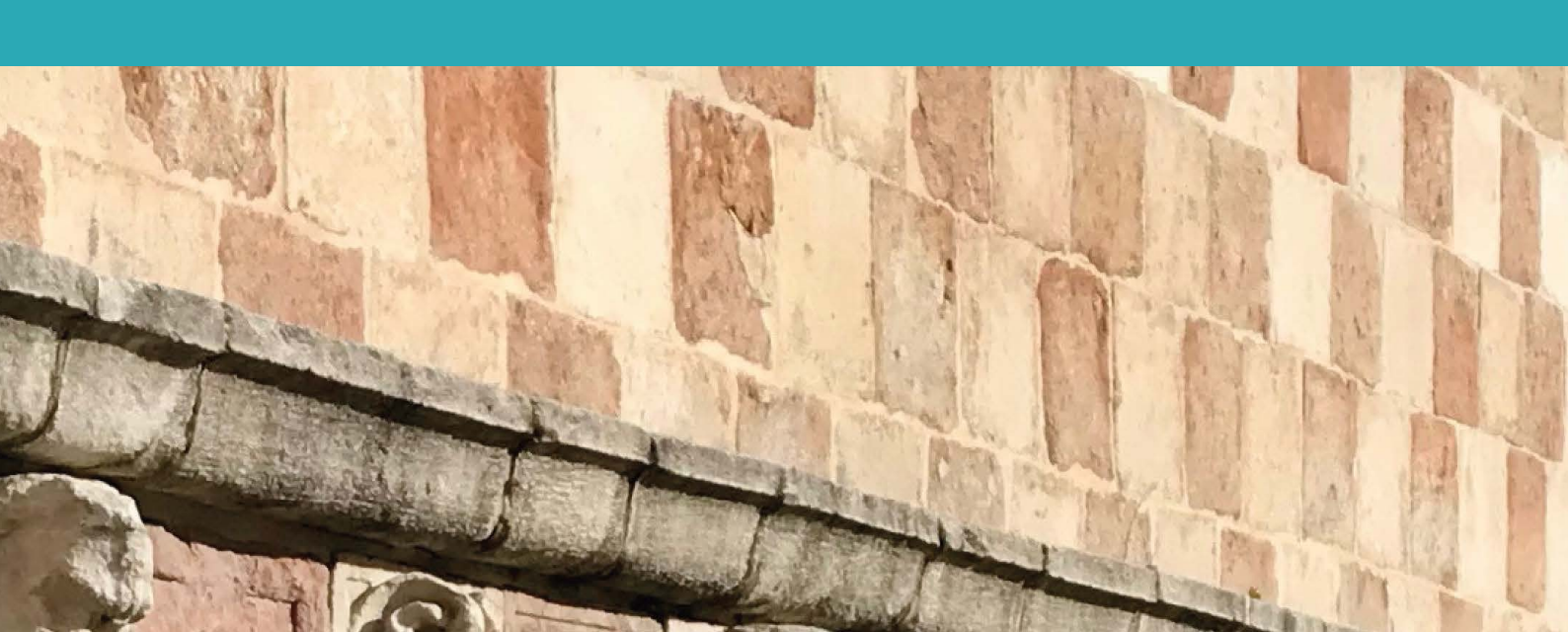
SOCIAL MEDIA IN DISASTER MANAGEMENT: HOW SOCIAL MEDIA IMPACTS THE WORK OF PUBLIC SECTOR ORGANIZATIONS IN DISASTER RESPONSE in Lorestan Floods in Iran

Keywords: Disaster Management, Social Media, Flood Management, Lorestan Floods

Social media can reach to millions within seconds and are one of the most frequently used communication and trust-building tools in pre-, during and post- disaster activities. In the case study of this research, Lorestan Floods March 2019, public sector decision makers and people have used multitudes of mobile based and web based technologies (SMS and blogs) and different social media platforms like Instagram, Facebook, Viber, Whatsapp, Twitter and Youtube for help, mapping and sending status reports, fund raising, donations and gathering volunteers for help. However, some researches doubt if social media will really function well for disaster management because of uncertainty and inaccuracies related to rumors and misinterpretations and pay attention to the potential risks of the use of social media as an avenue of communication during the disaster related responses.

In this context, we have started to analyze data to examine the role of social media in disaster response, focusing on their ability in facilitating the functional needs of interaction involving disaster management agencies and strengthening public trust in government and nongovernment organizations which is vital to the public's willingness to donate and to support those organizations during and after the floods. This research interest emerged from observing challenges of trust in public actions in Iran. Thus, the main goal is to explore whether collective actions via social media could lead to the development of aid communities, and how these operate. The disaster that is examined here as example case are floods with the damage of more than 1.1 billion dollars based on the primitive estimates. 15 people died, 256 were injured, and 72000 houses were destroyed. In addition, some of the outstanding historical sites of Lorestan, including the Kashkan, Ephrin, Kalhor and Poldokhtar bridges and the historical bridge of the Gap have been seriously damaged by these floods. The most important of these injuries was the thrust of the hill of the castle of Falak al-Aflak, which caused the destruction of a part of the western side of the hill where the castle was built.

Findings from the manual monitoring of social media analysis tools reveals that the common function of social media in this case was community engagement and volunteer mobilization, communicating with the public regarding disaster recovery during and after the disaster, and fundraising following the disaster. Moreover, results reflect a general trend towards a strengthened participation of the population in public communication, while disaster response authorities should devote efforts in building the public's trust to ensure that critical information is efficiently disseminated and accessed by people over social media when disaster strikes.



Silk Cities

Silk Cities is an independent academic and professional initiative for contextual knowledge exchange, research and advocacy. The 'Silk Cities' initiative is concerned with contextual urban challenges that historical cities in countries along the historic Silk Roads face within the process of urban transformation, as a result of their historic past. Those most concerned are urban heritage, disaster risk reduction and post crisis reconstruction, urban design and public spaces, community development, as well as urban development management. By using the narrative of the urban Silk Roads we tap on the notions of connectivity and exchange, historical presence that is reflected in city characteristics and urban life, and contextual contemporary challenges. Silk Cities' initial focus area has been these cities in the Middle East and Central Asia.

