emerald PUBLISHING

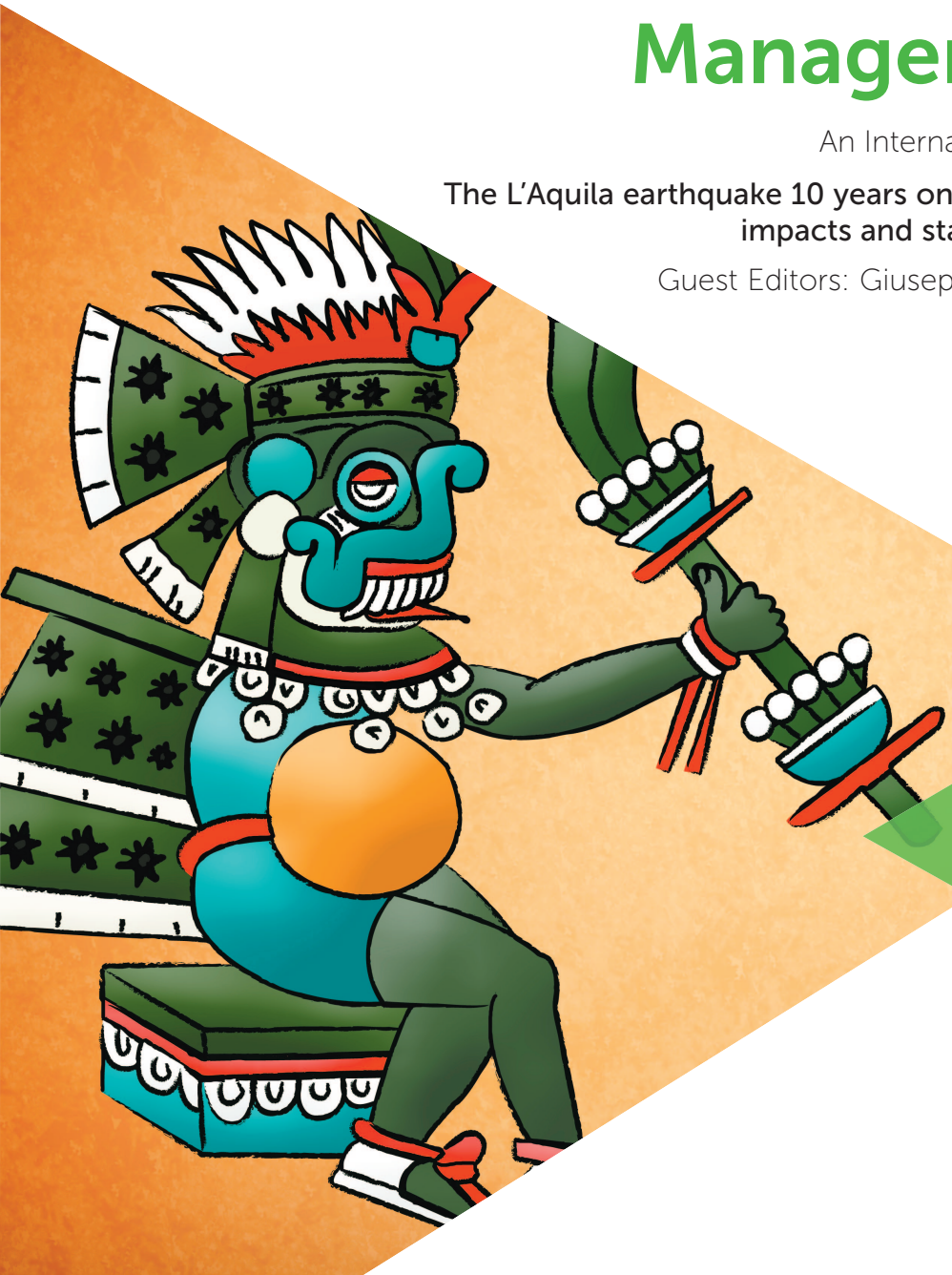
ISSN 0965-3562
Volume **28** Number **4 2019**

Disaster Prevention and Management

An International Journal

The L'Aquila earthquake 10 years on (2009-2019): impacts and state-of-the-art

Guest Editors: Giuseppe Forino and Fabio Carnelli



EDITORIAL ADVISORY BOARD

Disaster Prevention and Management
Vol. 28 No. 4, 2019
p. 413

0965-3562

Guest editorial

Introduction to the special issue "The L'Aquila earthquake 10 years on (2009-2019): impacts and state-of-the-art"

L'Aquila's earthquake in April 2009 provoked damage and loss to people, communities, the economy and the environment. Since then, several works have adopted a human and social science perspective (e.g. Carnelli *et al.*, 2016) to unpack different aspects of the emergency and recovery of L'Aquila and nearby areas. This earthquake gave rise to a new generation of Italian scholars embracing this kind of perspective on risk and disaster studies (Benadusi, 2015; Carnelli *et al.*, 2016). We, as guest editors of this special issue of *Disaster Prevention and Management: an International Journal*, argue that 10 years after the earthquake, there is still need – and perhaps now more than ever – to talk and reflect about it, for at least three main reasons.

First, the aftermath of the L'Aquila earthquake has revealed the potential for analysing disasters from a political angle (Pelling and Dill, 2010). This allows us to reflect on the event as a political issue, and to move strong critiques of the post-disaster state intervention by openly talking about the failure of the nation-state as representation of liberal democracy (Valent, 2018; Forino, Carnelli, Ventura and Tomassi, 2019; Forino, Carnelli, Ventura and Valent, 2019). Bock (2017) argued that the Italian government (the state), after the event, generated a sense of hope by bringing mass-media in the affected areas and rhetorically claiming "we will never leave you alone", "we are with you", "never more these tragedies!", "housing for all as soon as possible". A few years later, when it was realized that all these promises had not come to fruition, this hope was replaced by a sense of uncertainty. From an agent of hope, the state became therefore a source of hopelessness and uncertainty, fostering a sense of crisis (Bock, 2017) and undetermined displacement (Alexander, 2013; Carnelli, 2012). Despite the huge amount of funds allocated to emergency management (Ventura, 2010), the state intervention in the L'Aquila aftermath was a "second earthquake" (Bock, 2017)[1] that has consequences even today on the everyday life of thousands of citizens that had to regain and reshape their emotions and habits around endless scaffolding, rubble, off-limits zones and work in progress. Instead of being "simply" a crisis induced by a natural hazard, the crisis is essentially a political matter, where inaction and/or neoliberal strategies (Barrios, 2011, 2017), elephantiasic bureaucracy and the corruption of the state and its institutions are deeply intertwined. On this regard, this issue will move critique to the ways the Italian government managed the disaster and will reveal the rhetoric of institutions and of powerful actors, both within and outside the institutions.

Second, we argue that what occurred in L'Aquila in these years can be found in other disaster aftermaths across Italy. We can say that it is possible to identify structural patterns of post-disaster recovery's impacts that are reproduced on the affected areas in different forms and at different levels (Bonati *et al.*, 2019). Existing literature (Alexander, 2010, 2013) revealed that L'Aquila recovery presents unique characteristics, particularly in relation to the temporary housing solutions becoming permanent and the economic costs of emergency management (Ventura, 2010). However, we argue that what occurred in L'Aquila can be found in other recovery experiences, particularly post-earthquakes, after 2009 (http://periferiesurbanes.org/?p=7884&lang=en). For example, after the earthquakes in the Emilia Romagna region in 2012, Pitzalis demonstrated that a similar top-down governance pattern was applied, totally excluding bottom-up initiatives and local participation in the name of an "emergency paradigm" (Pitzalis, 2015). In a similar vein, the activists/research group Emidio Di Treviri (2018) demonstrated that temporary housing solutions after the

Disaster Prevention and Management
Vol. 28 No. 4, 2019
pp. 414-418

0965-3562
DOI 10.1108/DPM-08-2019-394

earthquakes occurred in Central Italy between 2016 and 2017 did already show a large potential to be permanent, while urban deregulation is increasing socio-spatial fragmentation and driving inequalities, depopulation and the potential loss of entire communities. In this way, this issue will provide useful information to be compared against other case studies in Italy and worldwide.

Third, as a consequence of the first two reasons, L'Aquila is a relevant case study for worldwide disaster studies. We claim that understanding what happened in the L'Aquila aftermath represents a robust background for (but not limited to) disaster scholars aiming to interpreting the medium-long term impacts of post-disaster recovery on society and built environment. Indeed, Italy is not the only country where post-disaster recovery tends to be affected by bottlenecks, delays and corruption. However, it cannot be denied that Italy also represents a country where the long-term tangible and intangible impacts of recovery and reconstruction shape society, economy and built environment of affected areas along decades after the event (e.g. Guidoboni and Valensise, 2011). In this regard, paradigmatic is the case of Messina (in the Southern Italy region of Sicily), for which a very recent book by Farinella and Saitta (2019)[2] has revealed the 100 years old mechanisms linking the current socio-economic inequalities of the city with the consequences of reconstruction following the earthquake (and tsunami) in 1908. In this way, we argue that changes occurred into society and built environment of L'Aquila in these 10 years can support an understanding of the city as it is now and as it will be in the near and far future. In this way, this issue shows the potential for disaster recovery in L'Aquila to become a landmark for the city next years (or decades) ahead.

As a consequence of the aforementioned reasons and based on the most recent disaster risk reduction (DRR) literature (Oliver-Smith *et al.*, 2016; Gaillard, 2019; Kelman, 2019), it is clear how "disasters are caused by society and societal processes, forming and perpetuating vulnerabilities through activities, attitudes, behaviour, decisions, paradigms, and value" (Kelman, 2019, p. 1). To the extent to which we need to address DRR issues at global level we have to, as researchers, understand local ontologies and epistemologies (Gaillard, 2019), acquiring a long-term view on local contexts. Contrary to the representation given by media, policy discourse and even research (Oliver-Smith *et al.*, 2016), disasters are not unexpected events, rather, long-term processes to be understood through in-depth studies to untangle the "competing and contradictory" forms of knowledge (Simpson, 2013) that forge social-ecological complexities, especially during and after the process. Ideally, research should be undertaken before the (visible) triggering event(s), but this usually happens by accident (e.g. Simpson, 2013).

Further to its significance in theory and practice, it is important to underline that the SI is interdisciplinary by nature, and draws on a range of anthropologists, urban planners, sociologists, psychologists, disaster scholars, geographers and philosophers that along these years have worked on unpacking multiple issues in L'Aquila and nearby areas. All the papers have developed an original perspective to approach, interpret and present the current situation in L'Aquila, making an attempt to link this situation to what occurred in the past 10 years and also making efforts to understand which the future can be.

David E. Alexander proposes a critical examination of the aftermath in L'Aquila, by identifying and explaining the most important characteristics of the recovery and reconstruction process with an integrated perspective. He analysed the vulnerabilities and exposure factors – including root causes and past and present unsafe conditions – that turned a relatively moderate seismic event into a long-term disaster. In terms of lessons learned, he clearly shows how the political context can have bad, long term, irrational social, economic, urban consequences – unique examples are the CASE projects, temporary settlements became permanent so permanently slowing a planned reconstruction, and the nature of legal proceedings following the earthquake. His considerations are then intertwined to common patterns of risk and disaster management in Italy.

Angelo Jonas Imperiale and Frank Vanclay provide an original reflection on the L'Aquila trial of scientists from a DRR perspective. Through a document analysis of trial materials and related commentaries, they argue that disaster governance in L'Aquila was not aligned to international DRR guidelines, such as the Hyogo Framework for Action and the replacing Sendai Framework for DRR. In addition, local communities and knowledges were excluded from the recovery process, so amplifying local vulnerabilities and risks.

Gianmaria Valent reflects on the concept of violence as resulting from the territorial fragmentation of post-disaster L'Aquila. Accordingly, he argues that the recovery in L'Aquila was a violent phenomenon driven by the authoritarian governance regime and supporting legislation during the emergency. In particular, he focusses on the territorial organisation deriving from the authoritarian governance under the Mixed Operative Centres (Centri Operativi Misti) of the Italian Civil Protection and on the CASE Project. In this way, the way the emergency was managed led to long-term socio-urban changes.

Grazia Di Giovanni and Lorenzo Chelleri apply and explore the concept of build back better (BBB) in L'Aquila in a context of depopulation and shrinking economy. In particular, they test whether BBB principles can contribute to driving the recovery pattern towards a sustainable redevelopment. They found that the recovery process revealed several shortcomings in the application of BBB principles, mainly due to a lack of addressing pre-disaster socio-economic stresses related to a shrinking economy.

Giorgios Koukoufikis critically investigates the mismatch between reality and expectations of the "knowledge city" concept, that the local research centre Gran Sasso Science Institute, supported by OECD, adopted as a spatial imaginary for L'Aquila to frame its reconstruction and promote its socio-economic redevelopment. The Author finds that the "knowledge city" concept promoted a vision of the city that was unfeasible due to the lack of specific urban qualities and positive economic trends to attract and maintain highly skilled labour and investments.

Teresa Galanti and Michela Cortini analyse the use of work by female workers in L'Aquila as a recovery factor to the earthquake. By drawing on a series of focus groups with a range of female workers, the authors explore how work offered a possibility to rebuild and reshape women's personal and professional identity.

Rita Ciccaglione uses a street ethnography technique to investigate the conflictual relationships between neoliberal institutional management and practices and discourses of inhabitants, administrators, experts and commercial operators. In this way, the author is able to highlight the existing differences between institutional resilience strategies and resisting local tactics by people and their dwelling practices.

Finally, Isabella Tomassi and Giuseppe Forino explored the reasons why the community of a self-built ecovillage (EcoVillaggio Autocostruito) spontaneously born after the L'Aquila earthquake in 2009 dissolved in 2014 after deep changes within the community. By using a self-ethnography method, the authors found that community-building goals (such as self-construction, sustainability, mutuality and reciprocity relationships) were replaced by an increasingly centralised decision-making process, and in individual and community conflicts and contrasts.

We warmly thank all the authors who contributed to this special issue for their constructive and mutual knowledge exchange. We extend our thanks to all the anonymous reviewers who gave their availability to provide timely and constructive comments and to ensure an effective peer-review process for increasing the quality of all the papers. In addition, the issue would have never been possible without the guidance of JC Gaillard and Emmanuel Luna, Editors of *Disaster Prevention and Management: An International Journal*, and we thank them for their support throughout these two years. We also thank the Emerald Publishing staff, who have been key in providing their kind assistance along with all the editorial steps.

We hope that the issue as a whole, and every single paper of it, can represent a milestone towards a better understanding of the L'Aquila earthquake and the post-disaster recovery praxis in Italy. We also hope further research, not limited to Italy, will build upon the contents presented here.

Giuseppe Forino
University of Newcastle, Callaghan, Australia, and
Fabio Carnelli
University of Milan-Bicocca, Milano, Italy

Notes

1. See also Bristol (2010), who defined a "second tsunami" the land grabbing after the tsunami (2004) in the Indian Ocean.
2. See also previous works (e.g. Saitta, 2013).

References

Alexander, D. (2013), "An evaluation of medium-term recovery processes after the 6 April 2009 earthquake in L'Aquila, Central Italy", *Environmental Hazards*, Vol. 12 No. 1, pp. 60-73.

Alexander, D.E. (2010), "The L'Aquila earthquake of 6 April 2009 and Italian Government policy on disaster response", *Journal of Natural Resources Policy Research*, Vol. 2 No. 4, pp. 325-342.

Barrios, R.E. (2011), "'If you did not grow up here, you cannot appreciate living here': neoliberalism, space-time, and AFFECT in Post-Katrina recovery planning", *Human Organization*, Vol. 70 No. 2, pp. 118-127.

Barrios, R.E. (2017), *Governing Affect: Neoliberalism and Disaster Reconstruction*, University of Nebraska Press.

Benadusi, M. (2015), "Antropologia dei disastri. Ricerca, attivismo, applicazione. Un'introduzione", *Antropologia Pubblica*, Vol. 1 No. 1, pp. 33-60.

Bock, J.J. (2017), "The second earthquake: how the Italian state generated hope and uncertainty in post-disaster L'Aquila", *Journal of the Royal Anthropological Institute*, Vol. 23 No. 1, pp. 61-80.

Bonati, S., Forino, G. and Valent, G. (2019), "Patterns of structural violence recovering after four major earthquakes in Italy (2009-2019)", presentation at i-Rec2019, Gainesville, FL, available at: www.researchgate.net/publication/334164548_Patterns_of_structural_violence_recovering_after_four_major_earthquakes_in_Italy_2009-2019

Bristol, G. (2010), "Surviving the second tsunami: land rights in the face of buffer zones, land grabs and development", in Lizarralde, G., Johnson, C. and Davidson, C. (Eds), *Rebuilding After Disasters: From Emergency to Sustainability*, Routledge, London, pp. 133-148.

Carnelli, F. (2012), "Istantanee etnografiche post-sismiche da Paganica", in Calandra, L.M. (Ed.), *Territorio e democrazia. Un laboratorio di geografia sociale nel doposisma aquilano*, L'Una Editrice, L'Aquila, pp. 139-164.

Carnelli, F., Forino, G. and Zizzari, S. (2016), "L'Aquila 2009-2016: the earthquake in the Italian social sciences", *Sociologia Urbana E Rurale*, Vol. 111 No. 2016, pp. 111-114.

Emidio Di Treviri (2018), *Sul fronte del sisma: un'inchiesta militante sul post-terremoto dell'Appennino centrale, 2016-2017*, DeriveApprodi, Roma.

Farinella, D. and Saitta, P. (2019), *The Endless Reconstruction and Modern Disasters: The Management of Urban Space through an Earthquake – Messina, 1908-2018*, Palgrave.

Forino, G., Carnelli, F., Ventura, S. and Tomassi, I. (2019), "Il decennale del terremoto dell'Aquila: la politica dell'autocostruzione. Sei domande a Isabella Tomassi, filosofa aquilana", Lavoro Culturale, available at: www.lavoroculturale.org/il-decennale-del-terremoto-dellaquila-la-politica-dellautocostruzione/ (accessed 3 May 2019).

Forino, G., Carnelli, F., Ventura, S. and Valent, G.M. (2019), "Il decennale del terremoto dell'Aquila: una violenta riconfigurazione territoriale", Lavoro Culturale, available at: www.lavoroculturale.org/il-decennale-del-terremoto-dellaquila-una-violenta-riconfigurazione-territoriale/ (accessed 10 May 2019).

Gaillard, J.C. (2019), "Power, prestige & forgotten values: a disaster studies manifesto", Ipetitions, available at: www.ipetitions.com/petition/power-prestige-forgotten-values-a-disaster (accessed 8 July 2019).

Guidoboni, E. and Valensise, G. (2011), *Il peso economico e sociale dei disastri sismici in Italia negli ultimi 150 anni*, Bononia University Press.

Kelman, I. (2019), "Axioms and actions for preventing disasters", *Progress in Disaster Science*, Vol. 2, pp. 1-3.

Oliver-Smith, A., Alcántara-Ayala, I., Burton, I. and Lavell, A.M. (2016), "Forensic Investigations of Disasters (FORIN): a conceptual framework and guide to research", IRDR FORIN Publication No. 2, Integrated Research on Disaster Risk, Beijing.

Pelling, M. and Dill, K. (2010), "Disaster politics: tipping points for change in the adaptation of sociopolitical regimes", *Progress in Human Geography*, Vol. 34 No. 1, pp. 21-37.

Pitzalis, S. (2015), "Positioning as a method: the earthquake in Emilia Romagna and the forms of 'exilience' ", *Archivio Antropologico Mediterraneo*, Vol. 17 No. 1, pp. 29-40.

Saitta, P. (2013), *Quota zero. Messina dopo il terremoto: la ricostruzione infinita*, Donzelli, Roma.

Simpson, E. (2013), *The Political Biography of an Earthquake: Aftermath and Amnesia in Gujarat, India*, Hurst.

Valent, G.M. (2018), "Disaster governance and democracy: meta-legal Praxis in L'Aquila (Italy)", in Forino, G., Bonati, S. and Calandra, L.M. (Eds), *Governance of Risk, Hazards and Disasters*, Routledge, pp. 107-124.

Ventura, S. (2010), "Trent'anni di terremoti italiani. Un 'analisi comparata sulla gestione delle emergenze", in Osservatorio sul Doposisma (Ed.), *Le Macerie Invisibili: Rapporto 2010*, pp. 19-86.

L'Aquila, central Italy, and the "disaster cycle", 2009-2017

David E. Alexander
Institute for Risk and Disaster Reduction, University College London, London, UK

Received 19 January 2018
Revised 30 April 2018
27 June 2018
2 July 2018
Accepted 2 July 2018

Abstract

Purpose – The purpose of this paper is to offer a critical examination of the aftermath of the L'Aquila earthquake of 6 April 2009. It considers the elements of the recovery process that are unique or exceptional and endeavours to explain them.
Design/methodology/approach – The analysis is based on a survey and synthesis of the abundant literature on the disaster, coupled with observations from the author's many visits to L'Aquila and personal involvement in the debates on the questions raised during the aftermath.
Findings – Several aspects of the disaster are unique. These include the use of large, well-appointed buildings as temporary accommodation and the efforts to use legal processes to obtain justice for alleged mismanagement of both the early emergency situation and faults in the recovery process.
Research limitations/implications – Politics, history, economics and geography have conspired to make the L'Aquila disaster and its aftermath a multi-layered event that poses considerable challenges of interpretation.
Practical implications – The L'Aquila case teaches first that moderate seismic events can entail a long and difficult process of recovery if the initial vulnerability is high. Second, for processes of recovery to be rational, they need to be safeguarded against the effects of political expediency and bureaucratic delay.
Social implications – Many survivors of the L'Aquila disaster have been hostages to fortune, victims as much of broader political and socio-economic forces than of the earthquake itself.
Originality/value – Although there are now many published analyses of the L'Aquila disaster, as the better part of a decade has elapsed since the event, there is value in taking stock and making a critical assessment of developments. The context of this disaster is dynamic and extraordinarily sophisticated, and it provides the key to interpretation of developments that otherwise would probably seem illogical.

Keywords Post-disaster reconstruction, Disaster cycle, Earthquake disaster, L'Aquila (Italy), Legal implications of disaster, Recovery from disaster, Shelter after disaster

Paper type Research paper

Introduction

The magnitude 6.3 tremors that struck the city of L'Aquila (Figure 1) on 6 April 2009 killed 308 people, seriously injured 202 and left 67,500 homeless by damaging at least 30,000 dwellings (Alexander, 2010). The disaster offers a good example of what a medium power earthquake can do in an area of high vulnerability. It also provides a useful case history to examine the processes of recovery in an area that is not economically vibrant or strategically of great importance.

L'Aquila (population 69,600[1]) is a historic city and university centre situated in a mountain basin about 100 km northeast of Rome. It is the administrative capital of Abruzzo, a predominantly rural region 10,763 sq. km in size. Hence, the principal functions of L'Aquila are in learning, public administration and the provision of services to a province and region that are largely composed of mountains. The coast-lands of Abruzzo are more economically vibrant, but are separated from L'Aquila by Gran Sasso, the highest mountain in peninsular Italy: they tend to derive their connections from coastal metropolises, not the internal hinterland.

Erratum: It has been brought to the attention of the publisher that the article "L'Aquila, central Italy, and the 'disaster cycle', 2009-2017", David E. Alexander (2019), published in Disaster Prevention and Management: An International Journal Vol. 28 No. 2 was published ahead of the intended special issue due to an editorial error. The article has now been removed from Disaster Prevention and Management: An International Journal 28.2 and will instead be published in an upcoming special issue. Emerald sincerely apologises to the authors for any inconvenience caused.

Disaster Prevention and Management
Vol. 28 No. 4, 2019
pp. 419-433

0965-3562
DOI 10.1108/DPM-01-2018-0022

Figure 1.
L'Aquila and Abruzzo region: location map

This paper will follow the progress of the L'Aquila earthquake disaster using as a frame of reference the "disaster cycle": mitigation, preparedness, emergency intervention, recovery and reconstruction.

The origin of the "disaster cycle" appears to lie in the theoretical work of Carr (1932) and his use of a "sequence-pattern concept" to classify the phases of early twentieth century disasters. The cycle is widely appreciated for its ability to put concepts and actions into a time sequence in relation to each other. Indeed, Drabek (1986) used the cycle as the basis for his well-known compendium of sociological findings about disaster. Neal (1997) re-evaluated the concept and provided both an academic and a practical critique. Not all disasters are cyclical, and not all phases occur strictly in sequence, he noted. Moreover, perception of the duration and strength of the phases could vary considerably among the participants. Finally, Richardson (2005) showed that in many disasters there are multiple interpretations of what the phases actually mean. Despite this, the disaster cycle model is still widely used, probably because it is a convenient and robust model, even though it clearly has limitations.

When earthquakes occur, the shaking is often over within one minute. However, this paper will show how the disaster can extend over years or decades. The epochs before 2009 hold the key to the question of why the L'Aquila area manifests very high vulnerability to earthquakes. The case of L'Aquila underlines the centrality of time as the "backbone of disaster" and once again highlights the need to study context and history, including current developing history, if one is to understand why moderate seismic shaking can lead to immoderate suffering.

Before the event: L'Aquila and the creation of vulnerability to earthquakes

There is a strong relationship between the strength of anti-seismic building codes and the cost of measures designed to ensure that buildings resist earthquakes (Stucchi *et al.*, 2011). Consistently since 1915, the city and municipality of L'Aquila have been placed in the "moderate seismicity" category, despite the fact that the core of the central Apennines is recognised to be highly seismic. Either this has represented the failure of probabilistic

seismic hazard analysis to portray the situation accurately (Castaños and Lomnitz, 2002) or, quite possibly, it betokens a deliberate move to reduce the costs of construction in L'Aquila city by imposing a lighter regime – and thus putting residents at risk of structural collapse in earthquakes. In either case, it represents legislative inertia with respect to scientific knowledge of hazard (Meletti and Stucchi, 2009). The main building boom that led to the expansion of the urban area of L'Aquila occurred from the 1960s to the 1980s. Building codes were less stringent in this period than they are now, and especially so as building in L'Aquila was not subject to the highest category of restrictions.

One important question is the extent to which damage may have been offset by good preparedness for emergency response, at least in terms of saving lives and reducing injuries. Following the passing of a national law (No. 225 of 1992) which set up the Italian civil protection system, Abruzzo Regional Law No. 72 of 1993 obliged the region to produce an emergency plan and organise civil protection services. In this legal instrument there is no direct reference to the need for municipalities to have plans, and, indeed, a fully fledged emergency plan did not emerge in L'Aquila city until February 2015 (Comune dell'Aquila, 2015). Although the Italian civil protection system is well developed (OECD, 2010) it is very top-down and in the 2009 earthquake it had to compensate for the weakness of the local, provincial and regional systems.

Where planning is weak or absent, procedures are invoked. In L'Aquila the promptness of the nationally co-ordinated convergence reaction effectively saved the day during the early emergency. Medivac, or helicopter evacuation of the injured (mostly to hospitals in towns on the Adriatic coast, compensated for severe damage to the regional hospital in L'Aquila (Casarotti *et al.*, 2009). Two field hospitals were set up, one in a record 23 hours 30min, but as with field hospitals in other disasters (Von Schreeb *et al.*, 2008), they provided continuity of routine care rather than emergency medical surge capacity, as the surge had been dealt with once they were operational.

I now turn to the immediate and short-term post-impact phases and their consequences during the years after the earthquake.

From disaster response to early resettlement

In the 2009 L'Aquila earthquake, more people died in the collapse of reinforced concrete buildings than died in stone masonry ones, including buildings that predated the twentieth century (Alexander and Magni, 2013). Many of the buildings that suffered total or partial collapse were condominia four to six storeys high constructed in the 1960s or early 1970s. The prevalence of poor quality concrete, smooth reinforcing bars and bad design of column-beam junctions was evident. As a result, these buildings tended to have weak frames. The combination of basal acceleration and inertia at the top of the structure meant that mid-floor failure, either in total or incipient form, was prevalent wherever such buildings were concentrated (Plate 1). A historical building stock is vulnerable to earthquake damage almost by definition: that its vulnerability should be exceeded by that of a modern reinforced concrete building stock is exceptional.

One fundamental problem that was hardly tackled at all during the recovery phase was that of employment and livelihoods. During the year of the earthquake, some 16,000 jobs were lost in the Province of L'Aquila, many of them as a result of the disaster (Miraudo, 2010). Women were affected more than men were. Little was done to restore activities. The commercial life of the city depended to a certain extent on the activities of small enterprises, such as the offices of dentists, tax consultants, architects and so on, as well as on small independently owned shops and restaurants. After the earthquake such activities were moribund because of the lack of accommodation. Much of the commerce of L'Aquila depended on large enterprises, such as supermarkets and hypermarkets, located in the hinterland. L'Aquila is an economic backwater with very little industry and restricted

Plate 1.
An example of incipient mid-floor failure in L'Aquila city

Source: photo: author

commerce, but the post-earthquake situation was not used as an opportunity to relaunch its flagging economy. It has, however, slowly rebounded in terms of employment, although not in terms of rising incomes (Cellini *et al.*, 2017).

The overwhelming emphasis in the recovery phase was on the provision of temporary housing, at the expense of supporting employment and livelihoods. An exception can possibly be made for the University of L'Aquila, the city's leading enterprise. The university was housed in a wide variety of ancient, old and modern buildings distributed across the city and its environs. Suspension of tuition fees and the ingenious use of temporary accommodation (from tents to warehouses) saved the institution from closure and ensured continuity of its activities. Magni *et al.* (2017) have listed and explained the measures taken by the university to restore its activities after the earthquake. In addition, academics from the university have carried out much research on the situation in L'Aquila, in fields ranging from geology and seismology to psychology and public health (e.g. Cofini *et al.*, 2015). Similar measures have been applied to ensure the survival and health of the school system.

Emergency response: the trial of the "L'Aquila seven" – a retrospection

Italian Law 225 of 1992, which established the national civil protection system, also created the *Commissione Nazionale per la Previsione e la Prevenzione dei Grandi Rischi* (National Commission for the Prediction and Prevention of Major Risks). The Commission was intended to link the scientific community to the Department of Civil Protection. Its role was to provide advice and guidance on scientific matters.

In late March 2009, Giampaolo Giuliani, an amateur earthquake Scientist, observed large increases in radon emissions in the L'Aquila area. He informed the authorities that a major earthquake was possible, perhaps in the vicinity of Sulmona, 50 km southeast of L'Aquila, in the last week of March 2009. The information was leaked to the public and

caused widespread disquiet. As a result of the unrest, and of a magnitude 4 tremor that occurred on 30 March, the Major Risks Commission was convened in L'Aquila on 31 March. At this meeting it was stated categorically that there was no reason to become alarmed at the progress of the prevailing earthquake swarm, as seismic energy was being released in small increments. A major tremor was not possible. Six days later, the devastating earthquake occurred (Giuliani, 2009).

On 2 June 2010 seven members of the national Major Risks Commission were indicted for multiple manslaughter on the basis of statements made and disseminated to the Abruzzan public. The trial lasted three months and led, in October 2012, to the condemnation of all seven defendants, but three years later they were, with one exception, exonerated at the second stage of appeal.

The case for the prosecution was prepared meticulously (Billi, 2017), but it inevitably had weaknesses. The greatest of these was the need to prove that the statements made by the Commission led directly to the death of local citizens. Close relatives of 29 people who died in the earthquake constituted the plaintiffs and the circumstances of the deaths of their family members were very carefully investigated. The Commission had an advisory role, but its advice carried enough weight to form the basis of policy. Categorical statements about the absence of a main shock could be regarded as somewhat reckless in the light of local precedents: the earthquake swarm of 1,703 included a main shock that killed 6,000 people in L'Aquila and surrounding towns. Although only three of 23 historical seismic sequences in the area involved a damaging or devastating main shock, such an event could not be ruled out (Amato and Ciaccio, 2011).

Much has been written and published about the L'Aquila trial (e.g. Scolobig *et al.*, 2014; Alemanno and Lauta, 2014), including books by the amateur earthquake scientist (Giuliani, 2009), the leading Magistrate for the prosecution, avv. Billi (2017) and his Scientific Adviser, Dr Antonello Ciccozzi, an Anthropologist from the University of L'Aquila (Ciccozzi, 2013). The L'Aquila trial, notorious as it was, became one of the most talked about events in science for decades. In the welter of claim and counter claim, the first casualty was probably the truth of the matter. Many misconceptions appeared, in some instances because the writers had a cause to further (Boschi, 2014; Stucchi, 2014) and in others because of a failure to understand the context in which the trial occurred (Yeo, 2014).

The L'Aquila trial was a bold attempt to create accountability out of a vacuum. It was also a manifestation of the independence of the judiciary, which at the time was greatly under attack by Prime Minister Berlusconi, whose personal affairs were the subject of much legal activity (Alexander, 2014; Dallara, 2015). The success or failure of the trial was probably secondary to its symbolic value in endeavouring to demonstrate to the Italian establishment that it could not operate with impunity in conditions of questionable legality. In this respect, the trial should probably not be analysed without bearing in mind some of the other legal initiatives connected with civil protection (Alexander, 2013, p. 66), and the prevailing level of public indignation over scandals associated with the misappropriation of funds (Sargiacomo *et al.*, 2015).

The National Major Risks Commission continued to operate during and after the trial, although initially the Italian Government had to use legal powers of coercion to induce anyone to be part of it. In 2012 it gave advice during an earthquake swarm in the Pollino, an area of the southern Apennines, and in August 2017 it was active during a volcanically induced earthquake on the Neapolitan island of Ischia. It also met repeatedly during the train of seismic events that occurred in the central Apennines from August 2016 to January 2017 (DPC, 2017). In all such cases the Commission has behaved impeccably, with prudence and due regard for the facts, which demonstrates that this could have been the case in March 2009.

The trial, and the intense debate that surrounded it, formed a constant backdrop to events at L'Aquila after the 2009 earthquake. There were other developments that were also very unusual, compared to recovery from previous disasters in Italy and elsewhere, as the following section shows.

Recovery: *Complessi Antisismici Sostenibili ed Ecocompatibili* (CASE) – the permanence of the temporary

One element that makes the L'Aquila earthquake quite unique is the programme to rehouse 14,462 homeless Aquilani in the CASE (Calandra, 2012). These involved 19 new settlements that varied in size from a handful of dwellings to housing for 2,500 people. Only one of these so-called "new towns" was located in L'Aquila itself, while the others were constructed on farmland and conservation land within a 17 km radius of the city. Hence, the accessibility of the settlements varied substantially. The CASE buildings are three storeys high and each one is built upon an 18 by 54-metre concrete raft half a metre thick, located on 40 steel columns topped with ball-and-cushion (pendulum) seismic base isolators. Hence, the superstructure, of steel frame and wood infill, is not designed to be anti-seismic, given that it should be isolated from severe displacement by the arrangements beneath the base plate (Marioni, 2009).

The 185 buildings that comprised the CASE project were built to seven pre-prepared designs and collectively house 4,600 small apartments. According to Italian Government data, the average cost per apartment was €280,607, of which about one third pertained to the structure while the remaining two thirds covered the urbanisation and logistics (Calvi and Spaziante, 2009). Some 43 per cent of the funding came from European Union structural funds, and a report by the European Court of Auditors in Strasbourg was severely critical of the way that the money was used, although it failed to uncover evidence of fraud (European Court of Auditors, 2012).

Fraud was nevertheless identified. Alga SpA of Milan furnished 4,896 isolators (two thirds of the total) to 14 of the 19 CASE sites. Approximately 200 isolators were judged to be defective, owing to the substitution of an inferior polyethylene coating called "Hotslide", which was also missing legally required certification. Moreover, the required protection of the seismic cushions against dust and humidity was lacking. Testing at laboratories in Alessandria and Turin in Italy and San Diego in the USA confirmed that the performance of isolators coated with Hotslide was unacceptable. This led to the prosecution of two public officials responsible for the CASE project and the managing director of Alga (which went into receivership in 2013). After the initial success of the prosecution, in 2016 one official was cleared of responsibility and the other two defendants were later absolved by statute of limitations. The outcome of this unfortunate episode is that the seismic performance of the CASE buildings cannot be guaranteed and the occupants are therefore threatened by possible structural collapse.

In retrospect, the CASE project was a grandiose failure, and destined to be so right from its conception. Excessively expensive, the 19 extensive housing complexes had no planned long-term future, nor were they built to last. They were isolated and deprived of services, and, as a result, psychological problems abounded among their inhabitants (Cofini *et al.*, 2015). Clearly, accommodation had to be found for tens of thousands of homeless survivors, but how? A parallel project denominated *Moduli Abitativi Provvisori* (MAP) (– "temporary living modules") furnished accommodation for 7,500 residents and embodied the evolution of the Italian conception of post-disaster shelter (Félix *et al.*, 2015). Smaller dwellings could be built in enclaves as well as major urbanised parks and hence the deployment of the MAP units was more flexible.

Reconstruction: delays upon delays

Besides the issue of temporary shelter, the process of reconstructing L'Aquila and its satellite towns was characterised by inertia and delay. Some of the tardiness can be explained by the fact that L'Aquila is an economic backwater and thus of little strategic importance to the national economy. Moreover, other earthquakes supervened, notably in Emilia-Romagna in 2012, and distracted the national consciousness. Constraints upon the

exchequer associated with the banking crisis and national debt took the impetus away from reconstruction, and the slowness of legislative and bureaucratic measures probably accounted for the rest of the delay.

Year after year the centre of the historic city remained an interdicted zone, initially presided over by soldiers and paramilitary forestry police, and later enclosed by locked gates. As weeds grew on the rubble and abandoned buildings, so it emerged that there were three main problems with the process of reconstruction. The first was one of bureaucratic delay, occasioned in part by the reluctance of central government to fund the recovery process. It seemed that the available momentum was expended on the temporary settlements, rather than what was to follow them. A tour of the city and surrounding towns and villages eight years after the disaster confirms this sensation, as there is a marked absence of life and vitality. In part this reflected a desire to avoid the involvement of organised crime in the process. As has been widely noted, concrete is the basis of criminal syndicates (Savona, 2010). The construction industry is often the first to be infiltrated and co-opted and the most susceptible to corrupt influences.

Government in Italy is routinely beset by economic problems and is usually in a fiscal straitjacket. This alone furnishes a good excuse for slowing down expenditure on earthquake aftermaths, of which there have been many. An allied reason is the sheer complexity of the process of bringing a wide zone of interconnected urban areas back to functionality and health.

Reconstruction: the source of complexity

There remains a problem about what would be the best way to reconstruct a complex urban environment characterised by a mixture of modern, old and ancient buildings, multiple ownership, a variety of different functions and uses, and heterogeneous states of damage and maintenance. The solution employed in L'Aquila does involve comprehensive planning, but has led to a piecemeal result, which was described by Contreras *et al.* (2014) as "deflated" but not "stagnated".

A tour of central L'Aquila seven years after the earthquake showed healthy signs of reconstruction activity, but it also revealed how moribund the city had become. The same was true of the satellite towns such as San Gregorio, Villa Sant'Angelo and Poggio Picenze. A typical street would contain a mixture of reconstructed and reoccupied buildings, reconstructed buildings that had not yet been reoccupied, buildings under repair, buildings that had been shored up, and possibly covered with scaffolding, for which there was no sign of activity, buildings left in a state of ruin, and plots that had been cleared of the rubble of collapsed buildings (Plate 2). In order to restrict access to construction sites, the street would be partly cordoned off by fencing. However, in many cases it was difficult to tell on which side of the fence the interdiction zone lay.

A related problem was the quality of the infrastructure. L'Aquila is served by a cross-Apennine motorway that was built robustly enough to survive the earthquake fairly well and remain operational. It has a minor branch railway line that follows the Aterno River valley and has a station at the bottom of the hill outside the limits of the city proper. The main road along the valley proved to be a hindrance to the movement of people and goods and was not upgraded for some years after the earthquake. Shortly before the earthquake, attempts to give the city a light railway metro system failed on technical grounds and were abandoned (Baglioni, 2016). Moreover, the regional hospital was severely damaged and was taken out of service immediately after the earthquake and only reoccupied on a piecemeal basis months later as it was gradually rehabilitated.

The reconstruction process in L'Aquila was not a very participatory one (Özerdem and Rufini, 2013). Indeed, it was largely dictated by the various levels of government, starting with the national one which provided the basic funding. An alternative approach might

Plate 2.
A street in L'Aquila city, October 2016

Source: photo: author

have been to compartmentalise the process by concentrating resources on strategically chosen areas and restoring them to integral functionality. This could have been done in a capillary manner such that the process spread out from the first neighbourhoods to be dealt with and thus progressively enlarged the area that was operational. It could also have been done with more citizen participation and hence a greater accession of local democracy. Above all, it would have stimulated the economy of the city and breathed life into areas that remained moribund for years.

On the eighth anniversary of the L'Aquila earthquake, reconstruction was underway or completed to the extent of 54 per cent of the funds requested for the centre of the city and 84 per cent those requested for the area around it, with a completion date set for 2020 (Santilli, 2017). USRA, the Government's Special Office for the Reconstruction of L'Aquila, had authorised nearly 70 per cent of the expenditure to subsidise private reconstruction, amounting to nearly 25,000 projects out of 29,500 presented (see www.usra.it). The target date for completing reconstruction of L'Aquila's 24 satellite villages was set for 2022, 13 years after the earthquake, although the state of Paganica, the largest of these settlements, did not bode well for achieving this goal, as only 16 buildings were under reconstruction. For the other 53 municipalities damaged by the 2009 earthquake, the target date for completing reconstruction

was 2025, but in 2017 only 40 per cent of the necessary funds had been committed (Santilli, 2017).

Besides the issues of how recovery should occur and is taking place in L'Aquila, it is important to consider the impact of this disaster on others that have occurred since, especially as they have taken place in areas only 50–100 km from L'Aquila.

Mitigation: after the earthquake, what changed and what did not?

Seven years and five months after the L'Aquila earthquake, a series of tremors began in the area between Amatrice and Norcia, 50–80 km NNW of the Abruzzan capital. Over almost five months there were nine earthquakes with moment magnitudes in the range 5.1–6.5. These events were enormously damaging, in part because the frequencies of shaking that characterised some of the tremors were those most likely to damage vernacular housing. One is motivated to ask what had changed between the L'Aquila tremors and those that occurred seven years later. Were any lessons learned?

Some aspects remained the same. In both cases the convergence reaction put more emergency responders on the ground than there were members of the population. In 2009 the city of L'Aquila nominally had 72,700 inhabitants (see end-note 1), but the area received 94,000 rescuers. The area affected by the 24 August 2016 earthquake had a resident population of about 4,000 people and 7,500 emergency responders converged upon it.

In some of the municipalities of the central Apennines local government had been transferred to new, prefabricated buildings that were designed to be strategic command centres and administrative hubs in the event that more formal and imposing buildings were put out of action by seismic activity. Il L'Aquila in 2009 many of the buildings that housed the regional and local administration were put out of action by damage (Bazzurro *et al.*, 2009, Figure 15). For the mountain communities it was vital to have at least one strategic building that, because of its location and construction type would definitely survive a disaster. At Amatrice this proved to be invaluable.

In Italy, the effect of disasters is often cumulative rather than merely single (Alexander, 2002). It may well be that multiple events are as effective as individual major disasters at provoking the adoption of safety measures because they create the sensation that impacts are a persistent problem.

One reaction to this trail of damage and destruction was to bring up for discussion the question of earthquake insurance (Insurance Europe, 2016/2018). This was first discussed in the wake of the L'Aquila earthquake during the government of Mario Monti (2011-2013). It proved to be a thorny issue, although it did stimulate the insurance industry to offer coverage. For example, comprehensive insurance against earthquake damage (including payment for alternative accommodation for a certain period of time in the event that the property becomes uninhabitable) on a family home 160 sq. metres in size in an area of moderate seismicity would involve a premium of over €1,250 ($1,500) a year, a sum that fewer than 1 per cent of Italian homeowners in such circumstances are willing to spend. Some analysts have suggested that the true economic cost of a self-sustaining earthquake insurance programme would involve premiums more than three times higher than that. Moreover, floods, storms, landslides and subsidence are equally widespread hazards and would add to the costs.

The most insuperable problem remains the high vulnerability of building stock in the hazard zones of Italy (Alexander, 2018). In Italy, much of the urban fabric has several owners who live in condominium with each other. Repair or rebuilding requires agreement between all owners of the structure. Moreover, the ability to repair a structure may also be critically dependent on the state of play regarding surrounding buildings, as

historic urban environments, in particular, tend to be composed of highly interconnected properties (Alexander, 1989). In the wake of the 2016-2017 earthquakes, the Italian Government recognised that funding only the repair of primary homes would leave the urban fabrics of the damaged towns in a precarious state, especially as in the mountains many property owners actually live elsewhere, for example in Rome. Hence, the decision was made that for the purposes of reconstruction funding all residential properties would be treated equally in the main affected towns.

The dilemma of earthquake insurance highlights a problem that is common to every country that has a high toll of natural hazards and a government that is wealthy enough to help citizens in the aftermath. Subsidies from the public purse for repairing damage could be construed as fostering moral hazard (Doherty and Smetters, 2005) or potentially discouraging citizens for assuming responsibility for reducing their own vulnerability. The government is the "insurer of last resort". In these times of neoliberal individualism, this goes against the grain, as austerity measures bite into social welfare and reduce the rate of redistribution of wealth from the rich to the poor. However, in many cases the survivors of earthquakes, storms or floods are important constituencies of voters. So it has been in Italy for the last half a century.

The issues covered in this paper demonstrate that the L'Aquila earthquake and its aftermath have many different facets and that each of them is redolent with the complexity that is so often the hallmark of Italian disasters. The final section will bring out some of the regularities, lessons and conclusions from this very heterogeneous admixture.

Discussion and conclusions

I will now summarise the main conclusions to be abstracted from the L'Aquila earthquake disaster in terms of the phases of the "disaster cycle".

Mitigation

A relatively modest seismic event caused a very large amount of damage. Casualties could have been much higher, but the earthquake occurred at the end of a vacation "long weekend" when many citizens and students were absent. The provision of stringent building codes post-dated the building boom in L'Aquila city. Therefore, the highest death toll occurred in the collapse of multiple-occupancy apartment blocks that were built in the 1960s and 1970s, when the codes were inadequate both in specification and enforcement.

Preparedness

Poor planning for emergency management and response was compensated for by the strongly "top-down" nature of the Italian civil protection system. It functioned quite well, and the emergency response was thorough to the point of being overwhelming. However, local, provincial and regional competencies were widely delegated to outside forces from the national headquarters and other regions. To some extent, this was inevitable, given the magnitude of the agent-generated demands (Dynes, 1993), but it does imply excessive weakness in local response capabilities.

Emergency response

Through poor preparedness and the failure of local systems (notably the regional hospital), the bulk of the immediate response came from the convergence reaction. If the earthquake had been stronger (e.g. as strong as the 1915 Avezzano seismic disaster, which killed 32,500 in Abruzzo Region), the weakness of local emergency provisions would have been decisive as a negative factor.

Recovery

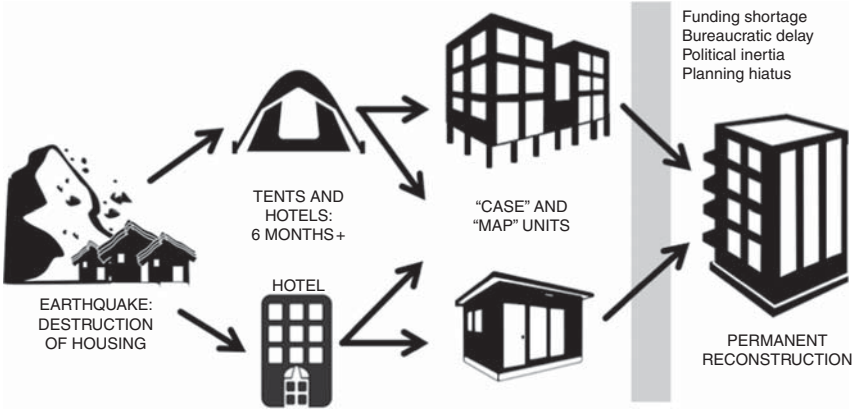
The CASE project represented a vast social, political and architectural experiment, conducted at enormous cost. It was undermined by corruption and poor decision making. This led to the isolation of residents from social interaction and essential services, which did not help the recovery process. The trial of members of the National Major Risks Commission was one of the most controversial events in the history of modern science. Getting to the bottom of its many layers of meaning is an arduous challenge and will, I fear, long remain an unfinished task (Marincioni *et al.*, 2012). In this process, the plaintiffs in the case, the survivors of the earthquake, have received the least consideration of all.

Reconstruction

Bureaucratic complexities, austerity and the lack of economic importance of L'Aquila, a small provincial city in a distant mountain basin, led to stagnation. It was followed, slowly, by a heterogeneous reconstruction that lacked direction and connectedness (Contreras *et al.*, 2014, 2018). The emphasis has been on physical reconstruction more than on the restoration of functionality.

The aftermath of the L'Aquila earthquake should be viewed in the light of the constant evolution in Italian policy on managing and responding to national emergencies. However, several aspects of this disaster are exceptional by Italian and international standards. They are the elements that make the L'Aquila case unique.

The first unique element of the L'Aquila earthquake aftermath was the experiment with deployment of the "CASE" and "MAP" temporary housing. On the positive side, they provided mass accommodation in record time. Moreover, they kept people in the area and thus helped stem out-migration. On the negative side, they were built on prime rural land, initially without full services, including waste water treatment. Furthermore, they were excessively expensive, especially for temporary accommodation. As a result, most of the impetus went into housing and very little supported the generation and maintenance of livelihoods or the stimulation of the local economy. Hence, it could be argued that lavish provision of temporary accommodation took the momentum out of permanent recovery (Figure 2). Moreover, the eventual adaptation of the highly urbanised CASE and MAP sites for other uses is unclear. In conclusion, this situation prompts one to ask what balance



CASE: Complessi antisismici sostenibili ed ecocompatibili ("antiseismic, sustainable and ecocompatible units")
MAP: Moduli abitativi provvisori ("temporary living modules" - i.e., prefabs)

Figure 2.
The shelter sequence after the L'Aquila earthquake, and its impediments

should be struck between temporary and permanent accommodation? The CASE project created an anomalous "permanence of the temporary" situation. It sent a message that reconstruction, and modernisation, would be a long time in coming.

The second unique element of the L'Aquila disaster lies in the nature of the legal proceedings that followed it. The trial of the members of the National Major Risks Commission was probably more of a symbolic act than a serious attempt to impeach authority. It was, after all, very difficult to demonstrate that the actions of the National Major Risks Committee had actually led, however indirectly, to the deaths of the relatives of the plaintiffs. Rather than succeeding in holding functionaries to account, it managed to define the limits of malpractice. It sent the message that the abuse of power would not be practised with impunity. In many parts of the world, scientists, administrators and legal experts debated the trial, but a full understanding of the initiative and its consequences could only be achieved by knowing and being able to interpret the very sophisticated context in which it took place. The L'Aquila trials reached conclusion, but they left behind unfinished business, as bereaved families have been deprived of support and closure.

In conclusion, the aftermath of the L'Aquila earthquake teaches us that the political context of disasters can overwhelm and distort any rational scientific agenda. In reconstruction, "functionality" is an essential goal, but it is both the prisoner of history and the hostage of political expediency.

Note

1. According to ISTAT (www.istat.it), the Italian national statistical agency, the registered, resident population of L'Aquila city was 72,696 on 31 December 2009 and 69,605 on 31 December 2016. It suffered a 9 per cent drop in the first two years after the earthquake, followed by a gradual and partial, but fluctuating, recovery.

References

Alemanno, A. and Lauta, K.C. (Eds) (2014), "Symposium on the L'Aquila Seven: re-establishing justice after a natural disaster", *European Journal of Risk Regulation*, Vol. 5 No. 2, pp. 129-167.

Alexander, D.E. (1989), "Preserving the identity of small settlements during post-disaster reconstruction in Italy", *Disasters*, Vol. 13 No. 3, pp. 228-236.

Alexander, D.E. (2002), "The evolution of civil protection in modern Italy", in Dickie, J., Foot, J. and Snowden, F. (Eds), *Disastro! Disasters in Italy Since 1860: Culture, Politics, Society*, Palgrave Press, New York, NY, pp. 165-185.

Alexander, D.E. (2010), "The L'Aquila earthquake of 6 April 2009 and Italian Government policy on disaster response", *Journal of Natural Resources Policy Research*, Vol. 2 No. 4, pp. 325-342.

Alexander, D.E. (2013), "An evaluation of the medium-term recovery process after the 6 April 2009 earthquake in L'Aquila, Central Italy", *Environmental Hazards*, Vol. 12 No. 1, pp. 60-73.

Alexander, D.E. (2014), "Communicating earthquake risk to the public: the trial of the 'L'Aquila seven' ", *Natural Hazards*, Vol. 72 No. 2, pp. 1159-1173.

Alexander, D.E. (2018), "Civil protection in Italy: coping with multiple disasters", in Forestiere, C. and Tronconi, F. (Eds), *Italian Politics 2017*, Berghahn, New York, NY (in press).

Alexander, D.E. and Magni, M. (2013), "Mortality in the L'Aquila (central Italy) earthquake of 6 April 2009", *PLoS Currents Disasters*, 7 January, 26pp.

Amato, A. and Ciaccio, M.G. (2011), "Earthquake sequences of the last millennium in L Aquila and surrounding regions (central Italy)", *Terra Nova*, Vol. 24 No. 1, pp. 52-61.

Baglioni, A. (2016), *Metropolitana dell'Aquila: 14 anni di lavori inutili*, Il Centro, Pescara, 28 December.

Bazzurro, P., Alexander, D., Clemente, P., Comerio, M., De Sortis, A., Filippou, F., Goretti, A., Jorjani, M., Mollaioli, F., Mosalam, K., Price, H.J., Schotanus, M. and Stewart, J. (2009), "The Mw 6.3 Abruzzo, Italy, earthquake of April 6, 2009: learning from earthquakes", EERI Special Report, Earthquake Engineering Research Institute, Berkeley, CA.

Billi, M. (2017), *La causalità psichica nei reati colposi: il caso del processo alla Commissione Grandi Rischi*, Aracne Editore, Canteramo.

Boschi, E. (2014), "L'Aquila's aftershocks shake scientists", *Science*, Vol. 341, p. 1451.

Calandra, L.M. (Ed.) (2012), *Territorio e democrazia: un laboratorio di geografia sociale nel doposisma aquilano*, L'Una Editrice, L'Aquila.

Calvi, G.M. and Spaziante, V. (2009), "Reconstruction between temporary and definitive: the CASE project", *Progettazione Sismica*, Vol. 3, pp. 221-250.

Carr, L.J. (1932), "Disaster and the sequence-pattern concept of social change", *American Journal of Sociology*, Vol. 38 No. 2, pp. 207-218.

Casarotti, C., Pavese, A. and Peloso, S. (2009), "Seismic response of the San Salvatore Hospital of Coppito (L'Aquila) during the 6th April 2009 earthquake", *Progettazione sismica*, Vol. 3, pp. 159-172.

Castaños, H. and Lomnitz, C. (2002), "PSHA: is it science?", *Engineering Geology*, Vol. 66 Nos 3-4, pp. 315-317.

Cellini, R., Di Caro, P. and Torrisi, G. (2017), "Regional resilience in Italy: do employment and income tell the same story?", in Huggins, R. and Thompson, P. (Eds), *Handbook of Regions and Competitiveness: Contemporary Theories and Perspectives on Economic Development*, Edward Elgar, Cheltenham, pp. 308-331.

Ciccozzi, A. (2013), *Parola di scienza. Il terremoto dell'Aquila e la Commissione Grandi Rischi. Un'analisi antropologica*, DeriveApprodi, Rome.

Cofini, V., Carbonelli, A., Cecilia, M.R., Binkin, N. and di Orio, F. (2015), "Post traumatic stress disorder and coping in a sample of adult survivors of the Italian earthquake", *Psychiatry Research*, Vol. 229, pp. 353-358.

Comune dell'Aquila (2015), "Piano di emergenza comunale, Version 1.0-rev.", Municipality of L'Aquila, L'Aquila.

Contreras, D., Forino, G. and Blaschke, T. (2018), "Measuring the progress of a recovery process after an earthquake: the case of L'Aquila, Italy", *International Journal of Disaster Risk Reduction*, Vol. 28, pp. 450-464.

Contreras, D., Blaschke, T., Kienberger, S. and Zeil, P. (2014), "Myths and realities about the recovery of L'Aquila after the earthquake", *International Journal of Disaster Risk Reduction*, Vol. 8, pp. 125-142.

Dallara, C. (2015), "Powerful resistance against a long-running personal crusade: the impact of Silvio Berlusconi on the Italian judicial system", *Modern Italy*, Vol. 20 No. 1, pp. 59-76.

Doherty, N. and Smetters, K. (2005), "Moral hazard in reinsurance markets", *Journal of Risk and Insurance*, Vol. 72 No. 3, pp. 375-391.

DPC (2017), "Terremoto centro Italia: si riunisce la commissione grandi Rischi-Settore Rischio Sismico. 20 January 2017", Press release, Dipartimento Nazionale della Protezione Civile, Rome, available at: www.protezionecivile.gov.it/jcms/it/view_com.wp?contentId=COM62151 (accessed 29 April 2018).

Drabek, T.E. (1986), *Human System Response to Disaster: An Inventory of Sociological Findings*, Springer-Verlag, New York, NY.

Dynes, R.R. (1993), "Disaster reduction: the importance of adequate assumptions about social organization", *Sociological Spectrum*, Vol. 13 No. 1, pp. 175-192.

European Court of Auditors (2012), "The European Union solidarity fund's response to the 2009 Abruzzi earthquake: the relevance and cost of operations", Special Report No. 24/2012, European Court of Auditors, Luxembourg.

Félix, D., Monteiro, D., Branco, J.M., Bologna, R. and Feio, A. (2015), "The role of temporary accommodation buildings for post-disaster housing reconstruction", *Journal of Housing and the Built Environment*, Vol. 30 No. 4, pp. 683-699.

Giuliani, G. (2009), *L'Aquila 2009. La mia verità sul terremoto*, Tazebao Series, Castelvecchi Editore, Rome.

Insurance Europe (2016/2018), "NatCat chart: property insurance (Italy)", available at: www.insuranceeurope.eu (accessed 7 January 2018).

Magni, M., Fraboni, R. and Marincioni, F. (2017), "Emergency preparedness and management at the University of L'Aquila (central Italy) and the role of students' associations in the April 6 2009 earthquake", PLoS Currents, 12 January, Article 9.

Marincioni, F., Appiotti, F., Ferretti, M., Antinori, C., Melonaro, P., Pusceddu, A. and Oreficini-Rosi, R. (2012), "Perception and communication of seismic risk: the 6 April 2009 L'Aquila earthquake case study", *Earthquake Spectra*, Vol. 28 No. 1, pp. 159-183.

Marioni, A. (2009), "The use of sliding pendulum isolators for the CASE project in L'Aquila", available at: www.yumpu.com/en/document/view/38117423/the-use-of-sliding-pendulum-isolators-for-the-case-alga-spa

Meletti, C. and Stucchi, M. (2009), *Pericolosità Sismica, Normativa e Zone Sismiche Nell'aquilano*, Istituto Nazionale di Geofisica e Vulcanologia, Milan.

Miraudo, F. (2010), "L'Aquila: una rapida sintesi del quadro economico", *Rivista Italiana di Comunicazione Pubblica*, Vol. 39 No. 1, pp. 108-109.

Neal, D.M. (1997), "Reconsidering the phases of disasters", *International Journal of Mass Emergencies and Disasters*, Vol. 15 No. 2, pp. 239-264.

OECD (2010), *Italy: Review of the Italian Civil Protection System. OECD Reviews of Risk Management Policies*, Organisation for Economic Cooperation and Development, Paris.

Özerdem, A. and Rufini, G. (2013), "L'Aquila's reconstruction challenges: has Italy learned from its previous earthquake disasters?", *Disasters*, Vol. 37 No. 1, pp. 119-143.

Richardson, B. (2005), "The phases of disaster as a relationship between structure and meaning", *International Journal of Mass Emergencies and Disasters*, Vol. 23 No. 3, pp. 27-54.

Santilli, B. (2017), "Sisma L'Aquila: a 8 anni, luci e ombre su ricostruzione", ANSA.it Cronaca, 6 April, available at: www.ansa.it/sito/notizie/cronaca/2017/04/05/sisma-laquila-a-8-anni-luci-e-ombre-su-ricostruzione_771b9e91-d96e-47d2-bfae-c55662d8bfc6.html (accessed 29 December 2017).

Sargiacomo, M., Ianni, L., D'Andreamatteo, A. and Servalli, S. (2015), "Accounting and the fight against corruption in Italian government procurement: a longitudinal critical analysis (1992-2014)", *Critical Perspectives on Accounting*, Vol. 28, pp. 89-96.

Savona, E.U. (2010), "£Infiltration of the public construction industry by Italian organised crime", in Clarke, R.V. and Tilley, N. (Eds), *Situational Prevention of Organised Crimes*, Routledge, London, pp. 130-150.

Scolobig, A., Mechler, R., Komendantova, N., Liu, W., Schroterand, D. and Patt, A. (2014), "Co-production of scientific advice and decision making under uncertainty: lessons from the 2009 L'Aquila earthquake, Italy", *GRF Davos Planet@Risk*, Vol. 2 No. 2, pp. 71-76.

Stucchi, M. (2014), "Era facile prevederlo…", Terremoti e grandi rischi (earthquakes and great risks blog), available at: https://terremotiegrandirischi.com/2014/09/05/era-facile-prevederlo-massimiliano-stucchi/ (accessed 17 January 2018).

Stucchi, M., Meletti, C., Montaldo, V., Crowley, H., Calvi, G.M. and Boschi, E. (2011), "Seismic hazard assessment (2003-2009) for the Italian building code", *Bulletin of the Seismological Society of America*, Vol. 101 No. 4, pp. 1885-1911.

Von Schreeb, J., Riddez, L., Samnegσrd, H., Rosling, H. and de Ville de Goyet, C. (2008), "Foreign field hospitals in the recent sudden-impact disasters in Iran, Haiti, Indonesia, and Pakistan", *Prehospital and Disaster Medicine*, Vol. 23 No. 2, pp. 144-153.

Yeo, M. (2014), "Fault lines at the interface of science and policy: interpretative responses to the trial of scientists in L'Aquila", *Earth-Science Reviews*, Vol. 139, pp. 406-419.

Corresponding author
David E. Alexander can be contacted at: david.alexander@ucl.ac.uk

Received 27 January 2018
Revised 9 April 2018
30 July 2018
16 August 2018
14 October 2018
28 October 2018
Accepted 28 October 2018

Reflections on the L'Aquila trial and the social dimensions of disaster risk

Angelo Jonas Imperiale and Frank Vanclay
Department of Cultural Geography, Faculty of Spatial Sciences, University of Groningen, Groningen, The Netherlands

Abstract

Purpose – The purpose of this paper is to reflect on what can be learned about disaster risk reduction (DRR) from the L'Aquila trial of scientists. The court case was initiated because of a controversial meeting on 31 March 2009 of the Major Risks Committee (MRC), held under the auspices of the Italian Department of Civil Protection. The purpose of the meeting was to consider (prior to the fatal earthquake of 6 April 2009) disaster risk in the L'Aquila area, which was being affected by an earthquake swarm since October 2008.
Design/methodology/approach – The authors undertook a document analysis of trial materials, and a review of academic and media commentary about the trial.
Findings – The legal process revealed that disaster governance was inadequate and not informed by the DRR paradigm or international guidelines. Risk assessment was carried out only in a techno-scientific manner, with little acknowledgement of the social issues influencing risks at the local community level. There was no inclusion of local knowledge or engagement of local people in transformative DRR strategies.
Originality/value – Most previous commentary is inadequate in terms of not considering the institutional, scientific and social responsibilities for DRR as exposed by the trial. This paper is unique in that it considers the contents of the MRC meeting as well as all trial documents. It provides a comprehensive reflection on the implications of this case for DRR and the resilience of peoples and places at risk. It highlights that a switch from civil protection to community empowerment is needed to achieve sustainable outcomes at the local level.

Keywords Disaster risk management, Disaster risk reduction, Civil protection, Community resilience, Vulnerability, Community empowerment, Disaster governance, Transformative knowledge

Paper type Research paper

Introduction

The 6 April 2009 earthquake in L'Aquila, Italy, drew the attention of scientists all over the world for various reasons. One was that the earthquake and its aftermath "triggered an unprecedented series of legal consequences" (Benessia and De Marchi, 2017, p. 35). Over 200 legal inquiries were initiated, primarily relating to the collapse of public buildings or to the concrete buildings where most fatalities occurred (Alexander and Magni, 2013). However, what gained most attention and has come to be known as "the L'Aquila Trial" was the prosecution of six scientists and one government official. Initially accused of negligence, carelessness and malpractice, at the conclusion of a lengthy trial, they were initially found guilty of manslaughter, bodily harm and conspiracy, and were sentenced to six years prison and faced massive costs (Tribunale di L'Aquila, 2012). Following a successful Court of Appeal hearing, a counter appeal led to a hearing by the Supreme Court of Cassation (SCC, *Corte Suprema di Cassazione*). The total legal process lasted more than five years, ending in November 2015 with the SCC decision that the six scientists were acquitted. The government official, however, was found guilty, and sentenced to two years jail.

Disaster Prevention and Management
Vol. 28 No. 4, 2019
pp. 434-445
Emerald Publishing Limited
0965-3562
DOI 10.1108/DPM-01-2018-0030

The L'Aquila trial and the meeting of the Italian Major Risks Committee (MRC), which was the reason for the trial, is not just a story of a trial of scientists or about how information was disseminated by the Italian Department of Civil Protection (DCP). It is a story that revealed multiple failures, especially a failure to implement disaster risk reduction (DRR) and to enhance resilience at the local community level. A social understanding of disaster means acknowledging that disasters result from socially produced vulnerabilities and failures (Quarantelli, 1998; Perry and Quarantelli, 2005; Oliver-Smith *et al.*, 2017). Disasters and related risks result from many factors, especially the social dimensions of an area, including people's hazard exposure, their vulnerabilities and capacities to manage risks and be prepared. The widespread recognition of this means that disasters are domains of potential injustice and do not provide dispensation to those who are guilty of professional neglect (Lauta, 2014). Rather than being blame games or witch hunts (e.g. Nosengo, 2010; Boschi, 2013; Clark, 2012; Yeo, 2014), disaster trials can be transformative opportunities (Benadusi and Revet, 2016). Reflections on trials following a disaster are opportunities to understand local disaster governance and recognise the drivers and constraints to social and institutional learning about DRR (Simoncini, 2014; Bretton *et al.*, 2015).

The L'Aquila trial has been much commented on. Many papers were published while the legal process was underway (e.g. Alexander, 2010, 2013, 2014; Nosengo, 2010, 2012; Hall, 2011; Cartlidge, 2012; Notaro, 2014; Fioritto, 2014; Simoncini, 2014; Lauta, 2014; Scolobig *et al.*, 2014; Bretton *et al.*, 2015), however, only a few have been published since the definitive sentence in November 2015 (e.g. Ciccozzi, 2016; Pietrucci, 2016; Stucchi *et al.*, 2016; Benessia and De Marchi, 2017). There is yet to be a comprehensive reflection on the trial in terms of international policies concerning DRR, which is what we do in this paper.

This paper is part of a larger research project investigating the social dimensions surrounding the 2009 L'Aquila earthquake (Imperiale and Vanclay, 2016a, b). Its purpose is to reflect on the L'Aquila trial and consider what the trial reveals about Italian disaster management. This paper primarily draws on a document analysis of trial materials, which amounted to over 1,100 pages (Tribunale di L'Aquila, 2012; Corte di Appello dell'Aquila, 2014; Corte di Cassazione, 2016). We also considered commentary in academic journals, the international, national and local media, and we did a rapid assessment of social media accounts of the trial. Four significant identities associated with the topic were interviewed.

The social, political and seismological context

The 6 April 2009 earthquake was preceded by much seismic activity starting in October 2008. This activity increased in frequency and intensity, alarming residents, local administrators and the DCP. In March 2009, over 100 tremors occurred in the vicinity of L'Aquila. The local anxiety was arguably increased because of predictions being made by Giampaolo Giuliani, a somewhat unorthodox amateur Seismologist, who considered that radon emissions could predict an imminent earthquake, something not yet accepted by orthodox science (Alexander, 2014; Stucchi *et al.*, 2016). Due to this seismic "swarm", many buildings began to crack. Public schools were often closed as a precaution. According to our interviewees, L'Aquila city and surrounding area were unprepared for any disaster and no civil protection plans existed. The L'Aquila hospital and other key public buildings were known to be vulnerable to seismic hazards, and many residential buildings were badly constructed. The poor state of buildings and the risks associated with this were known for at least 20 years (Boschi *et al.*, 1995; Barberi *et al.*, 2007). As a key informant reported, local awareness of the increasing vulnerability was evident in comments made at body corporate meetings by some residents about cracks appearing in buildings (many of which collapsed during the earthquake) and by their demands for building inspections and to see civil protection plans.

A press release from the Abruzzo Region Civil Protection (ARCP) on the morning of 30 March 2009 stated that no more shocks were foreseen – paradoxically, there was a 4.1 earthquake that very afternoon. During the trial, the Chief of the DCP, Guido Bertolaso, declared that this press release and the Giuliani predictions were the reasons for calling the MRC meeting on 31 March. After reading the press release, Bertolaso phoned Daniela Stati (Abruzzo Region Councillor responsible for civil protection and the ARCP) stating: "you must tell your staff not to write press releases that say other earthquakes will not happen, because this is bullshit and when talking about earthquakes these things must not been said" (Tribunale di L'Aquila, 2012, p. 150). He went on:

> Listen, De Bernardinis, my deputy, will call you shortly. A meeting [of the MRC] about this earthquake swarm will be held in L'Aquila in order to shut up any imbecile, calm down any conjectures, worries etc. […] I will make them [the members of the MRC] come to L'Aquila to the Abruzzo region's headquarters, or to the local prefecture, you choose, I do not care, so that it will be more of a media move [strategy]. Understand? […] In this way, they, who are the best in earthquakes, will say: in a normal situation, they [the tremors] are phenomena that happen, and better that there be 100 tremors of 4 on the Richter scale rather than silence, because 100 earthquakes serve to release energy, and therefore there will never be the big one, the one that really hurts. […] Now, talk with De Bernardinis and decide where to hold this meeting tomorrow and make it known that there will be a meeting, and that this is not because we are afraid or worried, but because we want to reassure and calm people. Instead of us talking, we will let the best scientists in the field of seismology talk (Tribunale di L'Aquila, 2012, p. 152, author translation).

The meeting was scheduled for 18:30 on 31 March at the Abruzzo Region Headquarters in L'Aquila. It was convened by sending a faxed letter in the evening of 30 March to the MRC members. The letter stated that the discussion topic was "to carefully analyse the scientific and civil protection issues related to the seismic sequence occurring in L'Aquila Province over the last four months and which culminated in the 4.0 earthquake on 30 March 2009" (Tribunale di L'Aquila, 2012, p. 94). The DCP also issued a press release stating that an MRC meeting was convened for 31 March to provide information from the scientific community about the recent seismic activity and that there would be a press conference following the meeting.

The meeting of the Italian MRC

The trial documents (Tribunale di L'Aquila, 2012, pp. 99-103) indicate that the MRC meeting began at 18:30 and ended at 19:30. The two-page draft minutes (dated 2 April 2009) and the five-page formal minutes (dated 6 April 2009) were reproduced in the trial documents (Tribunale di L'Aquila, 2012). They indicate that 19 named people and a few unnamed people were present. Although there is no verbatim transcript or audio recording, because the trial primarily related to the conduct and content of this meeting, the discussion in that meeting was reasonably re-constructed through the trial process. The people present at the meeting (with their role at the time) were:

(1) The senior government official:

- Bernardo De Bernardinis, Deputy Technical Head, Department of Civil Protection.

(2) Full members of the MRC:

- Franco Barberi, MRC Deputy President, Professor of Volcanology at Roma Tre University;
- Enzo Boschi, President of the Italian National Institute of Geophysics and Volcanology and Professor of Terrestrial Physics at the University of Bologna;

- Gian Michele Calvi, Director of the European Centre for Training and Research in Earthquake Engineering and Professor of Planning in Seismic Zones at the University of Pavia; and
- Claudio Eva, Professor of Terrestrial Physics at the University of Genoa.

(3) Other invited scientists:

- Mauro Dolce, Director of the DCP Seismic Risk Office and Professor of Construction Technology at the University of Naples Federico II; and
- Giulio Selvaggi, Director of the Italian National Centre for Earthquakes.

(4) People present in a formal capacity:

- Leone Altero, Technical Head of ARCP;
- Gianluca Braga, L'Aquila Prefecture Office;
- Massimo Cialente, Mayor of L'Aquila;
- Attilio D'Annibale, DCP Communication Service;
- Antonio Lucantoni, DCP Seismic Office;
- Marinello Mastrogiuseppe, ARCP;
- Graziella Patrizi, L'Aquila Prefecture Office;
- Rinaldo Pezzoli, L'Aquila Prefecture Office;
- Roberto Riga, L'Aquila Councillor, responsible for civil protection;
- Lorella Salvatori, DCP employee (produced the minutes);
- Daniela Stati, Abruzzo Region Councillor in Charge of Civil Protection; and
- Carlo Visca, ARCP.

(5) People not named in the minutes, but can be deduced as being present because they signed the document, were mentioned in the trial or were indicated by our sources as being present:

- Christian Del Pinto, Seismologist for the Molise Region Civil Protection;
- Carlo Gizzi, Press Officer for the Abruzzo Region; and
- Two or three members of the local fire service.

Curiously, the President of the MRC, Giuseppe Zamberletti, was not present. No explanation was given for this, and there was little mention of him in the trial. The trial did not raise any issues relating to the integrity of the formal minutes, and one of our interviewees (who was present) indicated that the formal minutes were congruent with what transpired at the meeting. Drawing on the formal minutes and the court discussion, the general outline of the meeting can be reconstructed (see below).

Although Barberi was ostensibly the Chair, De Bernardinis opened the meeting, passed on the greetings of the DCP Chief (Bertalaso, who could not attend) and then introduced the people present. He quickly explained why the meeting was convened and invited the discussion to start. As evident in the minutes, there were two main topics of discussion: making an objective evaluation of the on-going seismic events, especially in relation to what could be forecasted, and providing advice concerning the increasing alarm in the local population.

Dolce spoke first. He gave an overview of the seismic activity and then stated that panic was being created because of unfounded rumours, by which he probably meant Giuliani,

although there were reports of other people creating alarm. Leone Altero (representing ARCP) said that the local police special branch had identified these people. The minutes give no information about what was going to be done about this. Curiously, this was the only remark made by him or other ARCP officials during the whole meeting. Despite a stated purpose of the meeting being civil protection issues, Altero was not asked to provide any information concerning DRR strategies, civil protection plans or local preparedness, nor did he elaborate on this at any time. The focus only on the local police action revealed that the main concern for the ARCP and DCP was alarmism rather than DRR, and indicates unease by these agencies.

Discussion of the scientific risk assessment took the majority of the meeting. All scientists agreed that: it was not possible to predict earthquakes; given the earthquake swarm, it was unlikely the magnitude of the tremors would increase; and that little damage had been caused as a result of the seismic activity to date. Discussion of the second agenda item was initiated by Stati who thanked the scientists for their explanation (that a serious earthquake was unlikely), but noted that she and the mayor were in positions in which they must give political answers. She asked the scientists whether she and the mayor should pay attention to the people who were creating alarm. Barberi responded by saying that no measurement tool could predict earthquakes and therefore the MRC should not waste time discussing this topic. Barberi said that the earthquake swarm predicts nothing but reminds us that L'Aquila is in a seismic area and that sooner or later, a big event will occur. He remarked that the only defence is for the DCP and Abruzzo Region to invest in strengthening buildings and better planning. Somewhat surprisingly, Dolce highlighted that future building assessments should pay more attention to damage to the non-supporting structures (chimneys, ceilings, cornices, balconies, etc.) rather than to the supporting structures (walls, etc.), which almost surely were not damaged by the earthquake swarm. Stati concluded the meeting by saying: "thank you for your statements which will allow me to reassure the public through the media we will meet at the press conference". The meeting closed at 19:30.

The press conference with national and regional press followed immediately in the same building, being attended by Stati, Cialente, De Bernardinis and Barberi. It was organised by DCP Staff Member, Simona Bernacchi, together with the Abruzzo Region Press Officer, Carlo Gizzi. Rather than the information presented at the press conference, what was broadcast on local and national media was an interview De Bernardinis had given to a local TV station earlier in the day, in which he said the earthquake swarm was normal, there was no danger, and the scientific community confirmed that the situation was favourable in that there was a continuous discharge of energy and that, rather than worry, it was better to drink a glass of Montepulciano D'Abruzzo wine (Corte di Appello dell'Aquila, 2014).

The trial established that late in the evening of 31 March, Barberi and Dolce independently phoned Bertolaso to inform him how the meeting went, each saying that it "went as instructed" and that they made the Abruzzo councillor (Stati) happy by saying that there were no tools for earthquake forecasting (Tribunale di L'Aquila, 2012). This suggests that the meeting was a political stunt involving stooges rather than professional advice from independent scientists.

The earthquake, trial, appeal and final outcome

At 3:32 in the morning of 6 April 2009, a devastating earthquake (Mw 6.3) struck L'Aquila, killing 309 people, leading to much grieving and blaming. A local lawyer, Valentini, began acting on behalf of people seeking justice and/or to sue for damages. He began investigating the issues behind the earthquake. In late August 2009, Valentini filed a suit (*denuncia penale*) with the local prosecutor alleging that the DCP and MRC had failed in its duty to ensure

adequate prevention and preparedness, noting that the inability to predict earthquakes did not mean that a serious earthquake would not occur and did not exempt the DCP and MRC from their duty of care. Following extensive investigations, on 3 June 2010 the local prosecutor, Alfredo Rossini issued indictments against Barberi, Boschi, Calvi, De Bernardinis, Dolce, Eva and Selvaggi for negligence (*negligenza*), carelessness (*imprudenza*) and malpractice (*imperizia*) with respect to their public duty of precaution and prevention (Law 225 of 24 February 1992), and for violating their responsibilities regarding public communication by a public institution (Law 150 of 7 June 2000). On 25 May 2011, the investigating Judge, Romano Gargarella, confirmed that the trial would proceed.

The trial formally commenced on 20 September 2011. On the first day of hearings, it was announced that additional legal actions had been initiated by the Municipality of L'Aquila and by 67 individuals (mostly in a class action), 53 of who were claiming damages from the State. The presiding Judge, Marco Billi, announced that the court would hear all actions together, with the State (in the form of the Presidency and the DCP) being added to the list of defendants.

Following a trial spanning 13 months (with 31 days of court hearings), on 22 October 2012 Judge Billi delivered a guilty verdict and sentenced the accused persons to six years in jail (Tribunale di L'Aquila, 2012). They were found guilty of multiple manslaughter (*omicidio colposo plurimo*), bodily harm (*lesioni colpose*) and conspiracy (*cooperazione colposa*). Billi stated that the accused had conducted an assessment of risks that was "too approximate, generic and ineffective" and omitted relevant factors. This led to "incomplete, inaccurate and contradictory information" that had an inappropriate reassuring effect on the behaviour of many people. In addition to finding the seven defendants guilty, Judge Billi held them, together with the State, responsible for the court costs and compensation for loss of life or injury for the vast majority of claims.

The State and the seven defendants appealed. Following a lengthy process, on 10 November 2014, the Court of Appeal announced it had overturned the conviction. It ruled that no blame should be assigned to the six scientists. The civil servant, De Bernardinis, however, was not absolved from responsibility, but his sentence was reduced from six to two years jail and the financial liability was reduced to payment of legal costs, with no compensation to be paid for loss of life or injury.

De Bernardinis and the State were still not happy and appealed this decision. Conversely, the claimants were also dissatisfied, especially given the loss of compensation, and also appealed. These appeals meant the case had to be considered by the SCC. In its definitive decision of 20 November 2015, the SCC upheld the decision of the Court of Appeal. The 169-page decision statement (Corte di Cassazione, 2016) repeated key facts and articulated various high level principles, some of which are discussed below.

Key issues in the legal process

The various phases of the legal process identified many issues and had differing interpretations of them. These related to the status of the meeting held in L'Aquila, the public duty the DCP and MRC had for precaution and prevention of disaster risks, the risk assessment conducted and the communication implemented. A major difference of legal opinion emerged between the initial trial and the Court of Appeal, with the Court of Appeal's interpretation being endorsed by the SCC. In Table I, we summarise these key points.

A key issue relates to the status of the meeting held in L'Aquila. This was significant because of the obligations potentially imposed on the participants. The SCC determined that the MRC meeting was not a conventional meeting because it was convened using emergency procedures and was inquorate. It also considered that whether it was a formal meeting or not was irrelevant because the scientists were nevertheless required to fulfil their duty of providing "techno-scientific and proactive advisory activities pertaining to precaution and prevention" (Corte di Cassazione, 2016, p. 131). However, the SCC ruled that the MRC and

First trial 22 October 2012	Appeal court 10 November 2014
The meeting of 31 March 2009 was a proper meeting of the MRC and all participants were aware of its public role (due to the press release issued by the DCP). They shared with the DCP a duty of precaution and prevention, and of fairly informing the public	The meeting was not an official MRC meeting since it was not convened through normal procedure and was inquorate. The meeting was closed to the public. There is no proof the scientists knew of the DCP press release or the intention to make a public statement. By being convened through emergency procedures, the scientists were only providing advice to the DCP
The public duty of precaution and prevention required that the risk assessment be complete and adequate, and that there be proper assessment of all factors influencing disaster risk, including vulnerability and hazard exposure	Even if it was an official MRC meeting, no regulation established what would comprise a proper risk assessment
The risk assessment done by the MRC was inadequate because it did not consider the vulnerability of housing and the built environment, or hazard exposure in relation to population density and distribution	The scientists provided a scientifically correct analysis of the risks associated with the earthquake swarm. Assessment of vulnerability or hazard exposure was irrelevant for the intended purposes of the meeting
The scientists were aware of the public role of the meeting. They should have ensured that all information provided to the public was adequate. They were expected to correct any misleading information that might have been provided by the DCP	Only the DCP had responsibility in relation to information provided to the public. The DCP and De Bernardinis were negligent because they should have considered the influence institutional communication had on the public

Table I.
Comparison of interpretations between the first trial and the appeal court

Sources: Extracted from Tribunale di L'Aquila (2012) and Corte di Appello dell'Aquila (2014)

DCP have differing responsibilities. The only task the MRC scientists had was to provide techno-scientific advice, while responsibility for implementing precaution and prevention was up to the Presidency of the Council of Ministers operating through the DCP and the various local civil protection authorities. Because the duties of the MRC scientists were different to the obligations of the DCP, the scientists were exonerated, while the senior public servant (De Bernardinis) representing the DCP and the Presidency was guilty of inappropriate public communication.

The first trial judge determined the scientists were culpable by arguing they were negligent because they should have observed the principles of precaution and prevention in the risk assessment. Conversely, the SCC ruled that, while the principles of precaution and prevention establish what the DCP and MRC should do (i.e. the duty of diligence), they do not establish how this should be done (i.e. the diligence due), therefore the scientists could not be held individually accountable. The SCC ruled there was no specific action the scientists had to follow, except to utilise the best available scientific knowledge. The SCC considered there was nothing the scientists could have done that would have reduced the risk of an earthquake occurring. The SCC determined that the scientists did utilise the best available scientific knowledge and that they adequately discussed what the earthquake swarm meant regarding whether or not it was a precursor to more severe earthquakes. Evidently, risk was understood in the legal process as likelihood of an earthquake, not the interplay between the hazard itself, hazard exposure, the extent of vulnerability and resilience, and likely negative social consequences. The SCC judgement revealed that the regulations governing Italian civil protection do not establish any particular measures that must be adopted to implement DRR other than "generic cautions that the institutional bodies have to adopt in general" (Corte di Cassazione, 2016, p. 130). Furthermore, in current

law on civil protection, there is neither any definition of disaster risk, nor a prescribed methodology to follow to analyse and assess disaster risk.

Another issue concerned whether the scientific risk assessment should have considered the vulnerability of buildings and hazard exposure of local people. This was a key basis by which the original judge determined the risk assessment was inadequate and the scientists negligent. The Court of Appeal and SCC, however, said that the poor state of buildings was already known for at least 20 years by the people at the MRC meeting (Boschi *et al.*, 1995; Barberi *et al.*, 2007) and therefore was irrelevant in terms of whether it should have been explicitly discussed. This also reveals limited framing in how disaster risks were conceived.

The wider implications of the trial

The L'Aquila trial exposed many things, which are mostly too complicated to discuss in one short paper. Primarily, the trial revealed the narrowness of the techno-scientific approach towards disaster risk that was applied by the DCP and the members of the MRC, all of whom apparently had little understanding of the social dimensions of disaster risk. In asking the scientists to "carefully analyse the scientific and civil protection issues related to the seismic sequence occurring in L'Aquila Province" (Tribunale di L'Aquila, 2012, p. 94), the DCP expected that there be a risk assessment only in terms of the likelihood of a strong earthquake in the short term. The focus of the risk assessment was not on local people's well-being, their vulnerabilities, resilience or transformative change processes, but strictly only on the hazard phenomenon. What the MRC scientists and DCP understood as "civil protection issues" were actually matters of public control rather than DRR.

Such a limited perspective is odd, because at the time of the 2009 earthquake, the DRR paradigm had been well established for over 15 years, and was embedded in international declarations such as the Yokohama Strategy (IDNDR, 1994) and the Hyogo Framework for Action (UNISDR, 2005) – and subsequently in the Sendai Framework (UNISDR, 2015). The DRR paradigm requires a proper risk assessment that considers the multiple dimensions of local people's well-being. This means, for each dimension, understanding which assets are more vulnerable to the negative consequences of disasters, and which capacities local communities activate to manage risks and convert them into opportunities for development and enhanced resilience. Managing disaster risk demands transformative knowledge co-production processes that are capable of understanding, recognising, engaging and empowering the driving forces that reduce vulnerabilities and enhance local people's wellbeing and resilience (Future Earth, 2014; Gall *et al.*, 2014; Imperiale and Vanclay, 2016b; Patterson *et al.*, 2015).

The MRC discussion was seen as confidential advice to the DCP rather than being an opportunity for place-based transformative knowledge co-production. Had they been engaged, the local public health system, municipal services, professional associations, building firms, NGOs, and other formal and informal groups and individuals could have helped to better understand and identify local risks and vulnerabilities. Their potential role in contributing to prevention and preparedness, adding to knowledge concerning local disaster risk, and recognising the increasing vulnerability of buildings and local people's hazard exposure should have been valued and utilised.

Over-reliance on the techno-scientific approach demonstrates there is still a lack of understanding about how social vulnerability, risk and impacts are theoretically and practically related and about how science can contribute to enhancing local sustainable transformation (Future Earth, 2014; Patterson *et al.*, 2015; Imperiale and Vanclay, 2016b). This lack of understanding of the social dimensions of disaster results in disaster risks being narrowly defined in regulatory frameworks and in inadequate procedures for managing disaster risk, conducting proper risk assessments and pursuing sustainable transformation.

Conclusion

The key issue in the trial were related to the responsibilities and duties of scientists and the inadequacies of the MRC's risk assessment, especially the lack of consideration of local vulnerabilities and hazard exposure. The trial was not about whether the fatal earthquake could have been predicted or not, it was about whether the relevant public bodies (the Major Risk Committee and the Department of Civil Protection) adequately fulfilled their duty of care by conducting a proper risk assessment and whether they adequately communicated with the public. Although the scientists were eventually exonerated by the SCC, this was only possible because of inadequacies in the Italian regulations about how risk is defined and how risk should be assessed and managed. In contrast, the State, DCP and government official (De Bernardinis) were found guilty of inadequate information dissemination. We consider that, despite the not guilty decision, the trial process suggests that some scientists at the MRC meeting displayed callousness and sycophancy, suggesting their complicity and/or naiveté in deceptive strategic action intended to suppress concern in the community, subdue alarmism and demonstrate institutional action.

The academic debate about the trial focused mainly on issues such as earthquake forecasting, how uncertainty should be addressed and how risks should be communicated. There was strong sympathy for the scientists, who were generally seen as being inappropriately accused. In our view, much of the academic analysis failed to consider the institutional, scientific and social responsibilities to implement DRR at all levels. The technical perspective that framed most of this academic discussion failed to appreciate the social dimensions of disaster and disaster risk. In the academic and popular discussion, there was little reflection on the responsibilities of the public institutions or on the transformational role the DRR paradigm demands of science.

Our analysis revealed multiples failures by all relevant institutions at all levels. At the theoretical level, there was an over-reliance on techno-scientific analysis, which failed to understand the social dimensions of disaster risks and failed to engage local communities in knowledge co-production and sustainable transformation. At the practical level, there was a lack of planning and an over-reliance on a top-down system of command-and-control that centralised responsibility and stifled local action. It was clear that the meeting of MRC scientists was only a political stunt intended to harness their status to make a statement that could be used by politicians to calm the public, and to legitimise the lack of institutional (and social) preparedness. Ideally, the MRC should have taken sufficient time to conduct a proper risk assessment that would have appreciated the multiple dimensions of disaster risk, focussed on local people's well-being, their vulnerabilities, and resilience, and be a transformative change process that engaged all relevant local actors.

Notwithstanding many reports highlighting vulnerabilities in the local built environment, the local authorities took no action, nor were any civil protection plans or emergency/evacuation plans shared with the public before the earthquake. This lack of preparedness was not considered a relevant matter to discuss in the MRC meeting. As our document analysis revealed, there is still a lack of understanding about how to conduct a proper disaster risk assessment and fully respect the duty of care concerning DRR. While the trial established that the only responsibility the scientists had was to refer to the best available scientific knowledge, now, ten years after the L'Aquila disaster, it is high time to consider the questions: does the best available scientific knowledge concerning DRR only relate to seismological analysis of physical hazards? Should there be an interdisciplinary risk assessment protocol the MRC should follow to consider the multiple dimensions of disaster risk?

The political patronage system in Italy has led to elite capture and distortion in the allocation of funds, and to poor planning practice and culture. The regulations governing Italian civil protection do not establish any particular measures that must be adopted to

implement DRR other than "generic cautions that the institutional bodies have to adopt in general". According to the legal framework underpinning Italian disaster governance and to the trial documents, responsibility for implementing DRR strategies is up to the Presidency of the Council of Ministers operating through the national DCP and the local civil protection authorities. Although the Italian State issues laws, provides recommendations, establishes building codes, and commissions technical reports and information campaigns, there is little in this system that protects against elite capture or ensures adequate implementation. Because of restrictions on funding for prevention, and a belief that DRR is a constraint to development, local political authorities are often unwilling and ill-prepared to implement DRR. Consequently, in L'Aquila there was a lack of prevention and preparedness.

Overall, what emerged from our analysis was that there was: a widespread lack of understanding in the DCP–MRC system of the interplay between social vulnerability, risk and impacts; a lack of definition of risk in all its dimensions and lack of procedure for proper disaster risk assessment and management in regulatory frameworks; a lack of awareness about the transformative role of science for DRR purposes; and a consequent lack of planning and monitoring of DRR strategies and of acknowledgement of the role local communities must have in planning.

Despite the thorough analysis of DRR throughout the legal process (especially in the first trial), it was surprising there was not any reference to the international DRR paradigm (e.g. Yokohama Strategy, the Hyogo Framework for Action and the concept of community resilience). This lack of awareness of the international discourse is odd and arguably reveals: a lack of influence by United Nations bodies; disconnection between national bureaucracies (at least in Italy) and international thinking; a widespread resistance in the para-militaristic command-and-control approach of the Italian DCP (and civil protection systems in general) to transformative learning.

According to the international DRR paradigm, understanding disaster risk in all its dimensions means understanding that disaster risks are part of all societies. Disasters and disaster risks are not external forces from which society must be protected. Rather than protecting societies from risks, DRR requires effective transformational knowledge to empower societies to better manage risks and achieve social development. A radical shift from civil protection systems to community empowering systems is needed so that disasters (and disaster risks) are no longer seen as external forces from which societies must be protected, but as potential threats originating from the vulnerabilities of a society, which must be understood and reduced at the local level. These threats should be managed by understanding and reducing local vulnerabilities and risks, and by recognising, engaging and strengthening local people's assets and capacities in order to better design, implement and monitor participatory mitigation strategies, thus enabling the conversion of risks into opportunities for the enhancement of well-being and resilience at the local community level.

References

Alexander, D.E. (2010), "The L'Aquila earthquake of 6 April 2009 and Italian Government policy on disaster response", *Journal of Natural Resources Policy Research*, Vol. 2 No. 4, pp. 325-342.

Alexander, D.E. (2013), "An evaluation of medium-term recovery processes after the 6 April 2009 earthquake in L'Aquila, Central Italy", *Environmental Hazards*, Vol. 12 No. 1, pp. 60-73.

Alexander, D.E. (2014), "Communicating earthquake risk to the public: the trial of the 'L'Aquila Seven'", *Natural Hazards*, Vol. 72 No. 2, pp. 1159-1173.

Alexander, D.E. and Magni, M. (2013), "Mortality in the L'Aquila (Central Italy) earthquake of 6 April 2009: a study on victimisation", *PLOS Currents Disasters*, 1st ed., 7 January, available at: http://currents.plos.org/disasters/index.html%3Fp=4071.html (accessed 30 July 2018).

Barberi, G., Bertolaso, G. and Boschi, E. (2007), "Difendersi dai Terremoti: la prevenzione sismica in Italia", in Barberi, F. (Ed.), *Dall'emergenza alla ricostruzione*, Quattroemme, Perugia, pp. 15-18, available at: http://speciali.espresso.repubblica.it/pdf/Difendersi_dai_terremoti.pdf (accessed 30 July 2018).

Benadusi, M. and Revet, S. (2016), "Disaster trials: a step forward", *Archivio Antropologico Mediterraneo*, Vol. 18 No. 2, pp. 7-15.

Benessia, A. and De Marchi, B. (2017), "When the earth shakes… and science with it: the management and communication of uncertainty in the L'Aquila earthquake", *Futures*, Vol. 91, August, pp. 35-45, available at: www.sciencedirect.com/journal/futures/vol/91/suppl/C (accessed 30 July 2018).

Boschi, E. (2013), "L'Aquila's aftershocks shake scientists", *Science*, Vol. 341 No. 6153, p. 1451.

Boschi, E., Gasperini, P. and Mulargia, F. (1995), "Forecasting where larger crustal earthquakes are likely to occur in Italy in the near future", *Bulletin of the Seismological Society of America*, Vol. 85 No. 5, pp. 1475-1482.

Bretton, R., Gottsmann, J., Aspinall, W. and Christie, R. (2015), "Implications of legal scrutiny processes (including the L'Aquila trial and other recent court cases) for future volcanic risk governance", *Journal of Applied Volcanology*, Vol. 4 No. 18, pp. 1-24.

Cartlidge, E. (2012), "Aftershocks in the courtroom", *Science*, Vol. 336 No. 6104, pp. 184-188.

Ciccozzi, A. (2016), "Forms of truth in the trial against the commission for major risks: anthropological notes", *Archivio Antropologico Mediterraneo*, Vol. 18 No. 2, pp. 65-81.

Clark, S. (2012), "From Galileo to the L'Aquila earthquake: Italian science on trial", *The Guardian*, 24 October, available at: www.theguardian.com/science/across-the-universe/2012/oct/24/galileo-laquila-earthquake-italian-science-trial (accessed 30 July 2018).

Corte di Appello dell'Aquila (2014), "Sentenza nel processo penale a carico di Barberi Franco, De Bernadinis Bernardo, Boschi Enzo, Selvaggi Giulio, Calvi Gian Michele, Eva Claudio, Dolce Mauro", Corte di Appello dell'Aquila, L'Aquila, available at: https://processoaquila.files.wordpress.com/2015/03/sentenza-appello-aq-1-1001.pdf (accessed 30 July 2018).

Corte di Cassazione (2016), "Sentenza sul ricorso proposto dal Procuratore Generale presso la Corte di Appello dell'Aquila *et al.*", Corte Suprema di Cassazione, IV Sezione Penale, Roma, available at: www.giurisprudenzapenale.com/2016/04/01/terremoto-laquila-la-sentenza-della-cassazione-sulla/ (accessed 30 July 2018).

Fioritto, A. (2014), "Science, scientist and judges: can judges try science?", *European Journal of Risk Regulation*, Vol. 5 No. 2, pp. 133-136.

Future Earth (2014), "Strategic Research Agenda 2014: priorities for a global sustainability research strategy", International Council for Science, Paris.

Gall, M., Cutter, S. and Nguyen, K. (2014), "Transformative development and disaster risk management", IRDR AIRDR Publication No. 4, Integrated Research on Disaster Risk, Beijing, available at: www.irdrinternational.org/wp-content/uploads/2015/01/AIRDR-Project-Report-No.-4-WEB-7MB.pdf (accessed 30 July 2018).

Hall, S. (2011), "Scientists on trial: at fault?", *Nature News*, Vol. 477 No. 7364, pp. 264-269.

IDNDR (1994), "Yokohama strategy and plan of action for a safer world: guidelines for natural disaster prevention, preparedness and mitigation", *IDNDR World Conference on Natural Disaster Reduction, Yokohama, 23-27 May*, available at: www.unisdr.org/files/8241_doc6841contenido1.pdf (accessed 30 July 2018).

Imperiale, A.J. and Vanclay, F. (2016a), "Experiencing local community resilience in action: learning from post-disaster communities", *Journal of Rural Studies*, Vol. 47, Part A, pp. 204-219.

Imperiale, A.J. and Vanclay, F. (2016b), "Using social impact assessment to strengthen community resilience in sustainable rural development in mountain areas", *Mountain Research and Development*, Vol. 36 No. 4, pp. 431-442.

Lauta, K. (2014), "New fault lines? On responsibility and disasters", *European Journal of Risk Regulation*, Vol. 5 No. 2, pp. 137-145.

Nosengo, N. (2010), "Italy puts seismology in the dock", *Nature*, Vol. 465 No. 7301, p. 992.

Nosengo, N. (2012), "New twists in Italian seismology trial: Californian scientist testifies against defendants in quake manslaughter case", *Nature*, 16 February, available at: www.nature.com/news/new-twists-in-italian-seismology-trial-1.10049 (accessed 30 July 2018).

Notaro, D. (2014), "Scientists and earthquake risk prediction: 'ordinary' liability in an extraordinary case?", *European Journal of Risk Regulation*, Vol. 5 No. 2, pp. 159-167.

Oliver-Smith, A., Alcántara-Ayala, I., Burton, I. and Lavell, A. (2017), "The social construction of disaster risk: seeking root causes", *International Journal of Disaster Risk Reduction*, Vol. 22, June, pp. 469-474, available at: www-sciencedirect-com.proxy-ub.rug.nl/journal/international-journal-of-disaster-risk-reduction/vol/22/suppl/C

Patterson, J., Schulz, K., Vervoort, J., Adler, C., Hurlbert, M., van der Hel, S., Shmidt, A., Barau, A., Obani, P., Sethi, M., Hissen, N., Tebboth, K., Anderton, K., Börner, S. and Widerberg, O. (2015), "'Transformations towards sustainability': emerging approaches, critical reflections, and a research agenda", Working Paper No. 33, Earth System Governance Project, Lund and Amsterdam, July.

Perry, R.W. and Quarantelli, E.L. (2005), *What is a Disaster? New Answers to Old Questions*, Xlibris Corporation, Philadelphia, PA.

Pietrucci, P. (2016), "Voices from the seismic crater in the trial of the major risk committee: a local counternarrative of 'the L'Aquila Seven'", *Interface: A Journal on Social Movements*, Vol. 8 No. 2, pp. 261-285.

Quarantelli, E.L. (Ed.) (1998), *What is a Disaster? Perspectives on the Question*, Routledge, New York, NY.

Scolobig, A., Mechler, R., Komendantova, N., Liu, W. and Patt, A. (2014), "The co-production of scientific advice and decision making under uncertainty: lessons from the 2009 L'Aquila earthquake, Italy", *Planet@risk*, Vol. 2 No. 2, pp. 71-75.

Simoncini, M. (2014), "When science meets responsibility: the major risks commission and the L'Aquila earthquake", *European Journal of Risk Regulation*, Vol. 5 No. 2, pp. 146-158.

Stucchi, M., Pinho, R. and Cocco, M. (2016), "After the L'Aquila Trial", *Seismological Research Letters*, Vol. 87 No. 3, pp. 591-596.

Tribunale di L'Aquila (2012), "Sentenza nella causa penale contro Barberi Franco, De Bernadinis Bernardo, Boschi Enzo, Selvaggi Giulio, Calvi Gian Michele, Eva Claudio, Dolce Mauro", Tribunale di L'Aquila, L'Aquila, available at: https://iononfaccioniente.files.wordpress.com/2013/01/sentenza-grandi-rischi-completa.pdf (accessed 30 July 2018).

UNISDR (2005), "Hyogo framework for action 2005–2015: building the resilience of nations and communities to disasters", United Nations International Strategy for Disaster Reduction, Geneva, available at: www.unisdr.org/we/inform/publications/18197 (accessed 30 July 2018).

UNISDR (2015), "Sendai framework for disaster risk reduction 2015–2030", United Nations International Strategy for Disaster Reduction, Geneva, available at: www.unisdr.org/we/coordinate/sendai-framework (accessed 30 July 2018).

Yeo, M. (2014), "Fault lines at the interface of science and policy: interpretative responses to the trial of scientists in L'Aquila", *Earth-Science Reviews*, Vol. 139, December, pp. 406-419, available at: www.sciencedirect.com/journal/earth-sciencereviews/vol/139/suppl/C

Corresponding author
Angelo Jonas Imperiale can be contacted at: a.j.imperiale@rug.nl

Received 29 January 2018
Revised 14 August 2018
7 November 2018
14 December 2018
16 January 2019
16 February 2019
Accepted 16 February 2019

Disaster recovery and violence in neoliberal times: community and spatial fragmentation in L'Aquila

Gianmaria Valent
Independent Researcher, Italy

Abstract

Purpose – The purpose of this paper is to examine the disruption and reconfiguration of the territorial organisation of the central Italian town of L'Aquila resulting from actions taken by the special commissioner, a plenipotentiary official appointed by the central government, during the ten-month emergency period following the 2009 earthquake. The study attempts to determine how during the commissioner's short tenure the territory of L'Aquila was restructured for many years to come.

Design/methodology/approach – The paper discusses two major issues: first, the short-term reconfiguration of the territorial organisation through mixed operative centres (Centri Operativi Misti, henceforth COMs); and, second, the long-term fragmentation of the physical and social fabric of the town through the resettlement of thousands of families in 19 semi-permanent housing developments located in outlying, rural areas of the municipality. The methods adopted were both qualitative and quantitative. The qualitative methods involved in-depth examination of official documents and interviews with key witnesses such as local administrators, citizens and activists. Quantitative methods included the GIS analysis of spatial and census data to assess changes in population after the earthquake.

Findings – The most significant finding of this study concerns the COMs and their misuse as a tool of centralised, authoritarian governance. Analysis of the territory's reorganisation revealed that the model of emergency management followed in L'Aquila, far from taking into account unique features of the local population and territory, was hetero-centred and consistent with neoliberal thought. Understanding violence to be an unfolding process, the author argues that such a model of management can be seen as an application of state violence.

Originality/value – This paper adds a new case study to the discussion of the role of the state and the application of neoliberal policies in disaster recovery. The main originality of the paper lies in its focus on COMs and their peculiar use as a tool for implementing an authoritarian model of disaster management.

Keywords Deregulation, Authoritarian governance, L'Aquila earthquake, Neoliberal disaster management, State violence

Paper type Research paper

1. Introduction

On 6 April 2009, the city of L'Aquila and the surrounding area were hit by a 6.1 Mw earthquake[1], which caused 308 deaths and injured more than 1,500 people. The old town centre became almost entirely uninhabitable, and severe damage was recorded in adjacent urban areas and nearby villages, leaving some 67,500 people homeless. Most of the old town was completely evacuated, and a "Red Zone" was established, accessible only to security operators (Alexander, 2010a). The consequences of the earthquake were particularly serious for the historic centre of L'Aquila, as the Department of Civil Protection (DPC) declared most buildings in the Red Zone uninhabitable (Class E) or uninhabitable due to external causes (Class F). In the city centre, Class E buildings made up 62.8 per cent of all damaged buildings, compared to the 25 per cent registered in the rest of the affected zone. A total of 1,567 buildings were unusable after the earthquake (Frisch, 2009).

The Italian Government entrusted emergency management to the DPC, whose Director, Guido Bertolaso, was appointed Special Commissioner (SC) by Prime Minister Silvio Berlusconi on 6 April 2009.

This paper examines the disruption and reconfiguration of the territorial organisation of L'Aquila resulting from the SC's actions during the emergency period, attempting to determine how the commissioner's ten months of management succeeded in restructuring the territory

Disaster Prevention and Management
Vol. 28 No. 4, 2019
pp. 446-459

0965-3562
DOI 10.1108/DPM-01-2018-0032

fundamentally for many years to come. Following Elden's (2013) influential discussion of "the birth of territory", I define "territorial organisation" as the exercise of political power on a bounded area by first delimiting and shaping it. This paper offers analysis of disaster governance and discusses the role of Centri Operativi Misti (COMs), the districts into which the province of L'Aquila and certain areas of the provinces of Teramo and Pescara were divided immediately after the earthquake (Alexander, 2013). The case study will be situated within the context of literature regarding state violence and the state of exception, wherein a strong relation to neoliberal policies will be established. Klein (2007) and Springer *et al.* (2016) agree that because disasters cause disorientation amongst the affected people, they create opportunities for exploitation and allow the introduction of neoliberal policies without opposition (Adams *et al.*, 2009; Rivlin, 2005). In this paper, the term "violence" is not intended to convey the common meaning of physical violence, arbitrary detention or heavy constraints upon a person or a group (Agamben, 2005), although the aftermath of this earthquake did see the application of certain restrictions which might be considered "violent" in this sense, from abridgment of the right of assembly in the tent camps to the deployment of the army. Rather, Alexander (2010a, 2013) aligns the L'Aquila intervention with the military term "overwhelming force". Violence, in this sense, has been exercised on the territory, the local government and the body of the citizenry as a whole (rather than single individuals), and it has been applied in an "unfolding process" (Springer, 2016, p. 9) rather than as a single event. Such violence was inflicted during the massive government mobilisation of personnel and equipment to occupy the territory, and also in its purely technical approach to recovery, which reduced territorial complexity. Violence was done to local authorities by excluding them from decision-making processes. Finally, the people themselves experienced violence in being treated as voiceless subjects rather than citizens with the ability and right to play an active role in the recovery. What is more, the involvement of the people and of grassroots organisations was deliberately prevented in L'Aquila (Forino, 2015).

Drawing upon recent literature on the violence of neoliberalism, I argue that neoliberalism, far from entailing the retreat of the state from governing processes and from the exercise of oppressive power, actually fosters increased violence and authoritarianism through the increasingly tight connection between institutions and economic interests, as this case shows. The intervention strategy established in L'Aquila can be summarised as a combination of deregulation policies and the concurrent application of strict control. The strategy was established under the authority of the SC, upon whom the prime minister conferred full power to manage the recovery process in the area. To facilitate economic operators and promote a well-defined model of reconstruction, a broad derogation of urban rules, public contract transparency laws and rules protecting citizens against harmful effects of the works was applied in L'Aquila. Over 100 articles of law were derogated (Valent, 2018). Moreover, strict control was exercised over citizens, the media and local authorities (Valent, 2018). A dual-action system, typically neoliberal, was deployed, consisting of a policy of "non-interference" towards business combined with heavy state interventions aimed at preventing or repressing social action (Wacquant, 2013).

The first part of this paper discusses the COMs, which remained in force for nine months, from April until December 2009[2]. A large number of functions were entrusted to COMs, the boundaries of which were delimited by the commissioner, leaving only formal and bureaucratic duties to the mayor of L'Aquila and other local mayors, who, according to law, should have been the primary civil protection authorities (Alexander, 2010b). The actions taken to manage the emergency became vehicles for disrupting the pre-existing territorial organisation. The nature of this reorganisation was strongly authoritarian (Turco, 2010) and hetero-centred (Alexander, 2010a, 2013), and it was mirrored in the redistribution of citizens after the earthquake, as described in the second part of this paper.

In the technical management of the resettlement, in the choice of locations for the 185 new buildings erected as part of the C.A.S.E. (Anti-seismic, Sustainable, Eco-friendly Complex)

Project to house families left homeless and in the abrupt urbanisation of rural areas, we find a failure to address the needs of earthquake victims and a setting-aside of social norms in favour of a purely spatial, paratactical logic (Turco, 2015).

The territory of L'Aquila was configured, historically, in a pattern that had its focal point in the old town. The transfer of thousands of citizens to 19 peripherally located C.A.S.E. Project sites drastically altered this model. The population was dispersed and fragmented, resulting in an unplanned migration of services and economic activities from the centre to the periphery. The lack of services and places for socialisation in the C.A.S.E sites meant that when the centre disappeared the periphery did not take its place, and this change has had severe social consequences, particularly for children and the elderly (Ciccaglione, 2017).

Urban fragmentation manifests itself as a breakdown in the physical and social fabric of a city, a discontinuity that limits the ability of a city to function as an organic whole (Prévot-Schapira and Cattaneo Pineda, 2008). This fragmentation causes a loss of community solidarity (Bocarejo *et al.*, 2016) and territorial integration (the continuous interaction and co-building among human, physical and immaterial entities in a territory) (Farinós Dasí, 2014). Fragmentation does not necessarily mean discontinuity within the urban fabric, though it is often marked by natural and artificial barriers (Marmolejo Duarte and Stallbohm, 2008). The feeling of social disconnection seems to rise in proportion to the number of fragments and the physical distance between them (Bocarejo *et al.*, 2016).

Most previous studies of urban fragmentation focus on spatial and social fragmentation that has developed over a long period, adapting or evolving from particular triggering events. In L'Aquila, the fragmentation occurred within days in the tent camps and hotels and continued in the C.A.S.E. sites. However, the most striking feature of L'Aquila's fragmentation is that it was instigated by external authorities, not by organic processes within the area (Alexander, 2013).

2. Methodology and data

This study used a combination of qualitative and quantitative methods. Since it concerns itself primarily with actions taken by the state, one major element of this investigation has been the examination of programmatic-procedural and normative source documents. The programmatic paper *Rendere le regioni più forti in seguito a un disastro naturale. Abruzzo verso il 2030: sulle ali dell'Aquila*, which was drafted in 2012 by the Organisation for Economic Co-operation and Development (OECD) and the University of Groeningen on behalf of the Italian Government, articulates the goals of and guidelines for the recovery process.

The examination of the normative source documents involved the review of a number of laws and decrees. Among other documents, this study examined prefectural decree 01/P/T, dated 6 April 2009, regarding the establishment of the first COM; the 49 publicly available decrees signed by the commissioner regarding the C.A.S.E. Project, Directorate for Command and Control (DiComaC) and COMs; Prime Minister's Ordinance (OPCM) 3753 and the Prime Minister's Decree (DPCM) dated 6 April 2009; the coordinated earthquake text published by the office of the president of the Abruzzo region, dated 6 April 2009; law 225/92 and Presidential Decree (DPR) 61 on civil protection, dated 6 February 1981; and over 100 articles of law derogated by the Prime Minister's Decree. This examination allowed for the evaluation of intervention strategies and priorities as well as for the quantification of the deregulation applied in L'Aquila.

The research questions driving this study cannot, however, be answered only through the examination of programmatic-procedural and normative source documents. In particular, the SC's actual modes of action, along with his connections to local administrators and the people, are impossible to determine through the analysis of documents alone. Therefore, I chose to conduct five semi-structured interviews with local administrators and members of citizens' committees who had direct experience in this case (Zoppi and Lai, 2010). This methodology was chosen to uncover more information about the SC's way of operating in the local community.

The first interviewees were Mayor of L'Aquila Massimo Cialente and Councillor Fabrizio Pelini. These two local administrators were asked about the involvement of local institutions in the emergency management plan, as well as about the choices made regarding the locations and toponymy of the C.A.S.E. sites, the establishment and operations of the COMs and the relocation of residents of public housing from within the historical city centre.

Among the next to be interviewed were a militant activist working on the 3e32 Committee (a grassroots organisation directed at involving the populace in the reconstruction); another grassroot activist, also a blogger; and an evacuee who, with her family, had experienced all the varieties of accommodation provided by the DPC. The questions posed mainly addressed perceptions of the emergency management system and the responses of those directly affected by that system. Interviews were carried out during three separate weeks between December 2014 and June 2015. In addition to these interviews, the fieldwork consisted of inspections of the historical city centre and urban area of L'Aquila to note the stage of recovery there and of the C.A.S.E. resettlement sites to observe the physical realities (locations, roads, buildings, services) of each.

The quantitative methods selected for measuring fragmentation include a comparison of census data from before and after the earthquake and the determination of the minimum distances of C.A.S.E. sites from one another and from the city centre. The results of this quantitative analysis are discussed in Section 3.2.3.

The first analysis was conducted through the process of area weighted interpolation (Valent and Ferrarese, 2017), a dasymetric GIS technique that allows for the distribution of demographic data in areas with a land use compatible with housing settlements (Eicher and Brewer, 2001). The analysis was conducted by comparing census data from 2001 and 2011. This data selection is justified because these were the only official, public data sets with the required characteristics of geo-referencing, high spatial resolution and comparability with previous and subsequent census surveys.

To assess the minimum distances between the C.A.S.E. sites and the L'Aquila city centre, I used the cost-distance analysis (CDA) technique after rasterising the road network. A vector-based "network analysis" could not be applied to this study due to the number of topological errors in the Abruzzo region road network extracted from the Regional Technical Cartography sheets. CDA algorithms work through rasterised data, even though they are mathematically identical to those used in network analysis (Cormen *et al.*, 2009).

3. Findings

3.1 Excluding local authorities: the COMs

The COMs were designed to support local authorities in handling emergencies (Alexander, 2010a). Presidential Decree No. 61 of 6 February 1981 sets rules for COMs in paragraph 7, Art. 14 of Title I, clearly stating the municipal, inter-municipal or provincial level of COMs, described as provisional structures coordinating emergency responses. Sub-municipal levels are not considered.

Additionally, the glossary provided by the DPC's website defines COMs as operational structures that coordinate emergency services at the provincial level[3]. Finally, on the page of the Interior Ministry's website dedicated to civil protection, we read, once again, that COMs are operating structures for emergencies organised at the inter-municipal or municipal level – this latter level intended for municipalities of a sufficient size not to require grouping with others[4]. In the hours immediately following the earthquake, the prefecture of L'Aquila (the prefect being the representative of the central government in a province) ordered through Decree 01/PT the establishment of five COMs to coordinate activities necessary for the rescue of earthquake victims: Central L'Aquila, San Demetrio Nei Vestini, Pizzoli, Rocca di Mezzo–Roio Poggio and Paganica–Tempera. Some of these COMs were headed by officials from the prefecture. On 9 April, SC Bertolaso issued Decree No 1-09/04/2009, superseding the prefect's

decree and establishing seven COMs: L'Aquila, San Demetrio, Pizzoli, Pianola, Paganica, Navelli and Sulmona. Heading these COMs were two officials from the prefectures of La Spezia and Brindisi, two officers of the Italian Army, an official from the Marche region and two officials from the National Fire Brigade. The eighth and last COM, Montorio al Vomano, which included various municipalities of the province of Teramo, was established on 17 April by special decree and directed by an official from the Abruzzo region (Figure 1(a)).

The functions of the COMs established by Art. 2 of the decree were:

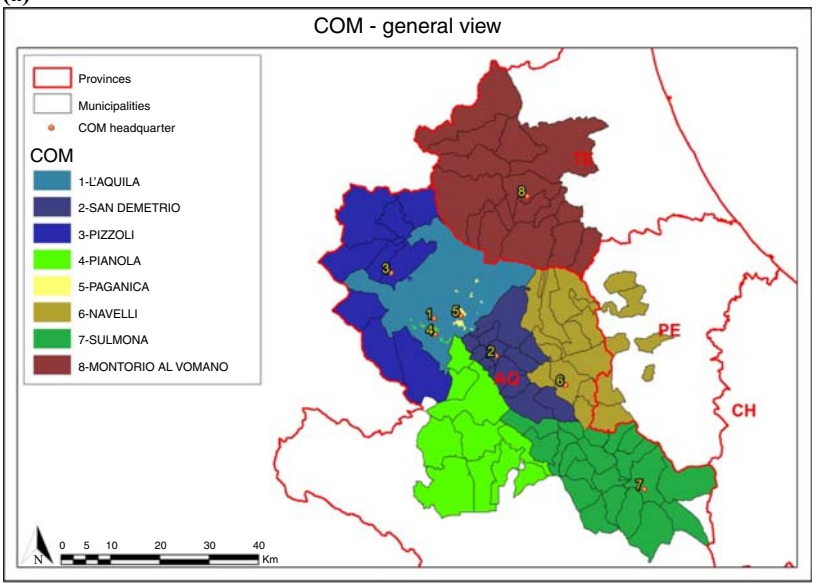
- Evaluation and enumeration of damages.
- Health.
- Telecommunications.
- Volunteering.
- Operational structures and roads.
- Materials and equipment, assistance to the population and evacuees' logistics.
- Essential services.
- Administrative support.

These same functions, and also the preservation of cultural heritage, mass media and information, infrastructure and post-emergency facilities, materials and transport logistics, and coordination of local and other agencies, were assigned to the DiComaC, an organisational innovation that first appeared in L'Aquila (Palma, 2012) to coordinate and direct activities. While the COMs operated under legal guidelines, the DiComaC was a non-institutionalised structure, legitimised and governed exclusively by the SC. The entire system operated through a top-down hierarchical structure, making it an ideal vehicle for the SC and his officials to exert discretionary power.

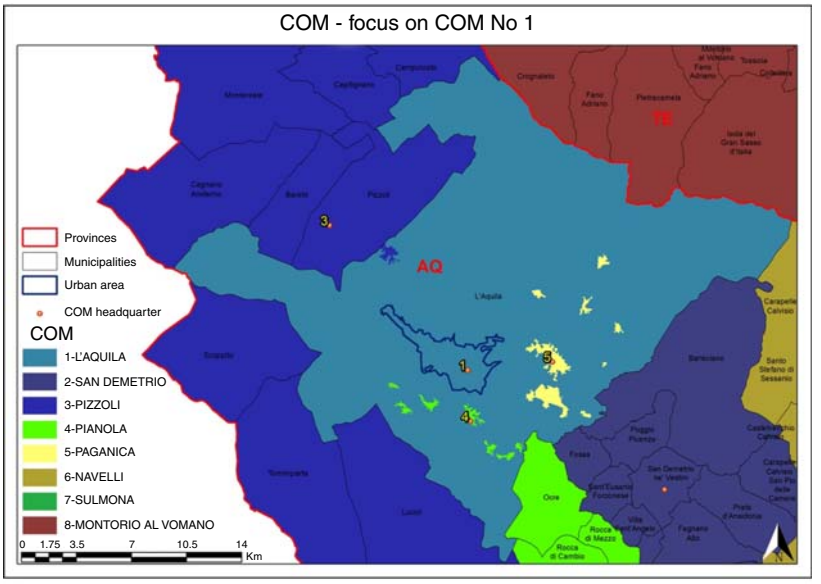
Davis and Alexander (2016) compared the emergency management system in L'Aquila with other emergency events on the basis of citizens' involvement and the role of the state, as proposed by Comerio (2014). The comparison involved 12 disasters around the world, from the 1968 Belice earthquake in Sicily, Italy, to the 2013 typhoon Yolanda in the Philippines. In L'Aquila, the involvement of citizens was among the lowest, only a little higher than that seen following China's 2008 Wenchuan earthquake, while the extent of state intervention ranked third. Moreover, the action of the central government was oriented towards complete control of the emergency management process, creating an intervention model designed to override local authorities rather than to apply the principle of subsidiarity.

The SC's decrees were examined in order to investigate the boundaries of the COMs and the criteria according to which they were delimited. Only COMs 2, 7 and 8 had territorial continuity; the others all consisted of several separate parts (Figure 1(a)). COM 6 (Navelli) comprised several municipalities of L'Aquila Province and the few areas of Pescara Province damaged by the earthquake. The reason for dividing the capital among four COMs remains unknown. From Presidential Decree 61 and the DPC glossary, it is apparent that the municipal level was considered the basic geographical subdivision. While the aggregation of smaller municipalities was provided for, the dismemberment of a municipality was not. The L'Aquila municipality fell mostly within COM 1, but portions were included in COMs 3 and 4. As a rule, the headquarters should be centrally located with respect to the affected area, but COM 4 (Figure 1(a) and (b)) had its headquarters in the sub-district of Pianola, which is relatively peripheral within the included municipalities. In a letter thanking his employees, the director of the COM emphasised the difficulty of operating tent camps in some cases as far as 50 km away from the COM headquarters[5]. COM 5 (Figure 1(a) and (b)) consisted entirely of sub-districts of the municipality of L'Aquila: Aragno, Assergi, Bazzano, Camarda, Filetto, Paganica, Pesco Maggiore, Tempera, Onna and San Gregorio.

(a)



(b)



Note: COMs are indicated on the map by their respective numbers

Figure 1.
(a) General view of COMs and (b) subdivision of L'Aquila into four COMs

The decrees enumerate the municipalities and/or the sub-districts covered by each centre, but the criteria for defining the COM areas are not stated. The coordination and territorial management functions of COMs presuppose homogeneity and continuity to avoid conflicts of jurisdiction and provide citizens with a single point of contact. Examples of the normal

structuring of COMs can be found in the civil protection plans of Italian provinces such as Cuneo, Imperia, Lucca and Pisa, published on their respective websites. Spatial homogeneity, continuity and compactness are always taken for granted. The cartography attached to the plans shows the continuity of the area of each COM and a notable absence of enclaves.

The non-correspondence of the borders of the new COMs with pre-existing administrative boundaries and the artificial grouping of municipalities and sub-districts generate further fragmentation of the territory beyond that caused by the earthquake itself. Over the ten months of SC management, the administrative geography of L'Aquila was reconfigured, and the new boundaries radically redefined existing areas of jurisdiction. The COM areas were not designed according to clear criteria, and I was unable to discover COMs with similar sorts of boundaries in other parts of Italy. The critical issue is the jurisdictions, which overlap with and undermine those of the mayors. According to Art. 15, law 225/1992, a mayor:

> […] assumes the direction and coordination of emergency services and assistance to affected populations and ensures the necessary actions, with immediate notification to the prefect and to the president of the Regional council.

According to Mayor Cialente, all significant decisions were taken at the SC level and hierarchised within the DiComaC and COMs, which were the materialisation and visible sign of state power over the territory of L'Aquila. As all activities were required to pass through these bureaucracies, with their external administrators and their newly established arbitrary boundaries that redefined jurisdictions, DiComaC and the COMs were ideal tools for imposing a new territorial organisation without interference from citizens or local authorities. The new territorial organisation, modelled on the OECD document, posits that the earthquake must be taken as "[…] an opportunity to reformulate the idea of a new future for the region […] developing a territorial brand" in order to increase the exchange value of the city and surrounding areas (OECD and Groeningen Rjiksuniversitet, 2012, p. 20). The people were excluded from the decision-making process, and only residual issues and formal requirements were left for the mayor to handle (Valent, 2018).

3.2 A scattered resettlement and dispersed citizenry

3.2.1 Sudden fragmentation in the emergency phase: the tent camps. According to Alexander (2010a), in the days immediately following the earthquake about a third of the 67,500 people left homeless were housed in hotels on the Adriatic coast of Abruzzo, while another third were held in 171 tent camps located in available areas of the city and in the surrounding territory, managed by the DPC through the DiComaC and COMs. The remaining displaced people were left to find shelter however they could. The strict control exercised over citizens in the tent camps can be seen in excerpts from "internal regulations", which differed from camp to camp. Interviews with activists and witnesses and journalistic investigations (Puliafito, 2010a, b) showed that life in the camps was subject to strict rules. The head of each camp made the rules, but the common guiding principle involved reducing the people in the camps from citizens to managed subjects. Camp officials quickly resolved individual problems in order to discourage collective disputes. There were prohibitions on assembly in the camps and on entering a camp not one's own, and access to the camps by independent journalists was blocked.

The accommodation of displaced people in camps and hotels was the first instance of the abrupt fragmentation that would continue with the C.A.S.E. Project. From the standpoint of this study, the main problem with the disaster response was that citizens of L'Aquila were prevented from acting collectively or participating in the recovery of their city. During the emergency, tens of thousands of people were removed from the area and became unable to intervene. As many others were distributed into tent camps, each of which was impermeable to contact from the outside. As a reaction to the commissioner's management practices, numerous

citizens' committees were eventually established to participate in the city's reconstruction process, according to interviews with Councillor Pelini and A.T. of the 3e32 Committee.

3.2.2 Long-term fragmentation in the post-emergency phase: the C.A.S.E. Project. After the closing of the camps, and in order to resettle the 14,000 people still awaiting reconstruction of their homes, the Italian Government issued Law Decree 39/2009, which mandated that the SC should build "with highest urgency" 185 buildings on 19 sites around the city of L'Aquila, called, collectively, the C.A.S.E. Project. This decree was issued at the end of April, in preparation for the closing of the camps before winter, and an initial fund of 700m euros was allocated for the project. The locations chosen by the SC were almost all in rural or extremely peripheral areas, on sites classified as agricultural. The names of the settlements as well as the new toponymy were decided upon by the commissioner's administration without involving the local populace. The exemptions from regulations regarding planning, public utility expropriation and access to information that were contained in Ordinance No. 3753, issued by the prime minister immediately after the earthquake, prevented citizens from opposing the locations of the settlements. The choice of locations required implementation of urban infrastructure in rural areas, dramatically affecting the living conditions of the resettled people. The rapidity with which the buildings were constructed led to the collapse of parts of some buildings and their rapid deterioration due to water infiltration.

An enquiry conducted during the summer of 2010 by the Communication for Active Listening (CAsA) initiative, promoted by associations and private citizens in collaboration with the research group Cartolab of the University of L'Aquila (Calandra, 2012), offered qualitative indicators of quality of life in the resettlement sites. One indicator of worsening quality of life was the breakup or regrouping of 20 per cent of family units, which disrupted support networks important, especially, for the care of elderly people and children. The enquiry also revealed increased commuting times to work and school and increased dependence on private transportation. Reading the commissioner's and the government's ordinances, it appears clear that the building works were planned for and funded with an absolute lack of forethought about necessary improvements to public transportation.

A final finding from the investigation was that the deterioration of quality of life within the C.A.S.E. sites was mainly felt at the level of the social sphere, available services and common areas. It is also true that the provision of comfortable, fully furnished apartments in some cases improved private and family life. This outcome aligns with the earlier discussion of life in the tent camps: attention was given to aspects of individual life while social and collective aspects of life were disregarded.

3.2.3 A quantitative assessment of population fragmentation. Census data collected at the end of 2011 were used to quantify medium- to long-term changes in population distribution in L'Aquila after the earthquake. Two years and eight months after the earthquake, and two years after the end of the emergency period in which the tent camps were operational, people were still living in housing provided by the C.A.S.E. Project and in private homes rented with a form of financial aid known as "contribution for autonomous accommodation". The raw census data showed general depopulation of the urban area of L'Aquila, primarily the historic centre, most of which was included in the Red Zone. This area was completely evacuated and access allowed only to police, firemen, the DPC and others authorised by Municipal Ordinances No 6 06/04/2009 and No 73 29/04/2009. Although some streets were partially reopened as time went on, most of the historic centre remained uninhabitable at least until 2014. The population of L'Aquila municipality at the time of the 2011 census had decreased by 1,539 individuals compared to 2001; the population of the whole urban area had decreased by 14,107, and the number of inhabitants of the city centre had decreased by 6,010 (Figure 2(b)).

While the decrease in the number of inhabitants in the entire municipality was relatively low, a great population movement occurred within the municipal area as a result of

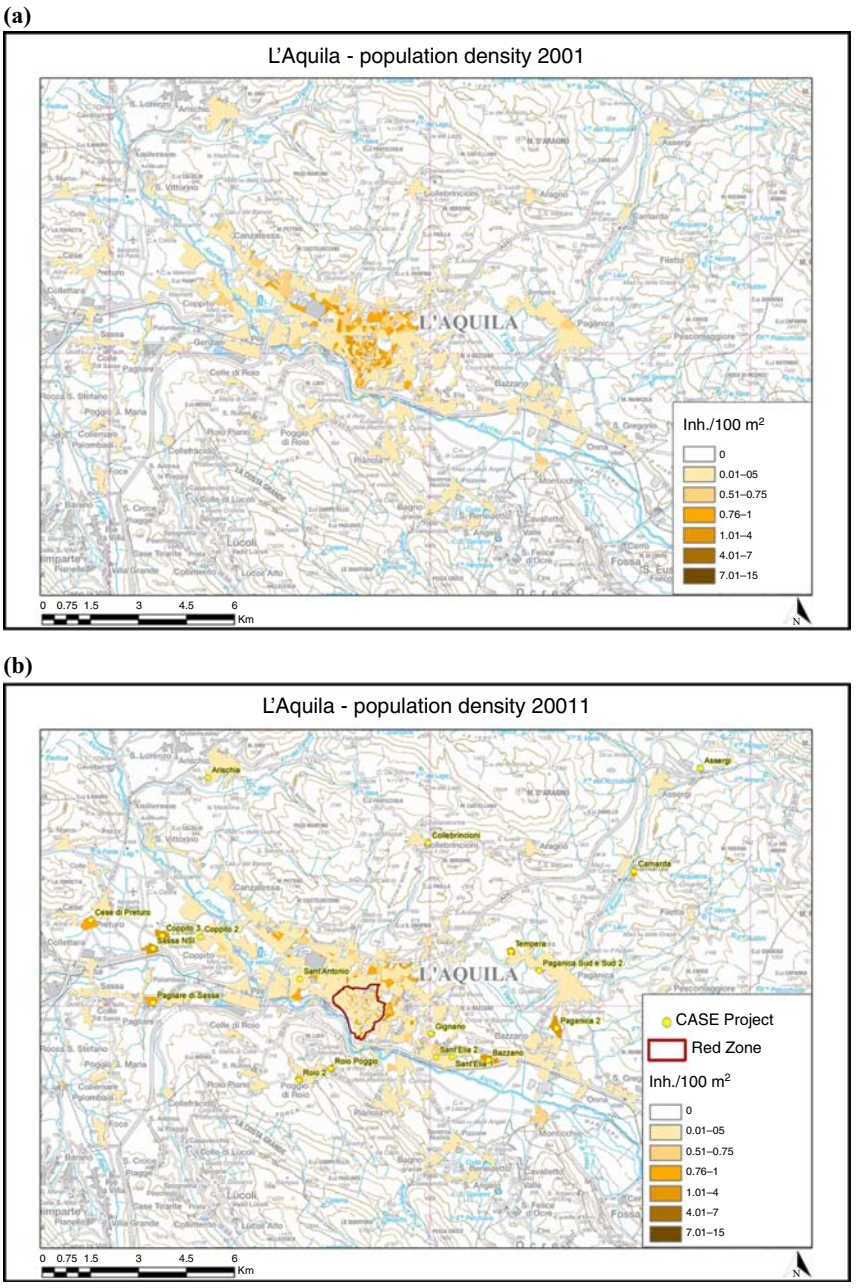


Figure 2.
Maps of population density in the municipality of L'Aquila according to (a) the 2001 census and (b) the 2011 census

resettlements in the C.A.S.E. sites. To determine and map the actual population dynamics in detail, a GIS analysis was performed using the area weighted interpolation procedure. The spatial resolution of this analysis is given by the size of the cells that constitute the raster map, set at 10 m on each side, covering a surface of 100 m^2.

Figure 2(a) and (b) shows the population density before and after the earthquake and subsequent resettlement, expressed as inhabitants/100 m^2, as recorded by the census surveys.

Most of the urban area of the municipality suffered a decrease in population compared to the suburban area, especially the C.A.S.E. sites (Figure 3). The GIS analysis allows extrapolation of additional characteristics of the resettlement, primarily a significant increase in population density with reference to the inhabited areas. The average density before the seism was 0.65 inhabitants/100 m^2 with a standard deviation of 4.45; by the end of 2011 this density had increased to an average of 1.97 with a standard deviation of 18.96. This value indicates a higher concentration of people (triple the previous average density) and at the same time an increase in inhomogeneity marked by the quadrupling of the dispersal index. The inhomogeneity of the resettlement pattern and the prevalence of zones with negative balances over those with positive ones are apparent in the map in Figure 3. Areas with positive balances made up 37 per cent of the total, for an extent of 9.26 km^2, while areas with negative balances made up 62 per cent for an extent of 15.5 km^2. This means that a populace that had originally occupied an area of 15.5 km^2 was resettled in an area slightly larger than 9 km^2.

The fragmentation and dispersal of the population of L'Aquila was quantified using CDA. Before the earthquake, most of the inhabitants of L'Aquila lived in the urban area, within a surface of a little less than 14 km^2, about 9 km in length and 3 km at its widest. After resettlement, distances and areas changed by an order of magnitude: the total area included within the perimeters of the C.A.S.E. sites is 131 km^2, and the distances between the sites averages 12 km, with a maximum of 33 km between Assergi and Arischia. Also, the distances of the C.A.S.E. sites from L'Aquila's historical centre, which was always the hub of its economic and social life, give a clear idea of the extent of the fragmentation suffered by the population. Even today, to reach the centre, people living in C.A.S.E. sites must travel an average of 7.38 km (and as far as 18.6 km in the case of Assergi).

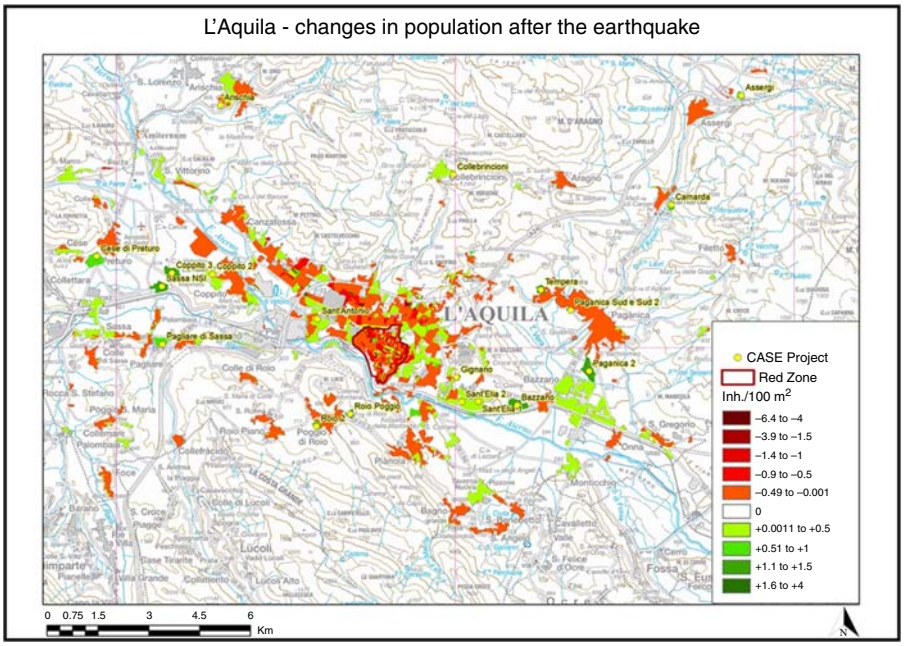


Figure 3.
Changes in population density – zones with positive and negative balance

The significance of these distances lies not only in their absolute values but also in the severe lack of public transportation systems serving the resettlement zones. This fact means that resettled people are almost totally dependent on private vehicles and that minors and the elderly, especially, may experience mobility problems. As mentioned in Section 3.2.2, the CAsA enquiry showed increased commuting times from home to workplace or school (Alexander, 2010b; Calandra, 2016; Frisch, 2009).

3.2.4 Fragmentation: not a random consequence. The urban fragmentation that has taken place in L'Aquila is both physical and social. Its physical form is visible in the "islands" of the C.A.S.E. Project. Its social form is visible in the displacement of people from their old neighbourhoods and from each other, and at the same time in their concentration in groups of buildings designed and constructed as pure agglomerations of housing developments, lacking public and common spaces as well as neighbourhood services. The negative social impacts of fragmentation are heavy, as Freilich and Peshoff (1997) pointed out when he argued that transferring people and activities from urban areas to new neighbourhoods causes a loss of community and of social and family ties. Moreover, the fragmentation that took place in L'Aquila was not determined by socio-economic forces developed through long-term processes during which citizens could pursue opposition strategies or else adapt. Here the fragmentation happened quickly and was driven by the allocation parameters of the DPC. This fragmentation will probably be long lasting; the C.A.S.E. sites are permanent and will continue to be used for the only function they can fulfil, that of dormitory quarters. According to the Municipality of L'Aquila, as of 31 December 2017, 8,124 people (3,204 families) still lived in C.A.S.E. Project housing, including both welfare recipients and those awaiting the restore of their homes. Finally, we cannot exclude the risk that some of the sites will become seeds of urban sprawl (Olori and Ciccozzi, 2016) and generate further social and physical fragmentation, marking the future territorial evolution of L'Aquila with the stamp of the commissioner's administration. The commissioner's propensity to be more concerned about individual needs than collective purposes, seen both in the tent camps and in the C.A.S.E. Project (Forino, 2015; Puliafito 2010a), was, like the fragmentation itself, not merely a matter of chance. On the contrary, it reflects a precise agenda of deterring collective opposition to the neoliberal and business-oriented reconstruction path sponsored by the national government (Calandra, 2012; Forino, 2015) and of neutralising social opposition in advance (Valent, 2018).

4. Conclusions: a violent reconfiguration of territoriality

This paper has shown that violence and authoritarianism are key elements of neoliberal policy regarding the control and shaping of territory. This conclusion agrees not only with the assertions of Alexander (2010a), for whom the kind of disaster response seen in L'Aquila is an example of the application of the military doctrine of "overwhelming force". The Italian state exercised neoliberal violence upon the people, territory and local institutions of L'Aquila through a complex set of actions and policies, which reinforced one another and can be viewed as an organic whole. The main result of the authoritarian model of intervention applied in L'Aquila has been, according to Calandra (2012), a serious bond over the future of the people and the territory.

First, the central government, through the DPC, responded to the emergency with a massive deployment of personnel and means, allocating significant funds and establishing a rigid chain of command. A new entity completely external and extraneous to L'Aquila society laid new boundaries and place names over the existing ones and redefined the relevant authorities and their areas of competence.

Second, the government, through the DPC, acted as a catalyst in the ongoing process of deterritorialisation triggered by the seismic event; instead of fostering and sustaining

local action and substituting for it only when necessary, it replaced local institutions with a technocratic and non-territorial strategy, alien and one-size-fits-all. The speed with which the C.A.S.E. Project was implemented suggests that it was pre-packaged, waiting for an opportunity, and that L'Aquila was an experimental laboratory for this model of intervention, which is conspicuous in being strongly business oriented. The large-scale deregulation the government authorised, far from being simply a tool for managing an emergency, is a clear mark of neoliberal policy, as argued by Springer (2016), among others. What occurred in L'Aquila should be considered a case of state-led, neoliberal violence directed against a part of the national territory, which was treated as a land to be exploited rather than a territory to be recovered – analogous, as Klein (2007), Adams *et al.* (2009) and Rivlin (2005) pointed out, to what occurred in New Orleans after hurricane Katrina.

Third, the emergency management in L'Aquila was marked by a commissarial structure with strict controls, allowing no scope for intervention by local institutions or the community. At the same time, deregulation created a favourable environment for private business (Boniburini, 2013), allowing projects to be contracted out to "temporary unions of companies" without verifiable reputations and rendering it difficult to implement controls on safety and quality of workmanship (Valent, 2018).

The actions of the commissioner's administration reveal that its main concern was with construction and material and physical interventions upon the *urbs*, the urban fabric, the streets and urban development. The allocation of such substantial funds for the C.A.S.E. Project illustrates the priority given to this kind of intervention compared with rebuilding the urban community. The administration focused almost entirely on new construction, while restoration of damaged buildings in the town centre was repeatedly delayed. The reopened and restored areas of the city centre are those that house nightlife and leisure activities (Ciccaglione, 2017) – aspects of the city designed for commercial purposes rather than for local residents, a priority fully consistent with the neoliberal guidelines highlighted within the OECD document. In any case, the *civitas*, the community of citizens, was systematically excluded from the restoration project. Some inhabitants were moved from the territory and accommodated in hotels while others were housed in the surrounding areas, scattered and fragmented in the camps at first, then later in C.A.S.E. Project homes. Thousands of people had to find their own accommodation, leaving their choice of habitation to the market, without rebuilding neighbourhood communities shattered by the earthquake. The capacity of the people to act and react and play an active part in the reconstruction process – and above all their need to do so – was dismissed or replaced by decision-making interventionism and the rhetoric of the "can-do" government.

As a result, L'Aquila was the scene of a hetero-centred reorganisation of society and territory, in a restructuring exercise in which control was not "lost" by the local society but deliberately and forcefully wrested from it through a combination of neoliberal violence and strong governmental control.

Notes

1. Source: http://cnt.rm.ingv.it/event/1895389
2. Source: decrees 1 and 49; www.commissarioperlaricostruzione.it/Informare/Normative-e-Documenti/Decreti-del-Commissario-Delegato-Guido-Bertolaso
3. Source: www.protezionecivile.gov.it/jcms/it/glossario.wp?contentId=GLO13443
4. Source: www1.interno.gov.it/mininterno/export/sites/default/it/sezioni/sala_stampa/speciali/Protezione_Civile/che_cosa_i_centri_operativi.html
5. www.regione.veneto.it/c/document_library/get_file?uuid=49450a34-d4ba-43b4-a8ac-abcae7fe37&6&groupId=90748

References

Adams, V., van Hattum, T. and English, D. (2009), "Chronic disaster syndrome: displacement, disaster capitalism, and the eviction of the poor from New Orleans", *American Ethnologist*, Vol. 36 No. 4, pp. 615-636.

Agamben, G. (2005), *State of Exception*, University of Chicago Press, Chicago, IL.

Alexander, D. (2010a), "The L'Aquila earthquake of 6 April 2009 and Italian Government policy on disaster response", *Journal of Natural Resources Policy Research*, Vol. 2 No. 4, pp. 325-342.

Alexander, D. (2010b), "An evaluation of the recovery strategy after the 6 April 2009 earthquake in L'Aquila, central Italy", *Disaster Planning and Emergency Management*, available at: http://emergency-planning.blogspot.com/2010/12/evaluation-of-recovery-strategy-after-6.html

Alexander, D. (2013), "An evaluation of medium-term recovery processes after the 6 April 2009 earthquake in L'Aquila, Central Italy", *Environmental Hazards*, Vol. 12 No. 1, pp. 60-73.

Bocarejo, J.P., Portilla, I. and Melendez, D. (2016), "Social fragmentation as a consequence of implementing a bus rapid transit system in the city of Bogota", *Urban Studies*, Vol. 53 No. 8, pp. 1617-1634.

Boniburini, I. (2013), "As a way of introduction. The 'right to the city': practices and imaginaries for rethinking the city", *Les Cahiers d'Architecture La Cambre-Horta N° 9 – La Ville Comme Bien Commun. Planification Urbaine et Droit à La Ville*, pp. 14-43.

Calandra, L.M. (2012), *Territorio e Democrazia*, L'Una Editrice, L'Aquila.

Calandra, L.M. (2016), "Cultura e territorialità: quando l'abitare diventa multitopico Esempi da L'Aquila post sisma", Geographica, Vol. 6, pp. 7-32.

Ciccaglione, R. (2017), "Abitare i vicoli e 'le case' a L'Aquila post-sisma Diritto alla città e spazi di desiderio tra gli adolescenti", *Antropologia*, Vol. IV No. 3, pp. 36-54.

Comerio, M.C. (2014), "Disaster recovery and community renewal: housing approaches", *Cityscape: A Journal of Policy Development and Research*, Vol. 16 No. 2, pp. 51-68.

Cormen, T.H., Leiserson, C.E., Rivest, R.L. and Stein, C. (2009), *Introduction to Algorithms*, The MIT Press, Cambridge, MA, available at: http://mitpress.mit.edu/books/introduction-algorithms (accessed 25 February 2015).

Davis, I. and Alexander, D. (2016), *Recovery from Disaster*, Routledge, New York, NY.

Eicher, C.L. and Brewer, C.A. (2001), "Dasymetric mapping and areal interpolation: implementation and evaluation", *Cartography and Geographic Information Science*, Vol. 28 No. 2, pp. 125-138.

Elden, S. (2013), *The Birth of Territory*, The University of Chicago Press, Chicago, IL.

Farinós Dasí, J. (2014), "Re-territorializating local development in EU: local-based against globalisation impacts", in Carrasco, J.S. and Farinós Dasí, J. (Eds), *Identity and Territorial Character Re-Interpreting Local- Spatial Development*, Universidad de Valencia, Valencia, pp. 13-35.

Forino, G. (2015), "Disaster recovery: narrating the resilience process in the reconstruction of L'Aquila (Italy)", *Geografisk Tidsskrift-Danish Journal of Geography*, Vol. 115 No. 1, pp. 1-13.

Freilich, R.H. and Peshoff, B.G. (1997), "The social costs of sprawl", *Urban Lawyer*, Vol. 29 No. 2, pp. 183-198.

Frisch, G.J. (2009), *L'Aquila. Non Si Uccide Così Anche Una Città?*, CLEAN, Napoli.

Klein, N. (2007), *The Shock Doctrine*, Knopf, Toronto.

Marmolejo Duarte, C. and Stallbohm, M. (2008), "En contra de la ciudad fragmentada: ¿hacia un cambio de paradigma urbanistico en la region metropolitana de Barcelona?", *Scripta Nova. Revista Electrónica de Geografía y Ciencias Sociales*, Vol. VII No. 270 No. 65, pp. 1-13.

OECD and Groeningen Rjiksuniversitet. (2012), "Rendere Le Regioni Più Forti in Seguito a Un Disastro Naturale", Abruzzo Verso Il 2030: Sulle Ali Dell'Aquila.

Olori, D. and Ciccozzi, E. (2016), "L'Aquila città in frantumi: la ricostruzione come acceleratore delle dinamiche socio-spaziali", in Castrignanò, M. and Landi, A. (Eds), *La Città e Le Sfide Ambientali Globali*, Franco Angeli, Milano, pp. 1-20.

Palma, F. (2012), "Dimensione dell'abitare dopo il sisma. L'Aquila tra territorialità, emergenza e CASE", in Calandra, L. (Ed.), *Territorio e Democrazia.*, L'Una Editrice, L'Aquila, pp. 109-124.

Prévot-Schapira, M.-F. and Cattaneo Pineda, R. (2008), "Buenos Aires: la fragmentación en los intersticios de una sociedad polarizada", *EURE (Santiago)*, Vol. 34 No. 103, pp. 73-92.

Puliafito, A. (2010a), *Comando e Controllo*, iK Produzioni, Italy, available at: www.shockjournalism.com/blog/?page_id=182

Puliafito, A. (2010b), *Protezione Civile S.P.A.*, Aliberti, Roma.

Rivlin, G. (2005), "A Mogul who would rebuild New Orleans", *The New York Times*, 29 September, available at: www.nytimes.com/2005/09/29/business/a-mogul-who-would-rebuild-new-orleans.html?_r=0

Springer, S. (2016), *The Discourse of Neoliberalism: An Anatomy of a Powerful Idea*, Rowman & Lilltefield, London.

Springer, S., Birch, K. and Macleavy, J. (2016), *The Handbook of Neoliberalism*, Routledge, New York, NY.

Turco, A. (2010), "La cosa sismica. Stato d' eccezione e territorialità non-configurativa a L' Aquila", in Dumont, I. and Bautès, N. (Eds), *IIIème Rencontre Franco-Italienne de Geographie Sociale: La Géographie Sociale, Le Temps, Le Paysage*, UniCaen, Caen, pp. 33-35, available at: www.unicaen.fr/recherche/mrsh/sites/default/files/public/node/manifestations/geo-sociale_resumes.PDF

Turco, A. (2015), "Capitale, capitalismo, territorialità", *Rivista Geografica Italiana*, Vol. 122 No. 4, pp. 583-590.

Valent, G. (2018), "Disaster governance and democracy: meta-legal praxis in L'Aquila", in Forino, G., Bonati, S. and Calandra, L. (Eds), *Governance of Risk, Hazards and Disasters: Theory and Practice*, Routledge, Oxon, pp. 81-97.

Valent, G. and Ferrarese, F. (2017), "Comparazione di due approcci GIS nello studio dei cambiamenti demografici del post sisma aquilano", *Bollettino Dell'Associazione Italiana Di Cartografia*, Vol. 2017 No. 159, pp. 108-124.

Wacquant, L. (2013), "Constructing Neoliberalism: opening salvo", *Nexus. Newsletter of the Australian Sociological Association*, Vol. 25 No. 1, pp. 1-9.

Zoppi, C. and Lai, S. (2010), "Assessment of the regional landscape plan of Sardinia (Italy): a participatory-action-research case study type", *Land Use Policy*, Vol. 27 No. 3, pp. 690-705.

Corresponding author
Gianmaria Valent can be contacted at: derbaron72@gmail.com

Why and how to build back better in shrinking territories?

Grazia Di Giovanni
Gran Sasso Science Institute, L'Aquila, Italy, and
Lorenzo Chelleri
International University of Catalonia, Barcelona, Spain

Received 31 December 2017
Revised 30 June 2018
15 October 2018
13 November 2018
6 December 2018
Accepted 7 December 2018

Abstract

Purpose – The purpose of this paper is to explore the concept of build back better (BBB) in contexts affected by depopulation and shrinking economies discussing how and if its principles are able to drive the recovery pattern toward a sustainability re-development path.

Design/methodology/approach – BBB principles' usefulness in driving toward a sustainable post-disaster recovery has been tested in L'Aquila's area (Italy) – severely affected by an earthquake in 2009 – through interviews and analyses of reconstruction plans and policies.

Findings – Although most of the BBB principles can be recognized within the intentions of plans and policies, the recovery process highlights a major fallacy in addressing the pre-disaster socio-economic stresses inducing to shrinkage and depopulation development lock-ins.

Practical implications – Although most of the principles can be recognized in the intentions of plans and policies, the recovery process highlights a main fallacy of the "BBB paradigm": the need of addressing pre-disaster socio-economic stresses while recovering from the shocks was not explicitly nor implicitly addressed.

Originality/value – Shrinkage as a process of territorial transformation has been little explored in relation to natural hazards and post-disaster contexts. Indeed, while from one side BBB concept and principles drive toward a potential mitigation of the main risks while re-building, it results challenging to overcome the built environment re-building priorities to question whether, what and how to re-build while investing in socio-economic recovery. Reverting, or accepting, shrinkage could indeed implies to not build back part of the urban fabric, while investing in skills and capacity building, which, in turn, would be difficult to justify through the reconstruction budget. The tension between re-building (better, the built environment) and re-development (skills and networks, at the expense of re-building) is critical when BBB faces disasters happening in shrinking territories.

Keywords Earthquake, Build back better, Disaster resilience, L'Aquila, Post-disaster sustainable reconstruction

Paper type Research paper

1. Introduction

Any disaster is considered as a divide, a discrete phenomenon separating time and places within a "before it" and "after": a four-stage disaster cycle – preparedness, response, recovery and mitigation – is commonly recognized in literature exemplifying pre-disaster and post-disaster activities (Lettieri *et al.*, 2009). However, these two facets of our reality are mutually inclusive and interconnected, since each "reconstruction should dovetail into the next round of mitigation and preparedness works" (Pelling, 2003, p. 13) because systems should learn from past events. Berke *et al.* (1993) stated that post-disaster recovery is the least investigated and most poorly understood among the phases of a disaster and recent studies confirm this statement (Mannakkara and Wilkinson, 2014; Olshansky *et al.*, 2012). As explored by Olshansky and Chang (2009), a key tension in post-disaster contexts is the time compression between "speed and deliberation," namely between re-building as quickly as possible the "pre-existing city" and transforming the affected area into an improved territory.

The notion of build back better (Clinton, 2006) (BBB henceforth) emerges as a concept bridging the aforementioned two plans, of the past and for the future, introducing the necessity of improving recovery practices in line with longer-term sustainability objectives. In Table I, on the left, we listed the ten propositions for operationalizing BBB, enhancing long-term disaster risk. As can be noticed, BBB principles interpret post-disaster

Disaster Prevention and Management
Vol. 28 No. 4, 2019
pp. 460-473

0965-3562
DOI 10.1108/DPM-12-2017-0322

BBB principles (Clinton, 2006)	Clusters used in the research on L'Aquila
1. Governments, donors, and aid agencies must recognize that families and communities drive their own recovery	(1 + 4) 4.2.1 Involvement and empowerment of local institutions and communities
2. Recovery must promote fairness and equity	(2) 4.2.2 Recovery must promote fairness and equity
3. Governments must enhance preparedness for future disasters	(3 + 5 + 10) 4.2.3 Enhancement of long-term risk reduction and disaster resilience
4. Local governments must be empowered to manage recovery efforts, and donors must devote greater resources to strengthening government recovery institutions, especially at the local level	(6 + 7) 4.2.4 Cooperation with NGOs, specialized bodies and agencies in emergency and recovery phases
5. Good recovery planning and effective coordination depend on good information	(8 + 9) 4.2.5 Promotion of just social and economic relaunch
6. The UN, World Bank, and other multilateral agencies must clarify their roles and relationships, especially in addressing the early stage of a recovery process	
7. The expanding role of NGOs and the Red Cross/Red Crescent Movement carries greater responsibilities for quality in recovery efforts	
8. From the start of recovery operations, governments and aid agencies must create the conditions for entrepreneurs to flourish	
9. Beneficiaries deserve the kind of agency partnerships that move beyond rivalry and unhealthy competition	
10. Good recovery must leave communities safer by reducing risks and building resilience	

Table I.
The ten BBB proposition as stated by Clinton (2006) on the left; the clusters proposed by the authors on the right

reconstruction not as a mere re-building activity, but as a process for rethinking the social and built environment in longer-term scenarios by ambitiously connecting: humanitarian relief, reduction of vulnerabilities and involvement of local communities (Kennedy *et al.*, 2008a, b). Because of this integrated perspective, BBB has been openly recalled in several guidelines (Mannakkara and Wilkinson, 2014) and in the Sendai Framework for Disaster Risk Reduction (United Nations International Strategy for Disaster Reduction, 2015).

This paper challenges the normative positive concept of BBB by questioning its principles capacity for driving toward a sustainable post-disaster reconstruction also places affected by the phenomena of social and economic marginalization and depopulation. In these contexts, post-disaster paths ought to frame "better than before," affordable and realistic long-term scenarios addressing previous vulnerability and long-term stresses, so that places will not remain "ageing and shrinking" (Matanle, 2013). The above mentioned theoretical and practical tensions between "restoration and transformation" seem to be very deep in these contexts, highlighting the necessity of redefining priorities, questioning the fragilities of the "pre-existing" status and the truthful chances of a more solid future. In this paper, we tested the efficiency of BBB and its principles in driving and balancing the pressures for acting quickly and rebuild back (better, reducing risks for the next earthquake to damage the city) with effective long-term socio-economic strategic transformations toward a sustainable (not shrinking) future, seizing the so-called post-disaster window of opportunity (Platt and So, 2016; Olshansky *et al.*, 2012). The case study to explore this hypothesis is the complex still ongoing post-earthquake reconstruction process of L'Aquila city, in Abruzzo region (Italy). In 2009, a ruinous earthquake damaged the Region's capital city of L'Aquila (70,000 inhabitants), and other 56 surrounding municipalities

(74,000 inhabitants). The population affected by the earthquake was indeed declining and ageing with a quite low income, and living scattered in a wide hilly-mountain territory classified by the Italian Government as "inner areas" needing (and aiming to achieve through the reconstruction opportunity) economic and social recovery (Barca *et al.*, 2014).

2. Methods

The BBB original principles (Clinton, 2006) shown in Table I (left column) have been clustered by the authors (right column), following advises of the recent literature which discussed and redefined them (Kennedy *et al.*, 2008a; Mannakkara and Wilkinson, 2013, 2014; Leon *et al.*, 2009; Mannakkara *et al.*, 2014). Principles 1 and 4 have been clustered addressing the necessary empowerment of local institutions and communities that emerges as a key element of this reconstruction. Principle 2 is kept in its original formulation, targeting the transversal topic of equity of the reconstruction. Principles 3, 5 and 10 share a common focus on long-term risk reduction and enhancement of disaster resilience through the re-building process. Principles 6 and 7 highlight the weight of forms of cooperation with NGOs and specialized agencies in post-disaster activities. Finally, principles 8 and 9 stress the promotion of just social and economic relaunch.

In order to assess L'Aquila reconstruction respect to the re-framed BBB principles, authors reviewed in depth the legislative frameworks and selected 18 post-quake Reconstruction Plans of small municipalities from "homogeneous areas" (HAs, Figure 1) 4, 5

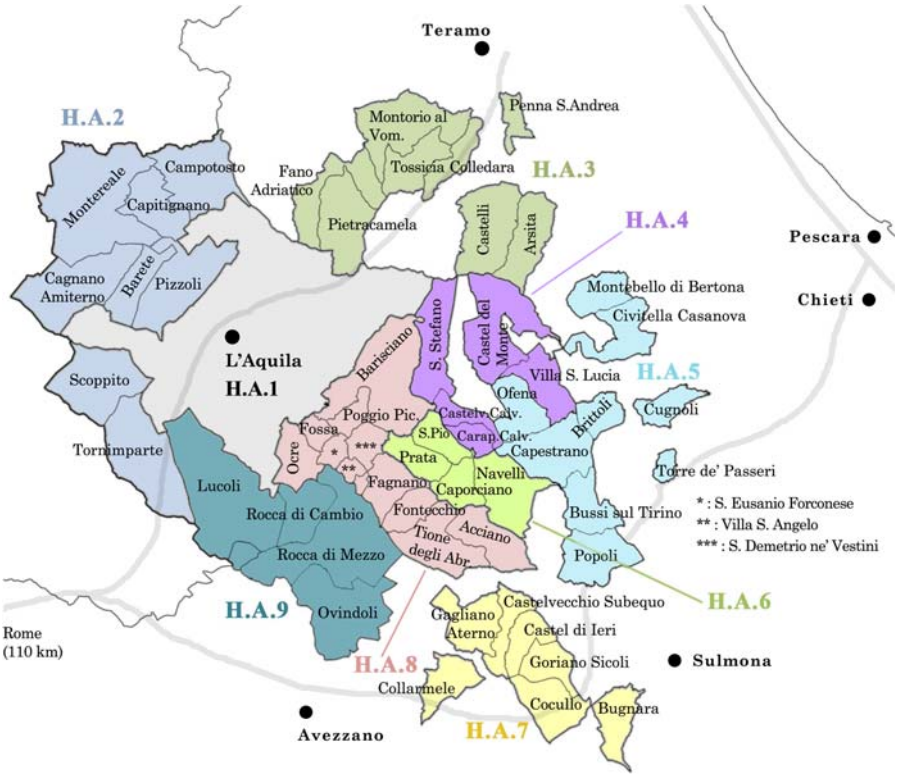


Figure 1.
Territorial organizational of the Seismic Crater in nine HAs

Source: Di Giovanni (2016, p. 123)

and 9 – representing a weak shrinking part of the territory in social and economic terms. This qualitative analysis was reinforced by daily live interaction and fieldwork of the authors, who lived and worked in the city of L'Aquila between 2014 and 2017. Indeed, for three years, opinions, newspapers, public civic debates occurring in the area and a dense local network gained through the daily living within the case study drove authors' observation and final discussions about the reconstruction process, its challenges and alignment with the BBB framework. In 2016, ten semi-structured interviews with civil servants of L'Aquila Municipality, the Regional and Provincial Government, the Special Offices for the Reconstruction of the Seismic Crater (USRC) and L'Aquila's Reconstruction Special Office (USRA) provided data and viewpoints about funding mechanisms, administrative procedures and barriers at local and territorial levels to enable more transformative socio-economic re-development paths. The results of these interviews, providing the institutionalist perspective, have been complemented with the results of 15 informal meetings (happened between 2016 and 2017) with inhabitants, local stakeholders and municipalities' practitioners in order to get the viewpoint of who lived in the affected (shrinking) villages. Data on the state of the art of the reconstruction were retrieved from the online open database for the reconstruction realized by the Gran Sasso Science Institute with the University of L'Aquila and local authorities[1].

3. L'Aquila earthquake: impacts on a shrinking territory

Although geographically Abruzzo region is located in central Italy, it is conventionally considered part of Southern Italy macro-region, having the fiscal advantages and support of the "economic under-performance regions" (OECD, 2013). Data from the 2011 National Census show that Abruzzo is one of the least populated Italian regions, having a low population density (121 inhabitants/sq.km compared to the average national value of 197) and a high ageing index (Abruzzo 167 percent, Italy 149 percent). Data retrieved from Istat (Italian National Institute of Statistics) Regional Regional Accounts in 2016 show the regional GDP per capita (EURO 24,000) and the disposable income of households per capita (16,200 euros) is lower than Italian average (GDP EURO 27,700; income EURO 18,200).

Among many other reasons for suffering ageing and shrinkage, Abruzzo records a frequent and intense seismic activity. The last major earthquake happened in 2009 (5.8 Ml Magnitude Richter, 6.3 Mw: Chiarabba *et al.*, 2009) and strongly damaged L'Aquila and other 56 municipalities counting with 309 deaths and 1,600 wounded of the 140,000 inhabitants. The whole impacted area was defined (henceforth mentioned as) the Seismic Crater and organized in nine HAs (Figure 1) established for better framing the reconstruction process through the Seismic Crater. Funding priorities for reconstruction have been focusing on L'Aquila city first. However, Table II highlights some main differences between the city and the small municipalities when it comes to habitability and residence status of the damaged built environment.

These data highlight how holidays dwellings, rent houses or constructions for non-primary residential purposes represent a significant part of the most damaged building stock within small municipalities. Data from the 2011 National Census support that in Abruzzo region only 67 percent of dwellings are residents' houses (Italy 77 percent) and in L'Aquila province only 86 percent of the building stock is used (Italy 95 percent), and only 56 percent are residents' dwellings (the sixth lowest percentage among all Italian provinces). According to 2011 Census, only 14 out of 57 municipalities did not lose population between 1991 and 2011 (the increases are mostly registered after the earthquake in small municipalities because of displacements due to the damages, and as consequence of the arrival of new working forces involved in the working sites). In 40 municipalities more than 25 percent of inhabitants are older than 65, symptom of a high ageing index in countries

with very low birth rates; the average income of the municipalities (L'Aquila excluded) is around € 16,400 (the income of 38 towns is even inferior), lower than Italy's and Abruzzo's average. Data in Table III testify the fragility of this area within an already fragile region.

4. Results and discussion

4.1 The legislative recovery framework: toward a sustainable long-term post-disaster reconstruction?

The "emergency phase" was declared immediately after the earthquake, to speed up administrative procedures allowing non-ordinary administrative mechanisms. During this phase, while people were hosted in shelter camps and hotels, two different temporary housing solutions were implemented: the MAP project (*Moduli Abitativi Provvisori* – Temporary

Table II.
Buildings habitability status referred to procedures for granting reconstruction contributions, updated October 2017

Habitability	Small municipalities (%)	% of residents' homes for each habitability status	L'Aquila (%)	% of residents' homes for each habitability status
A – habitable buildings	63	74	25	82
B – temporarily inhabitable buildings	19	38	30	66
C – partially inhabitable buildings	3	44	4	60
E – inhabitable buildings for geotechnical or structural risks	15	21	36	66

Notes: Small municipalities: ≈15,600 procedures; L'Aquila: ≈29,600 and ≈1,700 lack habitability data. Elaboration of the authors from official open data sets www.opendataricostruzione.gssi.it. 5 percent of L'Aquila's cases do not provide habitability data

Table III.
Census of inhabitants and ageing index of the damaged area

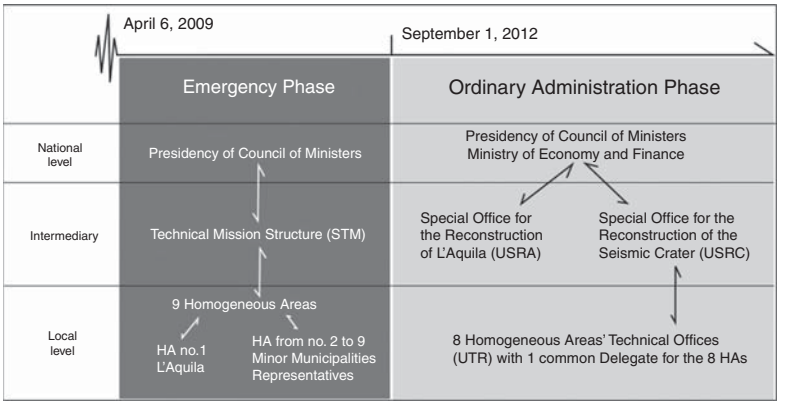
HA	Inhabit. 1991 Census	Inhabit. 2011 Census	Ageing index 2011 (over 65/under 15) %	Average income 2016[a] (rounded to hundreds)
1	66,813	66,964	170	€22,400.00
2	Min: 216	Min: 586	Min: 110	≈ €17,000.00
	Max: 3,114	Max: 3,773	Max: 487	
3	Min: 350	Min: 304	Min: 165	≈ €14,500.00
	Max: 8,918	Max: 8,201	Max: 557	
4	Min: 125	Min: 85	Min: 300	≈ € 11,700.00
	Max: 707	Max: 447	Max: 2,767	
5	Min: 470	Min: 335	Min: 149	≈ €14,100.00
	Max: 5,755	Max: 5,450	Max: 500	
6	Min: 324	Min: 235	Min: 130	≈ €15,600.00
	Max: 700	Max: 613	Max: 352	
7	Min: 396	Min: 255	Min: 238	≈ €15,200.00
	Max: 1,448	Max: 1,106	Max: 885	
8	Min: 462	Min: 326	Min: 131	≈ €16,300.00
	Max: 1,768	Max: 1,853	Max: 609	
9	Min: 447	Min: 504	Min: 241	≈ €17,100.00
	Max: 1,531	Max: 1,468	Max: 335	
		Abruzzo	167	≈ €17,500.00
		Italy	149	≈ €20,600.00

Notes: Elaboration of the authors from www.ottomilacensus.istat.it.[a]Elaboration of the authors from Ministry of Economics and Finance Open Data: www1.finanze.gov.it/finanze3/analisi_stat/index.php?search_class[0]=cCOMUNE&opendata=yes

Housing Modules), about 4,500 small wooden modular shelters grouped near the towns within all the territory, and the CASE project (*Complessi Antisismici Sostenibili ed Eco-compatibili* – Sustainable and Eco-friendly Anti-seismic Complexes), 185 three-floors buildings with anti-seismic basements placed on 19 sites across L'Aquila municipality. They were conceived as longer-term accommodations to be used also after the re-settlement of inhabitants (functions to be discussed in future) (data from National Civil Protection)[2].

The Law 77/2009 (2009) and the Decree of the Commissioner for the Reconstruction (2010) were the pillars of the first normative framework, guiding the response phase and reconstruction process. As mentioned above, the 56 municipalities were invited to cluster within eight HAs (Figure 1) which, on the one hand, were proposed as optimal territorial and administrative entities in order to better address inter-municipalities reconstruction challenges, and, on the other hand, they allowed to foster (compulsory) inter-institutional collaborations. As illustrated in Figure 2, while a "Technical Mission Structure" coordinated the emergency phase (April 2009/September 2012) at the central level, two new "Special Offices for the reconstruction" (one dedicated to L'Aquila city only, USRA, and another dedicated to all the other municipalities, USRC) had the aim of bridging the national and local authorities in order to support the technical and administrative (neither political nor strategical) needs of the reconstruction. The framing of this partially decentralized governance system was supported by the creation of a dedicated Technical Office for the Reconstruction (UTRs) for each HA.

According to the majority of the interviewees, the coordination model applied since 2012 represented a significant improvement and innovation in speeding up the reconstruction-related administrative processes. However, interviews with public servants working at the Special Offices highlighted the limit of this framework when it comes to step down from theory to practices. Indeed, the HAs had no normative authority as institutional bodies, and the relationships among UTRs, municipalities leaders and the Special Offices have been challenging because highly political (meaning, for instance, that municipalities were not always responsive to the requests of sharing data or advances about the reconstruction projects and communication could be challenging). However, the main identified fallacy (agreed among most of the interviewed people from municipalities and USRC) stood in the Reconstruction Plans' lack of consistency respect to the normative framework. Indeed, from one side Law 77 and Decree 3 stated ambitious objectives: to ensure social and economic recovery, promote urban re-development and facilitate the return of inhabitants into their houses (confirmed by interviews at USRC, 2017). In order to



Source: Di Giovanni and Chelleri (2017, p. 128)

Figure 2.
Governance framework for the emergency and ordinary phases

fulfill these objectives, the regulatory framework envisioned the reconstruction as a complex multi-scalar process reinforcing the linkages among municipalities toward a desired integrated territorial system. From another side, once this theoretical framework met the practices, interviews highlighted the practical limitations of the Reconstruction Plans. They could only address the historical and most damaged part of each town (an area called *perimetrazione*, defined on the bases of the suffered damage and mostly coincident with the historical centers). Out of this area, the reconstruction followed different regulation, not integrated within the Reconstruction Plans philosophy, but based on single-buildings simplified technical approvals, relaying on the ordinary urban planning rules, quite outdated in all the Seismic Crater area (confirmed by interviews with public servants and practitioners, 2017). Furthermore, the strategies in the Reconstruction Plans involving a larger territory (beyond the *perimetrazioni*) did not have an overarching normative value on pre-existing town and regional plans (interviews with public servants, 2016). Therefore, the fallacy of addressing a strategic, integrated and territorial re-development path was embedded within the gap of the law lack of implementation normative tools and local planning practices resistance to cooperation as recently proved some scholars (Di Lodovico and Iagnemma, 2012; Di Lodovico, 2013).

The speed of Plans' framing and implementation reflected such a coordination and motivation gap. Four years after the earthquake, only 21 plans out of 56 had been approved by the city councils, and only HAs 4, 5 and 9 (among the 8) commissioned the design of the Plans to the same university departments or freelance consultant for the entire HA in order to guarantee an integrated approach during the design of the recovery strategy. The rest of the municipalities commissioned a different designer for each Plan, and such fragmentation reduced the possibilities of a comprehensive and across-scales holistic thinking in shaping long-term recovery strategies (open data, confirmed by interviews at USRC, 2016).

4.2 Could BBB principles guide a sustainable post-disaster recovery, in shrinking territories?

As illustrated within the method section, BBB principles have been clustered in five main recommendations (Table I), in order to test whether (if and how) the reconstruction processes within the 56 small municipalities responded to those principles. The following subsections relate to the five clusters.

4.2.1 Involvement and empowerment of local institutions and communities (BBB principles 1 and 4). The post-disaster normative framework gave local governments (mainly municipalities) an active role in the reconstruction process, even if definitely minor when compared to supra-local bodies which coordinated most of the emergency phase. As confirmed during the interviews, all municipalities could handle some forms of autonomy already during the emergency phase (e.g. organizing in HAs, or in assigning the Reconstruction Plans; also, a delegation of towns' mayors was involved since an early stage of the whole recovery process). However, local institutions with limited skills struggled in handling the process of reconstruction; even if the relationship with central institutions was sometimes controversial, the Special Offices seem to have contributed to speeding up the administrative processes supporting small municipalities (also through the UTRs: Figure 2, local level): a crucial raising question is if this governance framework was able to foster a substantial empowerment of local governments and offices, in L'Aquila city as well.

Looking at the role and empowerment of local communities, the "L'Aquila's inhabitants diaspora" (Calandra, 2012b, p. 298) has weakened the actual possibilities of people's participation in the public debate and in decision-making process of the reconstruction itself. The pre-existing social vulnerabilities of these areas – such as the ongoing depopulation and the ageing communities – have been worsened by the shock induced by the quake and the

policies that followed (Ciancone and Polvani, 2012). Nevertheless, the third sector survived, and progressively several grassroots projects grew both in the city and surrounding area (Farinosi and Micalizzi, 2012; Punziano *et al.*, 2018): the number of informal networks, associations, cooperatives expanded after 2009, showing a certain capacity of self-organization. Reconstruction, solidarity and "protest against the lack of democracy" were the main drivers of civic engagement but progressively the goals of "community-building" and active participation gained a more central role, intending "participation as tool of management (and hopefully resolution) of complex problems, and not as tool of representativeness of social groups" (Calandra, 2012a, p. 16).

4.2.2 Recovery must promote fairness and equity (BBB principle 2). At first glance, the reconstruction process seems to have addressed at least a fair "distribution" of emergency and temporary housing, and we did not found any regulation discriminating gender or groups. All the population has been assisted through temporary shelters or economic compensations for finding autonomously a new accommodation. The refunding criteria were mainly based on the level of damage of assets, not only prioritizing residents' houses, but also giving some forms of refund for the owners of damaged holidays/second houses (a consistent part of the building stock, see Table II), considered strategic for not harming the local touristic economy. However, if from one side nobody has been left behind, from the other we cannot really state that post-disaster reconstruction process followed equity-driven principles in allocating priorities or resources. Indeed, equity should imply to provide more funding or resources to the most vulnerable groups, but in L'Aquila temporary shelters have been provided with any consideration about the income or economic vulnerability of the people, but mainly in relation to the damages suffered. Another issue which is somehow related to the spatial dimension of equity has been the disparity between the L'Aquila city center, its surrounding peripheries and hamlets, and all the small municipalities. Both media and funding priorities were focused on L'Aquila "urban area" because of the role and symbolism of the city, and the scale of the destruction, while almost ignoring its hamlets and the other already shrinking municipalities in the Seismic Crater. For technical, normative and political choices, less damaged buildings – especially in the peripheries surrounding the historical core – were rebuilt rather quickly, while the processes inside the historical centers regulated by the Reconstruction Plans (both in L'Aquila and in its hamlets) were slower. An in-depth investigation would be necessary to evaluate the fairness and priority given to the individual allocation of each reconstruction grant (which is not the aim of this paper), mainly in the light of 2016 scandals about false documents (cases of residence papers falsification for obtaining the grants for re-building, among other scandals) in order to access subsidies[3].

4.2.3 Enhancement of long-term risk reduction and disaster resilience (BBB principles 3, 5 and 10). Principles about long-term risk reduction and sustainability were stated by Law 77 and Decree 3 (see above) and recalled by the Plans of the HAs 4, 5 and 9. Most of these Plans refused to interpret the reconstruction as a return to pre-existing conditions, and envisioned recovery as a multifarious process of risk reduction aimed at promoting general urban renewal by merging the conservation of local distinctiveness with introducing technological and ecological upgrading. However, this motivation toward improvement was implemented primarily as re-building a safer urban fabric. A new stricter national building code – already drafted in 2009 – was approved after the earthquake and the building heritage was recovered following the most adequate anti-seismic standards, experimenting forms of technological upgrade while reinterpreting local constructing traditions (interview with USRC representative, 2016). Reconstruction Plans also proposed safety measures dedicated to the entire settlements, such as systems of lifelines to improve the urban performance in case of emergency or "smart solutions" for infrastructures, as smart tunnels for increasing the modularity of underground networks (confirmed by interviews at USRA and URSC, 2016).

However, the innovations were limited by the principle of the "causality nexus" to earthquake-related damages, meaning that funds were allocated for the reconstruction of the built environment according to the degree of post-quake damages, with few (or not) space for improvements related to already underdeveloped infrastructures or services. This strict causality nexus acted as a necessary control mechanism on public expenditure, but at the same time made harder to seize the reconstruction to promote a re-design of villages suffering shrinkage, lacking services and infrastructures (interviews with USRC public servant and municipalities' representatives, 2016).

Finally, beyond the enhanced structural safety of the built environment, knowledge and preparedness for future events, enhancing local communities' and institutions' awareness of risks has been highly neglected. The recent quakes that struck northern Abruzzo in January 2017[4] were strongly perceived also in L'Aquila and served as the testbed for disaster resilience capacities, highlighting the still fragile capabilities of managing the event and opened large debates on media about the unpreparedness of institution, insufficient and un-effective organizational skills, lack of communication, and issues related to safety of public buildings, especially schools.

4.2.4 Cooperation with NGOs, specialized bodies and agencies in emergency and recovery phases (BBB principles 6 and 7). In Abruzzo's post-earthquake first emergency, the role of Civil Protection has been determinant in responding and coordinating actions, managing the rescues and the organization of camps. The hyper-centralized, almost "military" management of L'Aquila post-earthquake response as framed by the Italian Government, has been widely examined (Alexander, 2010; Forino, 2015) especially for the Civil Protection major participation in the physical reconstruction of the city, in CASE temporary housing project and in the so-called "Big Events" management (the Italian Presidency of the G8 Summit held in L'Aquila, in 2009 just after the earthquake) at the center of harsh lawsuits about irregularities in tenders for large public works. The militarization of the city center, scandals and polemics – also about the structural and architectonic quality of CASE buildings – has spread a sense of betrayal regarding the central organizations (Alexander, 2010). National and international organizations were also present in the city, as the OECD which worked together with the Department for Development and Economic Cohesion of the Italian Ministry of Economic Development providing guidelines on how to approach and frame L'Aquila reconstruction (OECD, 2013). In the meantime, a growing role and number of non-profit organizations have acted as important independent subjects. The 2011 Census about non-profit institutions registered 525 active associations only in L'Aquila municipality, half of which in the sector "culture, sport and recreational activities," and 420 in the other 56 municipalities. Local organizations have been present in the city life, organizing collective activities, debates and events as explained in previous sections. Nevertheless, the important presence of these realities, the general scenario about their cooperation with public entities seems to take the form of *ad hoc* projects and partnerships, or generic dialogue.

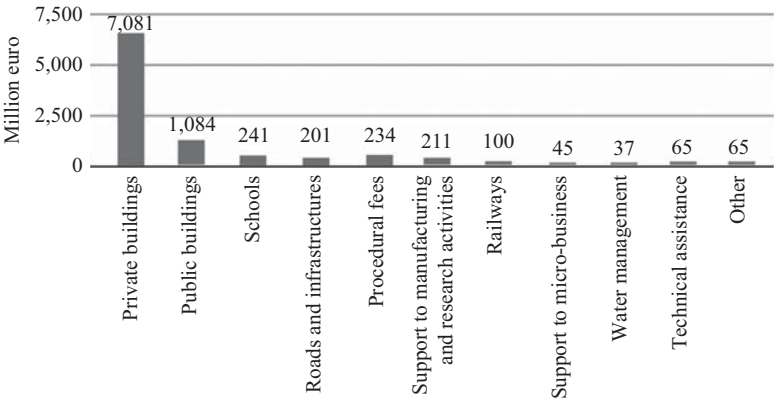
4.2.5 Promotion of a "just" social and economic relaunch (BBB principles 8 and 9). The first principle of Law 77 clearly reflected this assumption, stating the goal of "ensuring social and economic recovery." In the Plans for L'Aquila and HAs 4, 5 and 9, this principle has been translated mainly in relation to strategic guidelines, such as the promotion of naturalistic four-season tourism, strengthening the relations among settlements and rural surroundings, as encouraging forms of high-quality agriculture in the villages. However, when looking at the implementation and initiatives labeled as "interventions supporting socio-economic recovery," these vary widely from actions to support advanced research to the introduction of broadband optical networks. The underestimated necessity of ampler and longer-term policies to reach such a broad goal arose mainly with the passing of time after the disaster: once the

reconstruction of the built environment was perceived as finally set in motion, issues related to (lack of) job opportunities, population shrinkage, (lack of) quality of local services, (lack of) economic attractiveness and lifetime perspectives emerged as key longer-term challenge for the political and civic arenas (reported in local media, confirmed by interviews with USRC public servants and municipalities representatives, 2016–2017). The urgency of re-building private housing stocks dominated both the emergency and post-emergency phases, putting aside community empowerment and structural policies. These priorities reported from interviews are testified by the official data about the expenditure for the reconstruction (see Figure 3): indeed, since April 2009 the Italian Government allocated more than EURO 8.5bn for the reconstruction, of which 74 percent for the reconstruction of private housing stocks and 12 percent for public buildings. The remaining 14 percent has been allocated among school building, streets, infrastructures, support to industry and research.

Long-term development strategies still appear fragile, above all about the reinforcement of local welfare addressing the necessity of super-aged communities or about the combination of reconstruction funds with other grants or public-private partnerships. According to the authors, the narrow binding boundaries of the Reconstruction Plans, the non-normative role of HAs, together with the strength of the "causality nexus" (see Section 4.2 point C) between damages and compensations have weakened the potential of fully exploit the reconstruction as genesis of new local debates about long-term socio-economic re-development paths.

5. Conclusions: overcoming previous stresses means to BBB

BBB and its related principles should help in not bouncing back to pre-disaster states (and embedded vulnerabilities) but in guiding socio-economic and spatial transformations in order to address the root causes of vulnerability while enhancing resilience. Especially in conditions of spread social and economic fragility, the meaning of the "better" should refer to avoiding institutional inertia and overcoming development lock-ins of the pre-disaster trajectories (Khasalamwa, 2009; Mannakkara and Wilkinson, 2014). This paper has been framed around a specific case study characterized by socio-economic pre-disaster stresses, analyzed through the lens of BBB approach and principles. There are different critical reflections useful for the international audience that this paper would like to pose, related to



Note: Elaboration of the authors from the assignments of the Italian Inter-ministerial Committee for Economic Planning for Post-earthquake Reconstruction in Abruzzo
Source: www.programmazioneeconomica.gov.it/2018/08/21/ricostruire-labruzzo-3/

Figure 3.
Distribution of the national budget for the reconstruction from 2009 to 2017

the tensions and linkages between shock and stresses, recovery and development. The political discourses around "build back as it was, and as fast as possible," which described the first years after L'Aquila earthquake, were in contradiction with the national laws regulating the reconstruction (Section 4) and with the aims of the Plans, which stated that a reconstruction should avoid to build back as it was, while introducing risk mitigation and socio-economic long-term recovery within the re-building aims. This is a common tension also reported by the scientific literature as the "speed vs deliberation" challenge (Kim and Olshansky, 2014; Olshansky *et al.*, 2012). Digging into this tension, the paper demonstrated the paradoxes of fund assignments (Section 4.2) and how the reconstruction budget was mainly focused on the built environment recovery, also in areas where population is ageing and the housing stock is largely devoted to secondary homes (as reported in Table II). As already suggested within the literature by Yi and Yang (2014), budgets for infrastructures and buildings should be integrated in order to frame integrated and strategic projects for build more resilient communities (Mannakkara and Wilkinson, 2014). The reconstruction within the Seismic Crater highlighted how the "structural mitigation" – defined by Bosher as achieved through strengthening buildings and infrastructures via engineering design – prevailed on the "non-structural mitigation" mechanisms (community capacities strengthening, planning for flexibility, relocation in safer areas, etc.) (Bosher, 2014; Bosher *et al.*, 2007). As explored through Section 4.2 point A, the reconstruction involved many different social groups and actors, even if we could argue about how much or in which way participation has been framed.

A critical reflection on the linkages between BBB principles and their effectiveness in driving post-disaster recovery toward a sustainable future, even in cases of pre-disaster socio-economic vulnerability, stands in the paradox that only one of the ten BBB principles focuses on socio-economic recovery. At the same time, socio-economic dynamics are the ones driving (re)development, urban fabric, infrastructures and services quality and people well-being, or exposure to threats. In our case study, the goals of socio-economic recovery have been stated by laws and Plans, but only partially implemented, since translated through built environment innovations and supporting pre-existing economic activities. In L'Aquila and within the Seismic Crater, the reconstruction process missed a necessary critical reflection about how to transform previously ineffective economic engines and how to support a declining and ageing population in order to flourish again. If not addressing these critical issues embedded within pre-disaster stresses, the concept of "BBB" would fail to answer the question of "why to build back"?

In a shrinking territory, characterized by ageing society, economic depression, common lack of sufficient human resources, skills and competencies within the institutions, and most of the BBB principles would probably fail to meet their target, as shown through this case study. Indeed, because of the shrinkage context, the involvement of the civil society or local institutions, *per se*, would not imply to meet a long-term risk mitigation or sustainable re-development. Within these environments, the causality nexus was serving as a rationale mechanism for controlling public expenditure, linking damages with the budget for the reconstruction. At the same time, this impeded to fund re-development projects beyond the restoring damages within the built environment. Therefore, the challenges for operationalizing BBB within a shrinking context would be, among other questions, how to relaunch weak economies when usually the reconstruction budget is strictly framed around the disaster damages? How to tackle communities and long-term socio-economic territories stresses, when the regulations for recovery are focused on after-shock quick reconstruction? It seems that there is an urgent need of further enriching the BBB framework by better linking the processes embedded within the reconstruction to strategic socio-economic transformation mechanisms, disrupting pre-disasters patterns of development. In particular for shrinking contexts, such a re-framed view of BBB could

imply to discuss whether it makes sense, or not, to "build back" some specific, and highly depressed, parts of the region, but investing in mechanisms to enhance socio-economic transformation were strategically more convenient.

A final remark, however, is that socio-economic strategic transformations could be hard to frame, in depressed regions even having a budget, because of the local lack of skills, vision and therefore socio-political behaves. The capacities of envisioning transformative patterns of change in L'Aquila's case study have been often scarce. While from one side, a new international doctoral school (the Gran Sasso Science Institute) has been created within the city center with the purpose of bringing talents and contributing to boosting local socio-economic recovery, other examples of innovations out of the city have been scarce. The political discourses and choices have emphasized the slogan of "build back as it was, where it was": the majority of the so-called "strategic projects" embedded in L'Aquila Reconstruction Plan were not able to push innovative spatial transformations, much less alternative social or economic alternative scenarios. Indeed, many political promises and discourses still were anchored to projects like enhancing the quality of mountain winter sports tourism (among other proposals, all definitely not in line with a strategic envisioning of socio-economic sustainable and resilient future scenario building); within the Reconstruction Plans for small municipalities, the concepts of "sustainable agriculture" and "tourism" arose as a kind of *panacea* in the debate about local development, while agricultural and touristic activities were already present in the area and they have been addressed as very generic realms of intervention in the Plans. This confirms the tension between re-building (better) or re-planning and envisioning the future city – through skills and networks developments, sometimes at the expense of re-building – embedded within the BBB framework, when disasters happen in shrinking territories.

Notes

1. www.opendataricostruzione.gssi.it
2. www.protezionecivile.gov.it/jcms/it/view_dossier.wp?contentId=DOS322; www.protezionecivile.gov.it/jcms/it/view_dossier.wp?contentId=DOS274
3. http://news-town.it/cronaca/12846-i-furbetti-del-terremoto-4,4-mln-di-cas-non-dovuti-e-alloggi-case-intestati-ai-morti.html; http://news-town.it/cronaca/12878-false-residenze-per-avere-il-contributo,-scoperti-altri-50-furbetti-del-terremoto.html
4. A very disruptive seismic activity struck Central Italy in August 2016, November 2016 and January 2017, involving Lazio, Marche, Umbria and Abruzzo regions.

References

Alexander, D.E. (2010), "Civil protection amid disasters and scandals", *Italian Politics*, Vol. 26, pp. 180-197.

Barca, F., Casavola, P. and Lucatelli, S. (2014), *A Strategy for Inner Areas in Italy: Definition, Objectives, Tools and Governance*, UVAL.

Berke, P.R., Kartez, J. and Wenger, D. (1993), "Recovery after disaster: achieving sustainable development, mitigation and equity", *Disasters*, Vol. 17 No. 2, pp. 93-109.

Bosher, L. (2014), "Built-in resilience through disaster risk reduction: operational issues", *Building Research & Information*, Vol. 42 No. 2, pp. 240-254.

Bosher, L., Dainty, A., Carrillo, P., Glass, J. and Price, A. (2007), "Integrating disaster risk management into construction: a UK perspective", *Building Research & Information*, Vol. 35 No. 2, pp. 163-177.

Calandra, L.M. (2012a), "Laboratorio città: una proposta di comunicazione e partecipazione tra scienza, politica e società", in Calandra, L.M. (Ed.), *Territorio e democrazia. Un laboratorio di geografia sociale nel dopo sisma aquilano*, L'UNA edizioni, L'Aquila, pp. 13-60.

Calandra, L.M. (2012b), "Per una geografia sociale dell'Aquila post-sisma. Comunicazione visuale e nuove forme di democrazia", in Cerreti, C., Dumont, I. and Tabusi, M. (Eds), *Geografia Sociale e Democrazia, La sfida della comunicazione*, Aracne, Roma, pp. 287-311.

Chiarabba, C., Amato, A., Anselmi, M. *et al.* (2009), "The 2009 L'Aquila (central Italy) Mw6.3 earthquake: main shock and aftershocks", *Geophysical Research Letters*, Vol. 36.

Ciancone, S. and Polvani, M. (2012), "Un percorso deliberativo per ricostruire. Il progetto Borghi Attivi a Fontecchio", in Calandra, L.M. (Ed.), *Territorio e Democrazia. Un laboratorio di geografia sociale nel dopo sisma aquilano*, L'UNA edizioni, L'Aquila, pp. 279-286.

Clinton, W.J. (2006), *Lessons Learned from Tsunami Recovery: Key Propositions for Building Back Better*, Office of the UN Secretary-General's Special Envoy for Tsunami Recovery, New York, NY.

Decree of the Commissioner for the Reconstruction (2010), "Linee guida per la ricostruzione", March 9, 2009.

Di Giovanni, G. (2016), "Post-earthquake recovery in peripheral areas: the paradox of small municipalities' reconstruction process in Abruzzo (Italy)", *Italian Journal of Planning Practice*, Vol. 6 No. 1, pp. 110-139.

Di Giovanni, G. and Chelleri, L. (2017), "Sustainable disaster resilience? Tensions between socio-economic recovery and built environment post-disaster reconstruction in Abruzzo (Italy)", in Deppisch, S. (Ed.), *Urban Regions Now & Tomorrow: Between Vulnerability, Resilience and Transformation*, Springer, Wiesbaden, pp. 121-144.

Di Lodovico, L. (2013), "Una legge per i disastri naturali. Creare un nuovo modello di gestione dell'emergenza, di prevenzione e di sviluppo", *Proceedings of the XVI Conferenza Nazionale Società Italiana degli Urbanisti. Urbanistica per una diversa crescita, Planum, Naples*.

Di Lodovico, L. and Iagnemma, L. (2012), "Rischio e pianificazione. Tutela, prevenzione e sicurezza nella programmazione urbanistica", *proceedings of the XV Conferenza Nazionale Società Italiana degli Urbanisti. L'Urbanistica che cambia: rischi e valori, Planum, Pescara*.

Farinosi, M. and Micalizzi, A. (2012), "L'Aquila 2.0: partecipazione dal basso nel primo disastro italiano dell'era digitale", in Minardi, E. and Salvatore, R. (Eds), *O.R.e.S.Te. Osservare, comprendere e progettare per ricostruire a partire dal terremoto dell'Aquila*, Homeless Book, Faenza, pp. 155-174.

Forino, G. (2015), "Disaster recovery: narrating the resilience process in the reconstruction of L'Aquila (Italy)", *Geografisk Tidsskrift-Danish Journal of Geography*, Vol. 115 No. 1, pp. 1-13.

Kennedy, J., Ashmore, J., Babister, E. and Kelman, I. (2008a), "The meaning of 'build back better': evidence from post-tsunami Aceh and Sri Lanka", *Journal of Contingencies and Crisis Management*, Vol. 16 No. 1, pp. 24-36.

Kennedy, J., Ashmore, J., Babister, E., Kelman, I. and Zarins, J. (2008b), "Disaster mitigation lessons from 'build back better' following the 26 December 2004 Tsunamis", in Feyen, J., Shannon, K. and Neville, M. (Eds), *Water and Urban Development Paradigms: Towards an Integration of Engineering, Design and Management Approaches*, Taylor and Francis, London, pp. 297-302.

Khasalamwa, S. (2009), "Is 'build back better' a response to vulnerability? Analysis of the post-tsunami humanitarian interventions in Sri Lanka", *Norsk Geografisk Tidsskrift – Norwegian Journal of Geography*, Vol. 63 No. 1, pp. 73-88.

Kim, K. and Olshansky, R.B. (2014), "The theory and practice of building back better", *Journal of the American Planning Association*, Vol. 80 No. 4, pp. 289-292.

Law 77 (2009), "Conversione in legge, con modificazioni, del decreto-legge 28 aprile 2009, n. 39, recante interventi urgenti in favore delle popolazioni colpite dagli eventi sismici nella regione Abruzzo nel mese di aprile 2009 e ulteriori interventi urgenti di protezione civile", Law 77, June 24.

Leon, E., Kelman, I., Kennedy, J. and Ashmore, J. (2009), "Capacity building lessons from a decade of transitional settlement and shelter", *International Journal of Strategic Property Management*, Vol. 13 No. 3, pp. 247-265.

Lettieri, E., Masella, C. and Radaelli, G. (2009), "Disaster management: findings from a systematic review", *Disaster Prevention and Management: An International Journal*, Vol. 18 No. 2, pp. 117-136.

Mannakkara, S. and Wilkinson, S. (2013), "Post-disaster legislation for building back better", *Construction Law Journal*, Vol. 29 No. 8, pp. 495-506.

Mannakkara, S. and Wilkinson, S. (2014), "Re-conceptualising 'building back better' to improve post-disaster recovery", *International Journal of Managing Projects in Business*, Vol. 7 No. 3, pp. 327-341.

Mannakkara, S., Wilkinson, S. and Potangaroa, R. (2014), "Build back better: implementation in Victorian bushfire reconstruction", *Disasters*, Vol. 38 No. 2, pp. 267-290.

Matanle, P. (2013), "Post-disaster recovery in ageing and declining communities: the great East Japan disaster of 11 March 2011", *Geography*, Vol. 98 No. 2, pp. 68-76.

OECD (2013), *Policy Making After Disasters: Helping Regions Become Resilient. The Case of Post-Earthquake Abruzzo*, OECD Publishing.

Olshansky, R. and Chang, S. (2009), "Planning for disaster recovery: emerging research needs and challenges", *Progress in Planning*, Vol. 72 No. 4, pp. 200-209.

Olshansky, R.B., Hopkins, L.D. and Johnson, L.A. (2012), "Disaster and recovery: processes compressed in time", *Natural Hazards Review*, Vol. 13 No. 3, pp. 173-178.

Pelling, M. (2003), *The Vulnerability of Cities: Natural Disasters and Social Resilience*, Earthscan, London.

Platt, S. and So, E. (2016), "Speed or deliberation: a comparison of post-disaster recovery in Japan, Turkey, and Chile", *Disasters*, Vol. 41 No. 4, pp. 696-727.

Punziano, G., Coppola, A., Del Fabbro, M., Proietti, P. and Vitrano, C. (2018), "Shifting involvements. NGOs in the post-quake society", in Coppola, A., Fontana, C. and Gingardi, V. (Eds), *Envisaging L'Aquila. Strategies, Spatialities and Sociabilities of a Post-disaster City*, ProfessionalDreamers, Trento, pp. 143-164.

United Nations International Strategy for Disaster Reduction (2015), *Sendai Framework for Disaster Risk Reduction 2015–2030*, United Nations, Geneva.

Yi, H. and Yang, J. (2014), "Research trends of post disaster reconstruction: the past and the future", *Habitat International*, Vol. 42, pp. 21-29.

Corresponding author
Lorenzo Chelleri can be contacted at: lorenzo.chelleri@gmail.com

Post-disaster redevelopment and the "knowledge city": limitations of an urban imaginary in L'Aquila

Giorgos Koukoufikis
Gran Sasso Science Institute, L'Aquila, Italy

Received 31 December 2017
Revised 26 July 2018
29 October 2018
8 December 2018
27 January 2019
Accepted 27 January 2019

Abstract

Purpose – The purpose of this paper is to critically examine the "knowledge city" spatial socio-economic imaginary used in the post-earthquake city of L'Aquila, Italy, to promote its socio-economic redevelopment.
Design/methodology/approach – The paper counters primary and secondary data with the expected qualities of a knowledge city. The analysis is supported by the literature review on knowledge-cities and post-disaster redevelopment, local and national documentation review, on-site observations and an inquiry of the case of the Gran Sasso Science Institute, the leading project towards the implementation of the knowledge-city agenda through interviews with key actors and a survey among its researchers.
Findings – Post-disaster realities and path-dependency leave little room for a positive path-shaping redevelopment trajectory related to a knowledge-city urban archetype. This vision promotes materialism and intellectualism from local, national and international stakeholders; however, the city lacks specific urban qualities to attract and maintain highly skilled labour and investments, while negative socio-economic trends still continue a decade after the earthquake.
Research limitations/implications – The city's post-disaster recovery and redevelopment contain certain degrees of inertia. The early stage of it, the lack of certain secondary data, and the focus of the paper on specific indicators limit the opportunity for stronger reasoning.
Originality/value – The analysis reveals that the redevelopment vision of the knowledge city was hastily adopted. The mismatch between reality and expectations highlights the need for post-disaster territories to avoid overestimation of their capabilities and adjusts their redevelopment strategies to local characteristics adopting modest future projections.

Keywords Post-disaster recovery, Disaster recovery planning, L'Aquila, Knowledge city
Paper type Research paper

Introduction

The 2009 earthquake was a devastating event for L'Aquila leaving physiological and socio-economic marks on the city for decades. This paper, written during the 9th year of post-disaster recovery, provides a critical analysis on the city's socio-economic redevelopment reflecting the limitations of the urban strategy of the "knowledge city" proposed for L'Aquila.

In a globally interconnected world where capital accumulation is driven by knowledge-intensive economic activities, the urban archetype of the knowledge city has emerged (Carrillo, 2006; Yigitcanlar *et al.*, 2008). The concept refers to an advanced capitalistic city that generates and promotes knowledge production and diffusion throughout all its socio-economic and cultural properties (Ergazakis *et al.*, 2004). The collective and individual knowledge is then valorised through exports of high value-added products and services, resulting in wealth production and accumulation for the city (Edvinsson, 2017). A normative approach to such a development archetype implies various qualities that a city should possess. "Hard" qualities refer to attractive urban morphology, spatial articulation and connectivity, dynamic demographics, and advanced infrastructure. "Soft" qualities refer to popular urban theories developed over the last decades (e.g. Landry, 2000; Florida, 2002) according to which cultural qualities and offering (vitality, ethnic diversity, social tolerance, etc.) is crucial for attracting highly skilled labour. And finally, in the presence of knowledge-intensive industries, higher education and research institutions, specialized business clusters and active networking schemes create dense knowledge-intensive labour

Disaster Prevention and Management
Vol. 28 No. 4, 2019
pp. 474-486

0965-3562
DOI 10.1108/DPM-12-2017-0320

markets (Martinez, 2006; OECD, 2007; Musterd and Gritsai, 2010). Thus, cities that wish to adjust their strategies to a knowledge-based economic development paradigm should invest on resources and implement policies trying to imitate the conditions that will allow them to attract and sustain investments and skilled labours.

In L'Aquila, in the aftermath of the disaster, the issue of the area's socio-economic redevelopment shaped by the urban imaginary of the knowledge city was debated. High-profile institutions like the Organisation for Economic Co-operation and Development (OECD) along with national and local stakeholders promoted the latter. The city's council in its post-disaster strategic plan adopted, as the leading vision, the "L'Aquila, City of Knowledge" rhetoric (Fontana, 2018). Congruently, public investments supported the creation of a new research centre and PhD school, the Gran Sasso Science Institute (GSSI), as a part of the emerging redevelopment strategy, visioning a city driven by knowledge and innovation. This strategy fuelled sizable concerns that the earthquake's impact will negatively affect the city's image as an educational hub, thus threatening the economic recovery process (OECD, 2009; Calafati, 2012). The years prior to the disaster, continuous deindustrialization processes and no-growth economic trends brought L'Aquila's province to underperform economically in terms of the Italian average (Di Pietro and Mora, 2015). On the contrary, the local university experienced solid growth with a massive increase in enrolments (above 60 per cent for 2000–2008). Thus, the university became even more important factor of the local economy and various social/professional groups became worryingly reliant on income derived from the students' housing needs and consumption patterns.

This paper discusses the discursive and material investments towards L'Aquila's post-disaster knowledge-city redevelopment, arguing that this vision will most likely remain symbolic. The analysis is grounded on L'Aquila's socio-spatial properties and the features of the GSSI project, suggesting that the use of the knowledge-city archetype is conceptually and essentially inappropriate since local dynamics do not allow a relative trajectory to emerge. The first section introduces the literature on the models of territorial development that inspired the knowledge-city discourse. Thereafter, a methodological note describes the mode and tools of the analysis. The next section sets the scene and contextualises the knowledge-city debate in L'Aquila, describing the process of the promotion and adoption of this redevelopment imaginary and its flagship project, the GSSI. Subsequently, the normative properties of the knowledge city juxtapose with the aspirations communicated in redevelopment reports, L'Aquila's and GSSI's realities indicating various mismatches. Finally, a discussion summarises the main points of the argumentation.

Models of territorial development and the knowledge-city archetype

In the era of advanced capitalism and global-scale economic competition, the spatially bounded communities try to attract the borderless capital, while labour seizes mobility opportunities to avoid precarious working conditions. In this setting and given the importance of advanced service sectors and high-tech industrial applications on economic performance, attracting capital investments and highly skilled labour appears crucial for a city's economic sustainability. Accordingly, scientific research in urban and regional development over the last decades has endeavoured to identify models of territorial development that can explain and predict the dynamics of innovation and economic growth. The ways spatial organisation promotes innovation are proposed and studied (industrial districts, innovative milieus, local production systems, learning regions, etc.) mobilising various concepts of socio-economic development (endogenous development, agglomeration economies, cluster formation, systems of innovation, etc.) (Moulaert and Sekia, 2003). These models underline the importance of location factors, spatial concentration and quality of innovative actors in economic growth (Romer, 1994; Michael, 2000). Hence, knowledge

production units, such as Higher Education Institutions (HEI), universities and research centres, are recognised as crucial for attracting or producing highly skilled labours, which acts as the main input of economic development (Scott, 2004).

The social constructivist nature of this line of thought on territorial development tend to an "under- or over-emphasising of individual processes shaping local economies" (Taylor, 2012), and "a technocratic view of innovation" and development emerge (Moulaert and Sekia, 2003). Nevertheless, economic and political thinking based on these scientific narratives become mainstream, creating the illusion of one-recipe-fits-all policy for spatial development. Urban conversions of this normative understanding of development took place via the promotion of archetypes of urban economic organisation, treating cities as rational economic agents (Lambooy and Moulaert, 1996). Archetypes describe the leading production and consumption urban centres of global capitalism colonized city planning and become role models for smaller or economically weaker cities. The vision and strategies that they carry regarding spatial possibilities and impossibilities become political and cultural tools influencing planning, investments and urban transformation (Mazza, 2009; Albrechts, 2013). Their discourses and symbols construct urban imaginaries projecting socio-cultural messages that affect spatial, social and economic practices and have material consequences for the spatial organisation and economic trajectory of cities (Zukin *et al.*, 1998; Johansson, 2012), which are usually crafted by elitist social groups that govern and define urban interventions and planning priorities driving public investments towards goals that often do not match the local needs and characteristics (Swyngedouw *et al.*, 2002).

One of these archetypes, the knowledge city, was used for L'Aquila's post-disaster redevelopment. Knowledge-based urban development popularised in the dawn of the twenty-first century, indicating that technological and economic advantages are fostered by knowledge-intensive activities (Yigitcanlar *et al.*, 2008). A positive correlation between economic growth and the knowledge base of a city is identified in series of favourable case studies (Cooke and Schwartz, 2008; Glaeser and Saiz, 2003; Lever, 2002; Metaxiotis, 2010). It is thought that manufacturing a knowledge city requires a collective and consistent effort of various local public and private stakeholders (Ergazakis *et al.*, 2004). Their primary scope is to generate and attract highly skilled labour and develop a sufficient number of knowledge-based industries that will provide employment opportunities and trigger positive agglomeration effects (Martinez, 2006; Van Winden *et al.*, 2007). Hence, policies and investments in education, research, and culture to attract highly skilled labour have become for cities mesmerised by the knowledge-city imaginary. However, implications arise when small urban systems try to duplicate such strategies. Large cities that are front-runners of territorial competition are more capable to adjust to global changes, while small- and medium-size towns face more challenges (Demazière *et al.*, 2013). They are located often in peripheral areas based on traditional production milieus and it is hard to diversify their economy to respond to the forces of globalisation. Usually, such areas either remain idle surrendering to their decay or try to replicate the conditions and strategies of successful cases with no guarantee of their success (Rodriguez-Pose and Fitjar, 2013; Pezzi and Urso, 2017).

Methods of inquiry

In order to support the analysis regarding the use of the knowledge-city urban development imaginary for the redevelopment of L'Aquila, two reflections come together utilising a variety of research methods and tools. A broader that casts a number of socio-economic territorial properties of the city against the elements of such an imaginary; and a specific focusing on the case of the GSSI as the most visible investment towards the implementation of this development agenda. The basis of these were continuous on-site observations

allowing direct contact with the objects of study as the author was a part of the GSSI's doctorate programme (period 2014–2018) residing in the city. Thus, taking advantage of a privileged point of view that provides insights and background information, the argument of the paper is supported by desk research (grey-literature review) and fieldwork (January–March 2015). Six in-depth semi-structured interviews with GSSI's actors (founding members of the directors' board and researchers with management and administrative roles) and a survey with the institute's personnel took place. The interviews provided information on the narratives of the creation and goals of the institute related to L'Aquila's and its own development. The survey was performed via anonymous questionnaires and the 85 respondents (out of 105 in total in 2015, 79 PhD candidates, 12 post-docs researchers and administrative employees) provided feedback answering close and open-answer questions capturing their thoughts and opinions regarding the city and the institute as living and working environments.

L'Aquila in context

L'Aquila located in the central part of the Italian peninsula is the capital city of the Abruzzo region. Hosting a population of 73,000, L'Aquila is the largest city in the namesake province that has a total population of 310,000. On April 6 of 2009, the city and its surrounding communities were hit by an earthquake of magnitude 6.3 MW with epicentre 3.4 km to the South-West of the city centre (Contreras *et al.*, 2014). The earthquake's impact resulted in 309 casualties and 67,000 homeless people, and a large part of the building stock was destroyed or highly damaged (Alexander, 2010). The affected population in the surrounding area reached 100,000 people. L'Aquila's historic centre, with a former population of 23,000 inhabitants, was the main business, touristic and everyday-life hotspot and was almost totally destroyed (Contreras *et al.*, 2013). For three years, the access there was restricted and even until today the major parts of the buildings remain under reconstruction or abandoned (Contreras *et al.*, 2018). Tourism, commerce and industrial production were heavily influenced and adding to this, the earthquake coincided with the global economic crisis that affected the Italian economy. As a result of these in the period 2007–2013, L'Aquila's province production base declined by 20 per cent, while more than 2,000 businesses ceased operations (CRESA, 2014a; Di Pietro and Mora, 2015).

Manufacturing post-disaster redevelopment imaginaries, L'Aquila as a knowledge city

For a city, a disaster becomes a window of opportunity to shift the focus of strategies and policies related to funds towards neglected activities (Brundiers and Eakin, 2018). However, the lack of pre-disaster recovery plans can slow down the recovery process and weakens the position of the local community to influence decision making and planning (Berke and Campanella, 2006), which was evident in L'Aquila and in their way of setting the redevelopment and reconstruction agenda. In the aftermath of the disaster, the state intervened, acquired a dominant role and wanted to appear as "protector" of the local community providing impressive public funding to support the city (Forino, 2015; Bock, 2017). So far, €8.5bn have been allocated for the restoration and reconstruction of private and public properties and infrastructure, while the total public expenditure is expected to reach €14bn by the end of the reconstruction[1].

During the early relief stage, the debates on the socio-economic redevelopment started with local and national stakeholders engaging in drafting long-term plans that could help the city to overcome the economic challenges. In this direction, joint consultative meetings between an OECD advisory team, local, and national actors took place in the summer of 2009. During those meetings, various strategies to revitalise the city and its (re)development

trajectory were discussed with the dominant concern regarding the vision of a knowledge city. In the aftermath of these consultations, a report was drafted by the OECD team titled "Spreading the Eagle's Wings so it May Fly: Re-launching the Economy of L'Aquila Region after the Earthquake" became the blueprint of L'Aquila's knowledge city imaginary (OECD, 2009). This predetermined vision nested in the local community's collective consciousness, shaping thereafter the redevelopment debate. Thus, three years into the recovery in 2012, forums discussing the future of the city co-organised by the OECD indicated popular support for such a redevelopment imaginary. While the same year, the municipal council, as part of the city's new strategic plan, adopted *L'Aquila città della scienza* (L'Aquila city of science) vision as the primary model of socio-economic redevelopment (Comune di L'Aquila, 2012; OECD, 2013).

Materializing a vision, the GSSI and its implications

The most visible step towards the implementation of the knowledge city was the investment in the creation of the GSSI. From the nine projects of the initial blueprint aiming to "relaunch the economy of the L'Aquila region after the earthquake", only the GSSI materialised. GSSI was established in 2012 as an international doctoral school of four academic disciplines (astroparticle physics, mathematics, computer science and urban studies) hosting today approximately 140 PhD and post-doc researchers. The main argument for justifying such an investment was the need to ameliorate Italy's (and in particular its southern regions) deficit in research institutions when compared to other European countries (GSSI, 2014). As the interviewees revealed, the establishment of the Scuola Internazionale Superiore di Studi Avanzati in the northern Italian city of Trieste after the 1976 earthquake was portrayed as benchmark and was used to strengthen their argumentation. Contrary to the bold and paternalistic way of post-disaster recovery organised and implemented by the state, the new institution was a proposal of the local scientific community as the interviews revealed. The researchers of Gran Sasso National Laboratory located in the area, an underground laboratory and research centre for astroparticle physics, were debating, before the earthquake, on the need of establishing a PhD programme in physics to address understaffing problems of their institution. The earthquake created a window of opportunity for them and they teamed up with actors of the local university drafting a proposal for the GSSI's creation that subsequently was adopted as a leading project by OECD and Italian officials.

The institute today needs to fulfil multiple socio-economic and academic goals in order to justify its existence and public investment. As the interviewees suggest, the most evident of immediate positive impacts regards mainly city branding and social re-activation. The GSSI's facilities were located in the under reconstruction city centre so to revitalise the area strengthening the social revival of the neighbourhood. With this, the problem of spatial dispersion of the academic institutions in L'Aquila was tried to tackle, which gained visibility and became a new point of reference for the city (Di Giovanni and Raimondi, 2018). It frequently organises, or participates in collaboration with local stakeholders, various events open to the public, contributing to the restoration of social life, while improving the city's communicative image. Furthermore, a large number of academic workshops, conferences and seminars organised by the GSSI bringing in L'Aquila world-known academics and researchers reinforcing the knowledge-city branding.

The trade-offs of political support

The aforementioned academic activities may be deemed necessary to strengthen the networking capabilities of the institute in the academic research world since it is difficult for newly established institutions to gain academic recognition (Deem *et al.*, 2008). GSSI invested heavily since its early days on its image promotion, establishing a communication

office and funding various promotional campaigns. A part of this is the policy of inviting numerous high-profile academics (like Nobel Prise winners) to give lectures or simply attend social events, boosting GSSI's recognisability. Only in 2015, 338 scholars from all over the world were invited with covered expenses and remuneration to make a research visit or deliver lectures. Relative to the size of the institute, this scale of operations was only possible because of the extraordinary funding received as this was a perceived part of the city's redevelopment strategy and the strong political support the project obtained.

The general reconstruction and recovery debate took place in a multi-layer and multi-stakeholder environment heated due to conflicting interests and socio-political fragmentation (OECD-Groningen, 2012). In this context, investing in a new HEI seemed constructive and intense media coverage secured a wide acceptance among the local population. The "success story" of the institute as a post-disaster investment that can transform and revitalise the city sustained through media hype. Talk shows, news stories, documentaries and exclusive reports shared the GSSI's achievements in regional, national and international media on a recurrent basis[2]. Through the positive messages from these modes of communication, GSSI became a tool that provided justification for local and national political elites regarding the management of the reconstruction process and funds. L'Aquila's recovery is full of corruption scandals regarding mid-level and high-rank local officials, rumours that organized crime accessed the reconstruction budget, a general dissatisfaction on the progress of recovery and concerns over the prioritization and allocation of public investments (Alexander, 2013; Bock, 2017). In this setting, the investment on GSSI seems beneficial for the community development and offers good news to the authorities seeking affirmative recovery narratives. It is not by chance that since the very beginning of its establishment, city, region and state high-ranked officials, including the prime minister himself, have been paying recurrent formal and informal visits to the GSSI for no apparent functional reasons.

Aspirations against path-dependence

L'Aquila's main employment and income generation sources are state backed. Beside the secondary sector industries, the main components supporting the city's economic structure are public sector employment in different administrative levels, the large pensioners' population and activities related to the University of L'Aquila (Calafati, 2012). The latest is a common reality in the European context since the university is a factor around which many medium-size cities organise their economic base. Throughout history, academic institutions and the hosting city mutually benefit from their interactions. The city provides the necessary supplies (lodgement, social activities, etc.), while academic institutions create employment opportunities and positive multiplier effects on the local economy (Brockliss, 2000).

A rent-extraction logic from incoming student population was a modular factor when deciding upon L'Aquila's redevelopment. The local planning agenda already before the earthquake was considered the prospects of a city attracting students and research (Comune di L'Aquila, 2009). However, the post-disaster unattractive reality (housing and infrastructure shortages, shattered social fabric, negative media attention, etc.) made this more difficult to achieve. The reduction in the number of students was recognised as a threat to the city's economic recovery (OECD, 2009; GSSI, 2014). Tuition-free and other policies was adopted, which slowed the pace of reduction in the students' enrolments for the first post-earthquake years, while since 2010–2011 and for three consequent academic years the students' population increased[3]. Optimism prevailed and the goal set by the Ministry for Territorial Cohesion is expected to increase, by 2020, the number of students-residents up to 20,000, in order to further enhance the city's economy and realise the vision of a university and research-driven city (Calafati, 2012).

This goal highlights the unsound basis on which the knowledge-city vision was adopted given today's reality. The reports that favoured the knowledge-based development visions downsized L'Aquila's new post-earthquake spatial, social and economic realities and its limitations. When projecting to the future, conclusions drawn upon different sources and estimations performed without any clear methodology and justification. Those documents, express rather aspirations of the institutions that authored them setting optimistic development goals, while creating false positive and appealing impressions for their audience. In an effort to justify the knowledge-city development approach, an OECD report emphasises "the presence of the University and significant public and private research centres" and "the abundance of local, cultural and environmental resources"[4]. However, the reality on the ground leaves little room for such an optimism since the presence of academic and research institutions and the existence of cultural amenities does not certify their suitability. With a look at the relative competitiveness of the University of L'Aquila, as projected on mainstream indexes measuring scientific productivity (given their limitations and biases), one observes that it ranks lower in positions among Italian institution[5]. Moreover, the high number of historical churches, palaces and castles mentioned when listing the cultural amenities in the region by the aforementioned OECD report is probably not the kind of cultural demand the knowledge economy labour is looking for. Besides the efforts by local and national actors to enhance the cultural offering of the city by promoting the production of a large number of cultural events, in the city's centre, the everyday street-life remains insufficient (Koukoufikis *et al.*, 2018).

When discussing with the GSSI's actors, a similar optimism emerges on what L'Aquila could become if it invests in HEI using examples of other cities as benchmark: "Cambridge is just a small town in England and still has one of the world's best university, why not us?" (Interview, 12 February 2015). These ambitions expressed through false analogies ignore the historical, scalar and spatial articulation of the exemplary cases. When compared to small university-towns like Cambridge, Oxford or Leuven, we observe that these are cases housing centuries-old world-class academic institutions, while they are spatial located in a regional setting where advance and dense knowledge-intensive economic activities operate. The performance and volume of L'Aquila's HEIs and the socio-economic conditions of Central-South Italy do not allow plausible comparisons. The initial conditions shaped by the institutions, markets and the spatial structure of an urban system create a path-dependency that should not be ignored when planning for a knowledge-city paradigm (Lambooy, 2002). The normative approach to knowledge city suggests certain socio-spatial qualities like the city's size, connectivity, the plurality of economic activities and cultural offering, the presence of populous and well-connected education and research institutions along with knowledge-intensive industries, etc. (Ergazakis *et al.*, 2005). Thus, knowledge-city development visions can be materialized easily in metropolises and medium-size hubs where large-scale public and private investments towards knowledge-intensive activities and pre-existing socio-spatial qualities co-exist (Musterd *et al.*, 2010).

Population dynamics and students' mobility

For a knowledge city, demographics play a key role. Creating opportunities to maintain and attract young and well-educated citizens is crucial. The internationalisation of higher education accelerated competition between cities since students and skilled labour mobility increased rapidly after the mid-1990s (Altbach and Knight, 2007). Their decision-making processes when choosing their relocation is based on a wide spectrum of criteria: reputation of the country, the city and the academic institution, location and accessibility, offered facilities, as well as fashion trends, family and friends' opinions and networks (Maria Cubillo *et al.*, 2006; Altbach and Knight, 2007). Almost a decade after, the earthquake L'Aquila's demographics and the data from university enrolment tell a pessimistic story. Since the

earthquake, L'Aquila has been facing a slow but steady decline and ageing population. The population in the whole province reduced by 8,000 people since 2009, of which 3,000 account for the city of L'Aquila[6]. During the same period, the median age in L'Aquila rose by 2.1 per cent and in combination with low natural increase rates the province hosts a significantly higher aged population than the Italian average and the other Abruzzo provinces (USRA, 2016).

A dynamic increase in student population, the years prior to the earthquake, increased the income generated by student-related activities. Some estimates suggest that before 2009 the total economic output related to the presence of the educational institutions in the city reached 16 per cent of the city's GDP (Cerqua and Di Pietro, 2017), which made the city to overestimate the potential socio-economic impact of students. The real impact remains ambiguous since there are no clear data indicating how many students actually resided in the city. Many students are local residents (approximately 1/3) belonging to L'Aquila province itself, while the municipality estimated that around 8,000 students opt to commute when necessary and do not reside in the city, reducing the economic and cultural impact significantly (Comune di L'Aquila, 2012). The non-local student population that actually lived in L'Aquila estimated by the Ministry of Territorial Cohesion was only around 2,000 in 2012 or roughly double according to OECD projections.

Today those estimates seem irrelevant since there is a high volatility in L'Aquila's university enrolments. In the aftermath of the earthquake, different measures including tuition-free studies for five years, public transport pass, various discounts on educational materials and increased amount of scholarships have been adopted. In the academic year prior to the earthquake (2008–2009), 22,412 students registered at the university. During 2012–2013, the last year of the post-disaster-fund-assisted studies, the number of students increased to 24,204. During 2016–2017, a sharp decline in the number of students was noticed, with the number reaching to 16,919 students. A more concerning statistic reports that the first year enrolments almost halved, reaching levels way below 2,000 new students for the first time since 2000. A reduction of this magnitude is inconsistent with national or regional trends signalling the inability of L'Aquila's main knowledge hub, to attract new students and researchers now that the post-disaster funds reduced. Thus, the highly ambitious goal of 20,000 students residing in L'Aquila by 2020 will not be met, and if this trend continues, even having this amount of enrolments in the local HEI seems impossible.

Push and pull factors of highly skilled labour – the case of the GSSI's researchers

A challenge faced mainly by small cities is the out-migration of young university graduates moving towards large urban centres to find employment (Brockliss, 2000). This reduces the impact of educational units because these individuals emigrate by the time they become productive, which results in the loss of part of the taxation and social security mechanisms and their acquired skills which could contribute more to the local economic system (Brown and Heaney, 1997). Thus, the absence of innovative culture at the local level, venture capital and high technology enterprises can limit the returns of investment in academic and research activities (Varga, 2000). L'Aquila's economic system does not generate incentives for knowledge workers and young graduates to stay. In an era where across the European Union (EU) increases in the budget devoted to research has been observed, L'Aquila's region, Abruzzo, stands far below the EU and Italian average in budget spending and research personnel while a reduction in the total number of researchers' employment took place[7]. Business demographics follow a similar trajectory, since 2012 in the province of L'Aquila the yearly birth-to-death ratio remains negative (CRESA, 2014b). Even in the construction sector due to the boom in reconstruction experienced between 2010 and 2012, a significant decrease in productivity was observed. Consequently, a noticeable rise in the unemployment levels has been observed which remain constantly above the country's average (USRA, 2016).

The GSSI succeeded in attracting researchers from around the world for its research positions (GSSI, 2014). It offered a competitive package of salary and benefits, providing high-quality working conditions in an effort to counteract the city's post-disaster state. In our survey of first and second generations of GSSI's doctoral and post-doctoral researchers, above 90 per cent stated that financial benefits were by far the most important reason that attracted them to a post-disaster city and a newly established institution. GSSI took the advantage of extraordinary public financial support for its initial phase as a disaster-relief project. The research grants and benefits (a monthly salary along with free housing, lunch vouchers and high travel budget for research activities) were way above the Italian custom remuneration. However, this period of post-disaster extraordinary funding ended. After the three-years of experimental phase, GSSI after being recognised officially as a public university had to adapt to ordinary budget restrictions.

When replying to our questionnaire, the vast majority of the GSSI's researchers described the city as small and poor connected with limited recreational opportunities. Concerning the interaction with the city and the everyday life, the responders suggested that they had limited relations with the local society and the satisfaction rate regarding the city's condition and the social experiences was low. The responders working on the social sciences described the city as a challenge, a "social lab" and "interesting case study" that more motivates than repulse them. However, the lack of social life and adequate infrastructures de-motivated many researchers, creating socio-psychological and technical obstacles (e.g. insufficient public transport and problematic internet connection) that negatively influenced their concentration and working motivation.

The way the institute's labourers experience the city affects their decision for the future choice of working place after the end of their contracts. There were mixed responses, but with a clear negative response concerning L'Aquila as a choice for future employment. Most of the researchers were eager to relocate in L'Aquila knowing that this will be a temporary well-paid employment opportunity and not a permanent step in their life and career. Their preferences matched the attitudes of the highly skilled labour, who were attracted by more dynamic urban environments that offered a greater quality of life and work opportunities. In fact, in 2016, when their first contracts started to expire almost everyone of them pursued careers in other cities of Italy or abroad.

Concluding discussion, knowledge or subsidised city?

This paper unfolds the story of L'Aquila's post-earthquake redevelopment strategy that aligned to the knowledge-city urban archetype and critically reviews of its deficiencies. The investigation suggests that the knowledge-city conceptualization and planning even if enjoys relative legitimacy is not adequately justified. This vision is favoured by scenario-building exercises shaped by aspirations and interests of diverse stakeholders. Local scientific actors saw an opportunity to materialize their plans for further investments in education and research. The national and international advisor teams disengaged from the local community which provided prescriptions based on mainstream urban development literature, while political elites tried to redirect public attention from the controversial reconstruction and presented a solution to the city's interest groups (mainly real estate and small business holders), concerned by the reduction in students' population. National, international and local redevelopment plans acted as post-disaster "fantasy documents" in Clarke's (1999) terms used to translate uncertainty for the future to optimism. Their hastily crafted projections were based on the overestimation of capabilities of the local innovation system (university-economy), ignoring path dependence and the unfavourable socio-spatial characteristics (economic stagnation and deindustrialization, negative demographic trends, lack of adequate connectivity and cultural offering, low competitiveness of the local university and economic actors, etc.);

whereas the new post-earthquake reality with the deteriorated spatial and socio-economic properties were downsized.

The analysis suggested that besides advanced material and discursive political support, public investment and media promotion of the knowledge city, the strategy failed to tangibly reverse the negative socio-economic trends and it will probably continue to do so. The post-disaster demographic and socio-economic data of the city and the region, along with the opinions and attitudes of the highly skilled labour attracted in the city by the GSSI disrupted knowledge-city aspirations. L'Aquila's urban offering remains unattractive and given the already visible reduction in recovery funds, the local institutions will face significant challenges to further attract and maintain the quantity and quality of students, labour and investments. As in the case of the L'Aquila's cultural re-activation efforts, lowering post-disaster state support prior to concrete consolidation of a strategy threatens the fate of urban visions (Pasquinelli *et al.*, 2018). It is becoming evident that behind the knowledge-city agenda stands the urge to sustain the university-based economy. *Ad-hoc*, heavily subsidised projects like the GSSI, and the infamous in the international setting local university can for the moment only support their activities due to state support. They are assets for the local economic system since they act as funds redirection mechanisms to the city from national and European resources but cannot tackle the wider socio-economic deficiencies of L'Aquila. Thus, the knowledge-city can be perceived only as a motto, part of an urban branding technique, not as an accurate archetype describing or projecting the city's redevelopment path.

Notes

1. Data on recovery funds: http://opendataricostruzione.gssi.it
2. See for example: (1) https://ricerca.repubblica.it/repubblica/archivio/repubblica/2016/06/23/tutti-allaquila-per-studiare-meccanica-quantistica42.html?ref=search; (2) http://espresso.repubblica.it/attualita/2016/06/23/news/il-gssi-l-aquila-e-la-citta-dei-talenti-1.274432; (3) www.nytimes.com/2014/01/06/world/europe/from-laquila-quakes-rubble-an-academic-birth.html; (4) www.rai.it/dl/portaleRadio/ContentItem-22b91dc3-13b1-47a1-8fd7-4efd915080ef.html
3. All data on student population: http://ustat.miur.it/dati/didattica/italia/atenei-statali/l-aquila
4. www.oecd.org/regional/regional-policy/43226147.pdf
5. Between 36th to 41st among Italian institutions (see 2017 Centre for World University Rankings and Webometrics Ranking of World Universities)
6. Data on population dynamics: www.tuttitalia.it/abruzzo/98-l-aquila/statistiche/popolazione-andamento-demografico/
7. Total intramural R&D expenditure in all sectors of performance as a % of GDP for 2011: EU average 1.97 per cent, Italian average 1.21 per cent, Abruzzo region 0.86 per cent (Source: Eurostat).

References

Albrechts, L. (2013), "Reframing strategic spatial planning by using a coproduction perspective", *Planning Theory*, Vol. 12 No. 1, pp. 46-63.

Alexander, D. (2010), "The L'Aquila earthquake of 6 April 2009 and Italian government policy on disaster response", *Journal of Natural Resources Policy Research*, Vol. 2 No. 4, pp. 325-342.

Alexander, D. (2013), "An evaluation of medium-term recovery processes after the 6 April 2009 earthquake in L'Aquila, Central Italy", *Environmental Hazards*, Vol. 12 No. 1, pp. 60-73.

Altbach, P.G. and Knight, J. (2007), "The internationalization of higher education: motivations and realities", *Journal of Studies in International Education*, Vol. 11 No. 3, pp. 290-305.

Berke, P.R. and Campanella, T.J. (2006), "Planning for postdisaster resiliency", *The Annals of the American Academy of Political and Social Science*, Vol. 604 No. 1, pp. 192-207.

Bock, J. (2017), "The second earthquake: how the Italian state generated hope and uncertainty in post-disaster L'Aquila", *Journal of the Royal Anthropological Institute*, Vol. 23, pp. 61-80.

Brockliss, L. (2000), "Gown and town: the university and the city in Europe, 1200–2000", *Minerva*, Vol. 38 No. 2, pp. 147-170.

Brown, K. and Heaney, M. (1997), "A note on measuring the economic impact of institutions of higher education", *Research in Higher Education*, Vol. 38 No. 2, pp. 229-240.

Brundiers, K. and Eakin, H.C. (2018), "Leveraging post-disaster windows of opportunities for change towards sustainability: a framework", *Sustainability*, Vol. 10 No. 5, pp. 2071-1050.

Calafati, A. (2012), *L'Aquila 2030 La Strategia Di Sviluppo Economico*, Ministero per la coesione territoriale, Rome.

Carrillo, F.J. (2006), *Knowledge Cities*, Butterworth-Heinemann, Boston, MA.

Cerqua, A. and Di Pietro, G. (2017), "Natural disasters and university enrolment: evidence from L'Aquila earthquake", *Applied Economics*, Vol. 49 No. 14, pp. 1440-1457.

Clarke, L. (1999), *Mission Improbable: Using Fantasy Documents to Tame Disaster*, University of Chicago Press, London.

Comune di L'Aquila (2009), "Piano Strategico. Proposta di documento finale", Comune di L'Aquila, L'Aquila.

Comune di L'Aquila (2012), "Piano Strategico Dell'aquila. Proposta di documento finale", Comune di L'Aquila, L'Aquila.

Contreras, D., Forino, G. and Blaschke, T. (2018), "Measuring the progress of a recovery process after an earthquake: the case of L'Aquila, Italy", *International Journal of Disaster Risk Reduction*, Vol. 28, pp. 450-464.

Contreras, D., Blaschke, T., Kienberger, S. and Zeil, P. (2013), "Spatial connectivity as a recovery process indicator: the L'Aquila earthquake", *Technological Forecasting and Social Change*, Vol. 80 No. 9, pp. 1782-1803.

Contreras, D., Blaschke, T., Kienberger, S. and Zeil, P. (2014), "Myths and realities about the recovery of L'Aquila after the earthquake", *International Journal of Disaster Risk Reduction*, Vol. 8, pp. 125-142.

Cooke, P. and Schwartz, D. (2008), *Creative Regions: Technology, Culture and Knowledge Entrepreneurship*, Taylor and Francis, Oxon.

CRESA (2014a), "Congiuntura economica Abruzzese N.3/2014. Centro regionale di studi e ricerche economico-sociali, L'Aquila", available at: www.cresa.it/site/congiuntura-economica-abruzzese-n-32014/ (accessed 28 March 2015).

CRESA (2014b), "Il sistema camerale al servizio delléconomia abruzzese", Raporto L' Aquila, available at: www.cresa.it/site/leconomia-abruzzese-nei-dati-del-sistema-camerale/ (accessed 28 December 2017).

Demazière, C., Banovac, K. and Hamdouch, A. (2013), "The socio-economic development of small and medium-sized towns: factors, dominant profiles and evolution patterns", TOWN ESPON Interim report, Tours.

Deem, R., Mok, K.H. and Lucas, L. (2008), "Transforming higher education in whose image? Exploring the concept of the 'world-class' university in Europe and Asia", *Higher Education Policy*, Vol. 21 No. 1, pp. 83-97.

Di Giovanni, G. and Raimondi, V. (2018), "L'Aquila: works in progress for a knowledge city", in Coppola, A. *et al.* (Eds), *Envisaging L'Aquila. Strategies, Spatialities and Sociabilities of a Recovering City*, Professional dreamers, Trento, pp. 55-74.

Di Pietro, G. and Mora, T. (2015), "The effect of the L'Aquila earthquake on labour market outcomes", *Environment and Planning C: Government and Policy*, Vol. 33 No. 2, pp. 239-255.

Edvinsson, L. (2017), "Knowledge city Stockholm @ the forefront", in Formica, P. (Ed.), *Entrepreneurial Renaissance: Cities Striving Towards an Era of Rebirth and Revival*, Springer International Publishing, Cham, pp. 101-112.

Ergazakis, K., Metaxiotis, K. and Psarras, J. (2004), "Towards knowledge cities: conceptual analysis and success stories", *Journal of Knowledge Management*, Vol. 8 No. 5, pp. 5-15.

Ergazakis, K., Metaxiotis, K. and Psarras, J. (2005), "An emerging pattern of successful knowledge cities' main features", in Carrillo, F.J. (Ed.), *Knowledge Cities: Approaches, Experiences and Perspectives*, Butterworth-Heinemann, New York, NY, pp. 3-15.

Florida, R. (2002), "The economic geography of talent", *Annals of the Association of American Geographers*, Vol. 92 No. 4, pp. 743-755.

Fontana, C. (2018), "The imagined city: strategic spatial projects as a rhetoric?", in Coppola, A. *et al.* (Eds), *Envisaging L'Aquila. Strategies, Spatialities and Sociabilities of a Recovering City*, Professional dreamers, Trento, pp. 35-54.

Forino, G. (2015), "Disaster recovery: narrating the resilience process in the reconstruction of L'Aquila (Italy)", *Geografisk Tidsskrift-Danish Journal of Geography*, Vol. 115 No. 1, pp. 1-13.

Glaeser, E.L. and Saiz, A. (2003), "The rise of the skilled city", Working Paper No. 10191, National Bureau of Economic Research, Cambridge.

GSSI (2014), "The first academic year 2013-2014 report", Gran Sasso Science Institute, L'Aquila.

Johansson, M. (2012), "Place branding and the imaginary: the politics of re-imagining a garden city", *Urban Studies*, Vol. 49 No. 16, pp. 3611-3626.

Koukoufikis, G., Pasquinelli, C. and Gogishvili, D. (2018), "L'Aquila events as temporary platforms of urban revitalisation", in Coppola, A. *et al.* (Eds), *Envisaging L'Aquila. Strategies, Spatialities and Sociabilities of a Recovering City*, Professional dreamers, Trento, pp. 129-140.

Lambooy, J. (2002), "Knowledge and urban economic development: an evolutionary perspective", *Urban Studies*, Vol. 39 Nos 5/6, pp. 1019-1035.

Lambooy, J.G. and Moulaert, F. (1996), "The economic organization of cities: an institutional perspective", *International Journal of Urban and Regional Research*, Vol. 20 No. 2, pp. 217-237.

Landry, C. (2000), *The Creative City: A Toolkit for Urban Innovators*, Earthscan Publications, London.

Lever, W.F. (2002), "Correlating the knowledge-base of cities with economic growth", *Urban Studies*, Vol. 39 No. 5, pp. 859-870.

Maria Cubillo, J., Sanchez, J. and Cervino, J. (2006), "International students' decision-making process", *International Journal of Educational Management*, Vol. 20 No. 2, pp. 101-115.

Martinez, S.D. (2006), "A comparative framework for knowledge cities", in Carrillo, F. (Ed.), *Knowledge Cities*, Butterworth-Heinemann, Boston, MA, pp. 17-30.

Mazza, L. (2009), "Strategic planning and republicanism", paper presented at Institute of architecture and Urban and Spatial Planning of Serbia (IAUS) Conference, December 7–8, 2009, Belgrade.

Metaxiotis, K. (2010), *Knowledge-Based Development for Cities and Societies: Integrated Multi-Level Approaches*, IGI Global, Hershey, PA.

Michael, E.P. (2000), "Location, competition, and economic development: local clusters in a global economy", *Economic Development Quarterly*, Vol. 14, pp. 15-34.

Moulaert, F. and Sekia, F. (2003), "Territorial innovation models: a critical survey", *Regional Studies*, Vol. 37 No. 3, pp. 289-302.

Musterd, S. and Gritsai, O. (2010), "Conditions for 'creative knowledge cities'. Findings from a comparison between 13 European metropolises", ACRE Report No. 9, Amsterdam Institute for Social Science Research, Amsterdam.

Musterd, S., Brown, J., Lutz, J., Gibney, J. and Murie, A. (2010), *Making Creative-Knowledge Cities: A Guide for Policy Makers*, Amsterdam Institute for Social Science Research, University of Amsterdam.

OECD (2007), *Higher Education and Regions Globally Competitive, Locally Engaged. Education and Skills*, OECD, Paris.

OECD (2009), *Spreading the Eagle's Wings So it May Fly: Re-Lunching the Economy of L'Aquila Region After the Earthquake*, OECD, Paris.

OECD (2013), *Policy Making After Disasters: Helping Regions Become Resilient – The Case of Post-EarthquakeAbruzzo*, OECD Publishing, Paris.

OECD-Groningen (2012), "Building resilient regions after a natural disaster, Abruzzo 2030: on the wings of L'Aquila", Forum LNGS, L'Aquila, 17 March.

Pasquinelli, C., Koukoufikis, G. and Gogishvili, D. (2018), "Beyond eventification: capacity building in post-disaster temporariness", *Journal of Place Management and Development* (in press), available at: https://doi.org/10.1108/JPMD-03-2017-0025

Pezzi, M.G. and Urso, G. (2017), "Coping with peripherality: local resilience between policies and practices. Editorial note", *Italian Journal of Planning Practice*, Vol. 7 No. 1, pp. 1-23.

Rodriguez-Pose, A. and Fitjar, R.D. (2013), "Buzz, archipelago economies and the future of intermediate and peripheral areas in a spiky world", *European Planning Studies*, Vol. 21 No. 3, pp. 355-372.

Romer, P.M. (1994), "The origins of endogenous growth", *The Journal of Economic Perspectives*, Vol. 8 No. 1, pp. 3-22.

Scott, A.J. (2004), "Cultural-products industries and Urban economic development prospects for growth and market contestation in global context", *Urban Affairs Review*, Vol. 39 No. 4, pp. 461-490.

Swyngedouw, E., Moulaert, F. and Rodriguez, A. (2002), "Neoliberal Urbanization in Europe: large-scale Urban development projects and the New Urban policy", *Antipode*, Vol. 34 No. 3, pp. 542-577.

Taylor, P.J. (2012), "Transition towns and world cities: towards green networks of cities", *Local Environment*, Vol. 17 No. 4, pp. 495-508.

USRA (2016), "L'Abruzzo in Cifre 2016 report", Ufficio di Statistica della Regione Abruzzo, L'Aquila, available at: http://statistica.regione.abruzzo.it/portale/it/Abruzzo_in_cifre (accessed 28 December 2017).

Van Winden, W., Van Den Berg, L. and Pol, P. (2007), "European cities in the knowledge economy: towards a typology", *Urban Studies*, Vol. 44 No. 3, pp. 525-549.

Varga, A. (2000), "Local academic knowledge transfers and the concentration of economic activity", *Journal of Regional Science*, Vol. 40 No. 2, pp. 289-309.

Yigitcanlar, T., O'Connor, K. and Westerman, C. (2008), "The making of knowledge cities: Melbourne's knowledge-based urban development experience", *Cities*, Vol. 25 No. 2, pp. 63-72.

Yigitcanlar, T., Velibeyoglu, K. and Martinez-Fernandez, C. (2008), "Rising knowledge cities: the role of urban knowledge precincts", *Journal of Knowledge Management*, Vol. 12 No. 5, pp. 8-20.

Zukin, S., Baskerville, R., Greenberg, M., Guthreau, C., Halley, J., Halling, M., Wissinger, B., Lawler, H., Nerio, R., Stack, R. and Vitale, A. (1998), "From Coney Island to Las Vegas in the urban imaginary: discursive practices of growth and decline", *Urban Affairs Review*, Vol. 33 No. 5, pp. 627-654.

Further reading

Comune di L'Aquila (2014), "Documento preliminare del nuovo Piano Regolatore Generale", Comune di L'Aquila, L'Aquila.

Hearn, J. (2013), "The world university – emerging from crisis", *Procedia - Social and Behavioral Sciences*, Vol. 77, pp. 159-163.

Corresponding author
Giorgos Koukoufikis can be contacted at: giorgos.koukoufikis@gmail.com

Work as a recovery factor after earthquake: a mixed-method study on female workers

Teresa Galanti and Michela Cortini
Department of Psychological, Health and Territorial Sciences, University G. d'Annunzio of Chieti – Pescara, Chieti, Italy

Received 5 February 2018
Revised 22 June 2018
7 October 2018
7 December 2018
11 March 2019
7 June 2019
Accepted 9 June 2019

Abstract

Purpose – The purpose of this paper is to investigate the reaction of female workers to the earthquake event that shocked the city of L'Aquila in April 2009, with a specific focus on work as a recovery factor.
Design/methodology/approach – The selected sample consists of current or former resident women in the affected province of L'Aquila, who participated in a series of focus group discussions on the ability to reconstruct their own professional identity after the earthquake. The focus group seemed to be the perfect instrument for this research, because of its ability to generate a true discussion among a group of people on the research topic of this study. The collected data were analyzed both in terms of metaphors, as well as linguistic agentivity and by automatic content analysis.
Findings – From the analysis of the data, emerges the value that adds to the sense of identity continuity for the women in the sample, together with interesting differences between employed and self-employed workers that are characterized by distinct challenges and assurances. In regards to the effects of gender in response to disaster events, the results make a peculiar echo to the studies on public-private space dichotomy developed by Fordham, according to which, during a disaster, women are not allowed to develop work-related desires. For the group of women that the authors interviewed, the challenge to have family focused or work focused desires was clearly evident; they seem predetermined to the above-mentioned dichotomy, valid in both directions: the women who invested in work and have become entrepreneurs seem to have no chance of a private life and, on the contrary, the women who were focused on more traditional family roles seem to have no chance in terms of job opportunities.
Originality/value – Based on the authors' knowledge this is the first time that focus groups are used to assess the value that work had in supporting individual recovery for women in the aftermath of the L'Aquila earthquake.

Keywords Earthquake, Recovery, Work, Focus group, Gender, L'Aquila, T-Lab

Paper type Research paper

Introduction

On April 6th, 2009 L'Aquila, a city in Central Italy, was destroyed by a violent earthquake, measuring up to 5.9 MI on the Richter scale, which killed 309 people and injured about 1,600 individuals (Galluccio, 2014). About 90 percent of the residents of L'Aquila were evacuated from their homes (Di Pietro and Mora, 2015); some of them directed to tent camps and others in tourist accommodations in hotels on the Adriatic coast, waiting for the CASE project[1] (Fois and Forino, 2014).

The medieval center of L'Aquila, which hosted several public buildings, churches and a university campus, was seriously damaged.

This event was one of the most devastating disasters in Italy's recent history with an estimated total economic impact of about EURO 540m (Commissariato delegato per la ricostruzione in Abruzzo, 2011). On the business perspective, more than 2,000 businesses were forced to close and those that remained operational suffered severe damages because of the loss of stocks, tools and machinery (Di Pietro and Mora, 2015). With the only exception of the construction and demolition industries, work re-started very slowly. This caused a severe impact on the local economy, which, as a consequence, influenced L'Aquila population's well-being for the year after the earthquake, as shown by Gigantesco *et al.* (2013).

Disaster Prevention and Management
Vol. 28 No. 4, 2019
pp. 487-500

0965-3562
DOI 10.1108/DPM-02-2018-0036

The role of work and its economic impact has been already examined as a recovery factor in L'Aquila's earthquake (see the MICRODIS project; Contreras *et al.*, 2017).

In the present study we focus primarily on the role of work as a psychological recovery factor, emphasizing its power in terms of personal identity. Especially in post-disaster contexts, work may become a crucial factor to re-start a "normal" life for people who have lost relatives, friends, homes and social relationships. Of course, as already mentioned, in similar contexts, job opportunities decrease, thus increasing the negative consequences caused by job insecurity.

Job insecurity from a psychosocial perspective

The phenomenon of job insecurity has been the topic of numerous studies in research literature. All these studies aimed to give a definition of job insecurity through the explanation of the features and the factors associated with it. Greenhalgh and Rosenblatt (1984, p. 483) defined job insecurity as the impotence that is perceived in maintaining the desired continuity in a potentially threatening situation, while Heaney *et al.* (1994) described it as the perception of a potential threat to the continuity of current work. More recently, Piccoli *et al.* (2017) emphasized the importance of not recognizing the value of work as the key element that delineates the construct itself, highlighting the psychological dimensions of this experience.

Starting from this theoretical framework, the aim of this study is to investigate the reaction of female workers to the earthquake that devastated the city of L'Aquila, Abruzzo, Italy in April 2009.

The reconstruction of L'Aquila required investments from numerous public funds. In total, EURO 21bn have been allocated (comparable to a one-year government budget), and another EURO 4bn will have to be allocated to complete the reconstruction process. However, nine years after the earthquake, the city is still considered a "construction site." Currently, out of the 1,000 active businesses on April 5, 2009 in the city, only 60 businesses are still operational and over 250 have closed. In response to this situation, a call for proposals, called "Fare Centro" (Target Hit), was launched to provide funding for those who wanted to undertake or re-start a business in L'Aquila's historic center. For all these reasons, the need to consider the work as a recovery factor after the earthquake seemed more important than ever.

Many professional activities were uprooted by the earthquake and for many people, it was possible to return to work only, and if, conditions would become more favorable after a long period of time. It is important, to consider that L'Aquila residents did not receive any kind of unemployment benefits related to the earthquake.

Studies on recovery after disasters (see, e.g. Furukawa *et al.*, 2015) have shown that gender and working conditions are among the most important factors in predicting psychological distress. In other words, work assumes a fundamental role in psychological recovery, which can be considered as an intrapersonal process involving resilience, hope, hardiness and finding meaning and purpose in life (Gheno, 2010).

In our view, the return to work may be an anchor to restore an ordinary life-course that allows people to return to the stability they need, especially in post-traumatic moments. Working, within the scheduled time and predetermined rules, may become an empowering tool, thanks to its ability to guarantee continuity. Therefore, we agree with the authors who have highlighted that social indicators play an important role in terms of recovery (see, e.g., the MICRODIS project and Contreras *et al.*, 2017).

Work, gender and disaster

An increasing number of studies have recognized that gender may play a large part in the roles people have in preparation, response, recovery and reconstruction in disaster events.

The pioneer work of Ehrenreich (1976) has been fundamental in order to highlight both cultural and economic aspects of disasters as gendered events. The economic aspect is particularly evident in terms of devaluation of work performed by women and by the limited participation of women in formal economic processes.

Results of several empirical studies suggest that, generally, disasters reinforce gender stereotypes (Enarson, 2012) or even revert to traditional roles of earlier times (Hoffman and Hearn Morrow, 1998; Madi, 2017), as people feel the need to rely on very distinctive and distant roles in order to face severe challenges and risks. Unfortunately, often this becomes a very stereotyped gender image, where men are expected to protect, while women are expected to set aside their own needs and desires, sacrificing first their right to work (Parkinson, 2015; Zara *et al.*, 2013).

For such a reason, in the public-private space dichotomy (Fordham, 1998), in post-disaster, women seem to be allowed to play private roles only, thus, having limited access to the domain of power, meant as the domain of active working and policy making (Enarson, 2012; Enarson *et al.*, 2007; Gaillard *et al.*, 2017).

In line with these studies, Bradshaw and Fordham (2014) discussed the "feminization of responsibility" after Hurricane Mitch in Nicaragua, emphasizing that the disaster "doubles" for women, since they suffer longer term and more intangible impacts such as greater insecurity in employment.

The present study aims to investigate the role of work as an empowering instrument for women after a disaster event, with a mixed-method research design that we will explain in the following section.

The role of work as a recovery factor after the L'Aquila earthquake has been already investigated (Contreras, 2016); here we want to focus on work, not from an economic point of view, but rather as a psychological factor, able to support personal identity (among others, see Van Dick, 2001; Haslam, 2004; Avanzi *et al.*, 2012, 2018), which can be seen as a crucial factor in terms of well-being during disaster management.

We follow a recent trend within gender and disaster literature focused on resilience, in the effort to show that women may be not only vulnerable but also empowering (Gaillard *et al.*, 2015; Wisner *et al.*, 2016).

Method

The sample consisted of women who are current residents or were former residents in the affected area, in the province of L'Aquila. We have carried out a series of focus group discussions; in detail the groups were formed following a logic of group composition numerical-variable (Cortini, 2005) and homogeneous by type of participant, identified by type of work contract (temporary, public employees, workers in training, socio-sanitary professionals, managers, private employees). A non-directive conduction was chosen (Cortini, 2005), with two moderators (an Academic Researcher and a Counselor of Equity participated as moderators in each focus group). By "non-directive conduction" we mean that the role of the moderator is that of being a facilitator rather than a leader of the discussion. A non-directive moderation allows the spontaneity of conversation and promotes group interactions (Barbour and Morgan, 2017).

The sample of participants, recruited on a voluntary basis by a specific "call for participants" published by the Counselor of Gender Equity of L'Aquila, consists of 53 women, aged between 23 and 64, including entrepreneurs, public and private employees, temporary job seekers, teachers, and healthcare workers. We decided to distinguish teachers and healthcare workers in comparison to other public and private employees in order to detect differences related to the specificities of performing a social job for a community after an earthquake trauma.

Focus groups were conducted in L'Aquila, from May to July, 2010, one year after the earthquake. We have to stress that our data were collected in 2010 but started to be

analyzed in 2018, something that could surprise DRM readers but that has also deep reasons why. Actually, we decided to analyze our data with an important time delay in order to be objective, considering that we are Abruzzo women too. In addition, unfortunately, women condition did not change in the city across these years and we expect that if these data would be collected today they will tell us similar results. Last but not least, perhaps it is not a case that the last manifestation, which has been promoted by earthquake victims' relatives and which has occurred in Rome on the last may, 18th, has had as title "In a part of Italy the time has stopped."

We ran a focus group for each contract type, with nine participants in every group, with the exception of the temporary job seekers group (eight women).

Each focus group discussion was audio-taped and transcribed. The subsequent analyses were performed on transcripts.

The idea of introducing a qualitative study came from the attempt to conduct a triangular research (Fielding and Fielding, 1986; Cortini, 2011, 2014), based on what is known as the methodological appropriateness paradigm (Patton, 1990). According to this paradigm, when choosing different methods for collecting and analyzing data, the specificity of competences possessed by the researcher, as well as the consistency of the object that is being investigated, must serve as the guiding criterion.

In our study, we wanted to investigate a strong psychological experience such as the ability to reconstruct one's own professional identity following a trauma event such as an earthquake. For these reasons, we decided to focus primarily on qualitative data. It is important to note, that this research topic has never been investigated in the Italian research literature. Therefore, the explorative nature of this study has prompted us to collect as much data as possible in response to a methodological system inspired by the so-called grounded theory (Glaser and Strauss, 1988; Corbin and Strauss, 1990).

The focus group discussions, or just "focus groups," are a particular type of group interviews, developed and used mainly in the context of marketing (Chirumbolo and Mannetti, 2004) and healthcare but recently exported in the more general field of social sciences (Suzuki *et al.*, 2009).

As suggested by the labeling of the technique, the purpose of the groups is to make the participants discuss with each other. In this sense, an ideal focus group is not a collection of different individual interviews, but rather a real discussion between a group of people on a given topic (the focus).

The material gathered within the focus groups is discursive and it is up to the researcher to decide how to analyze it; in our case, we opted for a multi-method analysis.

The discussion focused on the value of working after the earthquake along with the difficulties related to returning to work.

Analysis

The data collected with the Focus Group, which are discursive and qualitative data, have undergone a twofold analysis path to contemplate quantitative and qualitative re-elaboration techniques, following the triangular research (Cortini, 2014) that we intended to adopt.

For the qualitative analysis, we proceeded with a "classical" analysis of the discourse (Mininni, 2002), consisting mainly of the analysis of metaphors and of the linguistic agentivity.

As far as quantitative analysis is concerned, we performed a careful content analysis supported by the T-Lab software (analysis of occurrences and co-occurrences of words and linguistic specificity analysis). We added an automatic content analysis, which is primarily based on the idea that the more we refer to specific word families, the more these concepts are important. In other words, when people use the same concepts often, it is because those concepts are important to them.

Results

Metaphor analysis. Regarding the main results, it is interesting to refer to the qualitative analysis of metaphors. This is done by analyzing and "clustering" all the metaphors produced by the subjects, based on the macro-hypothesis that metaphors are an instrument used to condense the meaning of concepts, or to reference Potter and Wetherell (1987), an "interpretative repertoire" capable of giving value to a series of concepts. Metaphors can be seen as unexpected views on the mysterious procedures that translate claims of meaning into discursive modes suitable to specific situations (Manuti and Mininni, 2010).

Some of the most interesting clusters highlighted refer to the idea of the earthquake as something not merely geological but rather "invasive"; in other words, we could say that the earthquake has brought to light other "earthquakes," which do not concern the earth but rather people and their lives (Cortini, 2011), primarily work, which is threatened as never before (Example 1) as well as socio-relational issues (Examples 2 and 3), which are hardly reconstructed because of the relocation of earthquake victims in makeshift tent cities, or in other geographical location such as the Adriatic coast, near Pescara[2] (Contreras *et al.*, 2017):

> Example 1: "because shortly after we immediately felt the need to stay here to preside over our work, because among other things, our work had also collapsed vertically." (FG entrepreneurs)

> Example 2: "We are experiencing an earthquake that is not only emotional but also economical. We are living a social earthquake, we are experiencing definitely violent things, from the social and personal point of view, and we are living in loneliness." (FG socio-healthcare workers)

> Example 3: "The expenses, I repeat, the expenses we had to face, the move, this and that. It was for us an economic earthquake. There are people who have lost their jobs. I cannot complain about it, but it was also an economic earthquake for me to rebuild a house with our own expenses." (FG private employees)

Another set of interesting metaphors concerns the value of reorganization that the earthquake provoked:

> Example 4: "All forms of social differences have been eliminated. All of us are at the same level. All in canvas slings. Then and there you re-evaluate the value of the person, regardless of what job s/he had, how much money one had. You feel them truthfully. How can I say it? we are all passengers, travelers. And since we are all travelers, what is the only thing you really possess? what do you bring in that is your heritage" (FG healthcare workers).

Here, there is a specific aspect to consider which deserves our attention; this woman stresses that the earthquake has touched and affected the entire L'Aquila population, without social distinctions restoring interclass equality in the forms of staying in "canvas slings," which emphasizes vulnerability, precariousness and weakness of the human condition.

This may appear, at least at first glance, as incoherent to our theoretical framework on gender and disaster that we have mentioned in the previous paragraph, a framework that stresses the diversity of roles and possibilities during a disaster. However, this forces us to specify that disaster management has different temporal and causal relations, so that, in terms of hazard, nobody can do anything to impede an earthquake to occur (the only possibility, in psychological terms, is to develop preparedness and coping strategies), and in such a sense we have a social leveling. On the contrary, in terms of prevention and post-disaster management and recovery there are noticeable differences.

Interestingly, in terms of work psychology, the reference to the returning to work as a possibility of identity "reacquisition" and of "rebirth" is presented in the following examples, both in positive (Example 5) and in negative (Example 6) terms:

> Example 5: "It was very important for me to come back to work, directly from the tents; it was the possibility to regain a piece of my life." (FG teachers)

Example 6: "temporary work is demotivating because you cannot do what you want and then the relationships are fragmentary and everything has a temporary character" (FG temporary workers).

In the last example, it is tangible that not all workers have the same possibility when facing the aftermath of an earthquake; those who cannot benefit from a secure work contract will feel the job insecurity as an additional challenge, with less social help from others, experiencing a sense of life insecurity. In such sense, it would be interesting also to investigate unemployed women, who, unfortunately, are not present in our sample of participants.

While investigating more closely other difficulties, always linked to work-family balance, experienced by the L'Aquila workers in the post-earthquake, the fatigue due to family management is evident:

Example 7: "On Saturdays, I do not have anyone to look after my baby, sometimes my mother comes over. Finding a baby-sitter is very difficult and nobody comes here because of road conditions." (FG public employees)

Example 8: "For me working has become much more troublesome because many times people are losing sight of this earthquake story. Those who know it are the earthquake victims, because everyone is kept away from home, out of their houses, and landmarks are changed. as well as the people who worked with us. For example: our job advisor or our accountant, before the earthquake, I just had to pick up the phone […] after half an hour I had their reports on the computer […] but because they have problems because they are out of the office and out of their houses, then. working has become very laborious and time spending for me." (FG entrepreneurs)

The lack of landmarks speaks more often in women's speech that has been part of the FG as an element of effort (Example 9) in finding a balance that made the workers "very happy." To use their own words, because it gave them the possibility to be a mother and at the same time to realize themselves professionally (Example 9):

Example 9: "it has become harder. the job doubled in some ways and I had to cover all the roles, which were still being discovered, so the fatigue was so great. – but now in addition – the thing that has increased the fatigue is that clearly my social network collapsed. in the sense that I lived in L'Aquila in the historic centre, I had the office at the "Quattro Cantoni," in a beautiful ancient palace, my mother-in-law lived in Don Bosco street. I have a teenage daughter. so my mother-in-law was a fundamental point of reference. because I was always out, I travelled. but there was a balance, in fact I was very happy."

Finally, to return to the dimension of work value, we have found a series of metaphors to refer to work not only as a source of identity and personal achievements (see above), but also as a source of well-being that we could define psychologically, as seen from the following examples:

Example 10: "For example, me and my husband have not even saved one euro. all we have, we spend it. We have also endured one month layoff, however, during the layoff we paid the INPS[3] because times are difficult. It is an effort that we undertook to make sure that these people received the salary at the end of the month." (FG entrepreneurs)

Example 11: "We had a substantial turnover, heavy. and reality hits you, for example our collaborators that we had, I always said it to my husband, it is a psychological support, right? Because we still had to support them. We had a woman who was on maternity leave and then the baby was born in October, so she was in a special moment. It was a little shelter for this small group, it was sort of […] and then there was a job at least for psychological support, because then there were people who were not able to move not even one thing from here to there anymore." (FG entrepreneurs)

From this last example emerges the dimension of working as a form of being, despite the level of performance, that because of the trauma, can be definitely limited. Work that becomes a "haven," and before being characterized by a specific core business, it rather becomes a way to be harvested; a kind of second nest where it can be sustained. Interestingly, in this regard, it was important to emphasize the agentivity that "we had to

support them": on one hand the feeling of "being forced to" and on the other hand, the expression of a force that becomes a sign of maternal, caring and protection: "protagonism"; in other terms, a sign of gender empowering.

Content analysis of the text material collected through the focus groups

To complete the analysis of the text material collected through the focus groups, we decided to return a mapping of the characterizing themes, through the automatic analysis of the contents with the help of T-Lab software (Lancia, 2012; Cortini and Tria, 2014).

Text preparation

As a preliminary step, we merged the transcripts of all focus groups into one single "txt" format file. Before analyzing the text in T-Lab we performed the necessary clean-up operations of the text. Disambiguation work, where homophones words are distinct, and a lemmatization work, where different words are made to go back to a single root were included. Thus, allowing an analysis of conceptual content. An example of disambiguation work is given by the "state" form, that can mean both "nation" and the past participle of the verb "to be" in Italian; disambiguating means to retrace in the text all the possible homophonic words and re-tag them.

In regards to the reverse process, the lemmatization, which brings different linguistic forms to a common root, we took as an example, the combination of the lemmas worker and working under the umbrella lemma work. The logic of this operation responds to the need of computing the concept of work in any of the linguistic forms in which it is expressed. Therefore, to combine all the conjugations, the tenses, and the forms of the verb to work (preliminary operation that the software performs automatically before starting the analyses), as well as all the other words used to define the concept of work. The analysis technique we are performing, content analysis, intends to analyze the conceptual content that is concealed behind apparently different linguistic forms.

Associations analysis

After text preparation, we proceeded with the first automatic analysis of occurrences and co-occurrences, that in technical jargon is defined Associations Analysis, performed only on words with frequency threshold of 4, as suggested by recent International literature using T-Lab (Verrocchio *et al.*, 2012; Cortini and Tria, 2014; Benevene *et al.*, 2017).

As can be seen from the chart above (Figure 1), the association value of each thematic element is graphically represented in terms of distance from the key word in the middle. Work seems to be characterized by post-earthquake women referring to two large dimensions: the stability-continuity and change. The associations may be expressed by both, distance in the graph, and Coseno index, where indexes more than 0.20 indicate an important co-occurrence between two distinct words.

In terms of word associations, first, work is associated with words such as "continue" (association index, Coseno, 0.20) and "come back" (association index, Coseno, 0.27), demonstrating what was already suggested by the metaphorical analysis. Second, the associations of words such as "to become" (association index, Coseno, 0.20) and "change" (association index, Coseno, 0.22) are very evident (Figure 1), pointing out how the job became a factor that requires change and adaptation, or, in other words, flexibility. This dialectic between stability and change recall the famous study of Sennett (1998) on the dismissed IBM programmers who regularly meet in a café and try to make sense of what is going on and how it could be possible for them to search a new job without losing their occupational identity.

We may conclude by pointing out the temporary nature and precariousness of work for female workers of L'Aquila, besides the fact of being actually temporary workers or not.

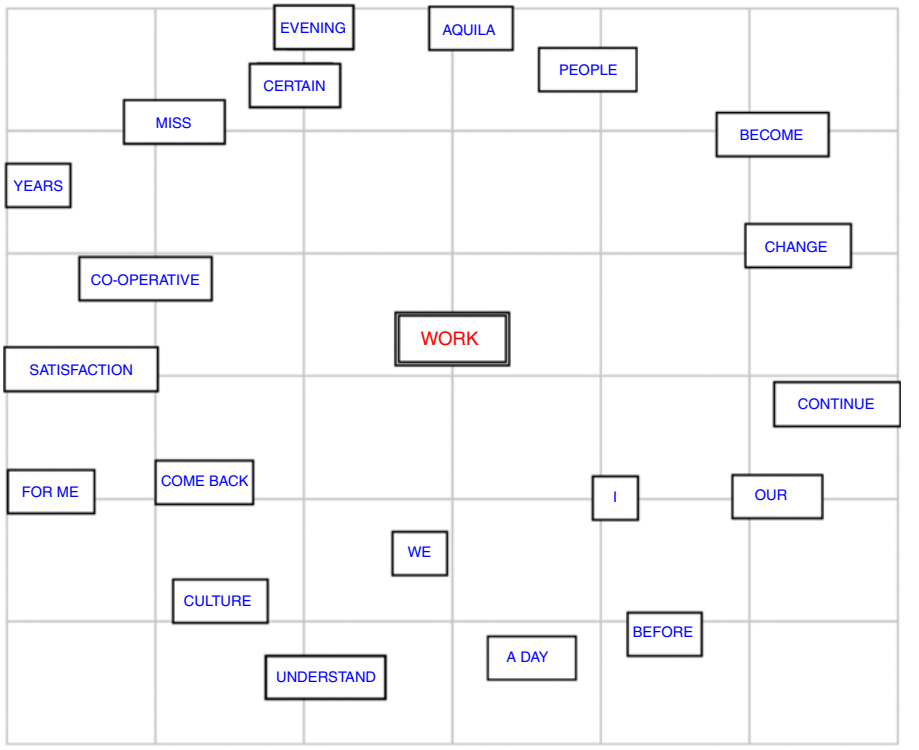


Figure 1.
Word Association of the most cited word: "work"

Nevertheless, work remains perceived as a factor of satisfaction (association index, Coseno, 0.21). The value that work assumes during post disaster suggests the necessity of unemployment benefits, which unfortunately have not been provided in the case of L'Aquila, but that could have had a fundamental role in terms of well-being and recovery, especially in supporting a re-start for self-employed people.

Although the word earthquake does not have a very high threshold (37 occurrences), and in terms of content analysis does not seem to be a key element itself, it strikes the discursive universe in which it is used. As we have argued elsewhere (Verrocchio *et al.*, 2012), it is the whole picture of associations of the different words that matter, and not the frequency of thresholds that proves to be the forerunners of meaning. In our case, on one hand, associations refer to emotionally related words, such as "trauma" and "fear," with associative indexes of Coseno 0.25 and 0.21 and, on the other hand, they refer to words from an economic point of view ("economic," association index, Coseno, 0.27) (Figure 2). To confirm the qualitative analysis, the earthquake is defined not only in terms of shock, but also as an economic earthquake. Among the various linguistic forms with which the word earthquake is associated we also have the word "expense" (association index, Coseno 0.13), with references to the costs of house rebuilding but also to the burden of not having an income.

Analysis of linguistic specificity

Finally, we have explored the distinctions between self-employed workers and employees, with the analysis of linguistic specificity, both exclusive and specific. It is a question of finding words, or groups of words, used more by one group than the other or used exclusively by one group with respect to the other. For the first kind of analysis of

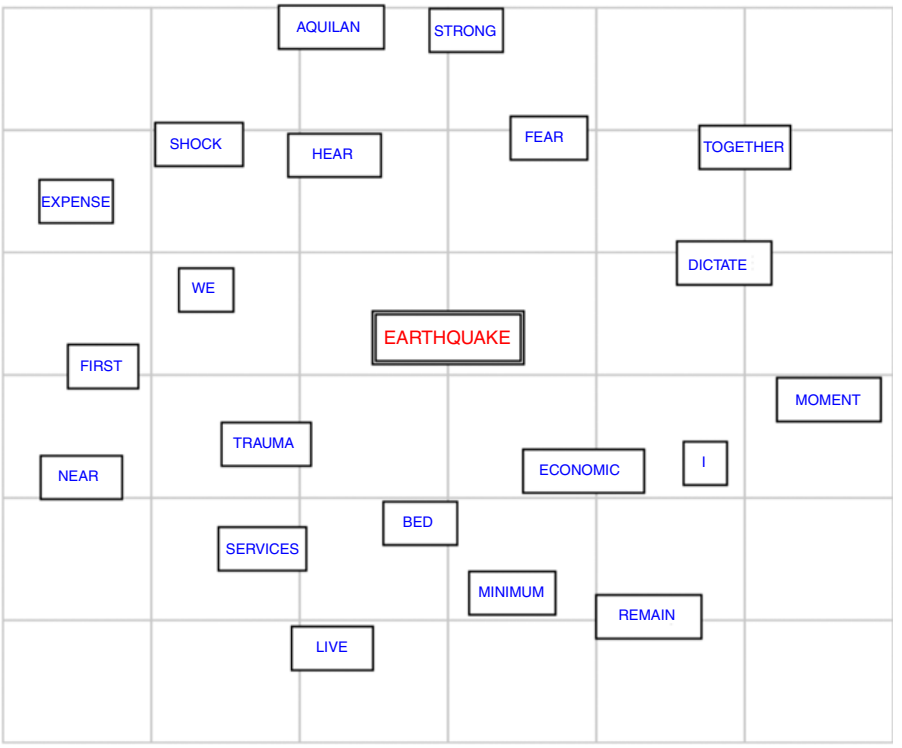


Figure 2.
Word Association of the word "earthquake"

the specificity, we investigated the only differences in words with frequency threshold 5 (Tables I–IV).

It is obvious that some words that characterize one or the other group may be of little significance, such as "Saturday." However, a constellation of distinctive words between the two groups emerged. In particular, the employees often refer to family roles and family members ("home," "mother," "life," "senior") and less to the dimension of the "work"; specular datum to that of self-employed women (under-used words: "home," "life," "spending"). Therefore, over and under-used words seem to suggest that life–work conflict can be a luxury that self-employed women cannot afford, having to silence (literally and not just metaphorically in this case) concerns, desires, anxieties about the family, because they are absorbed by work (Table I). However, work seems to be a source of "satisfaction" (exclusive word) for self-employed workers and pushes them into a proactive vision (Table I). It is significant in this sense, among the unique features of self-employed women, the presence of words such as "to resume," "motivation," "pleasure" (Table II), while the presence of the "trauma" word is unique among the characteristics of the employees (Table IV). The high associations with words like "home," "mother" and "elderly" for the subsample of employee women (Table III), along with the low association with the word "work" (under-used word, Table III) suggest that women seem to be allowed to play private roles only, recalling the public-private space dichotomy (Fordham, 1998).

Discussion and conclusions

The analysis of the focus groups with L'Aquila women workers has shown the value that work assumes during post disaster.

Word	χ^2	SUB	Total
Over-used words			
Work	18.97	92	136
Own	15.88	25	29
Year	11.65	14	15
Territory	8.39	13	15
You	8.21	22	29
Years	7.44	14	17
Secure	6.62	9	10
To put	6.55	23	32
Beautiful	5.66	12	15
To search	4.83	16	22
Palace	4.66	7	8
To think	4.65	9	11
Moment	4.22	12	16
Before	3.99	22	33
Aquila	3.99	30	47
Under-used words			
Home	−16.64	41	129
Expense	−6.22	1	10
Life	−6.22	1	10

Table I.
Linguistic specificities (both characterizing and not characterizing) of self-employed women

Word	OCC	Word	OCC
Lower	17	Rome	7
Office	15	Pleasure	6
Culture	14	Integration chase	6
Community	13	Motivation	5
Common	11	Familiar	5
Co-operative	8	Employees	5
Garden	7	Precarious	5
Strong	7	Communication	5
Market	7	Satisfaction	5
To resume	7	Fatigue	5

Table II.
Exclusive linguistic specificities of self-employed workers

Specifically to disasters as gendered events, our results make a peculiar echo to those on public-private space dichotomy (Fordham, 1998), according to which during a disaster women are not allowed to develop work-related desires. For our interviewed women it is a real challenge to have, at a time, family focused and work focused desires. They seem predetermined to the above-mentioned dichotomy, valid in both directions: the women who have invested in work and are entrepreneurs seem to have no chance of a private life, while on the contrary, those who are more "traditionally" focused on family roles seem to have no chance in terms of job opportunities.

It seems that this last element may generate new research questions, particularly regarding the delicate work–life balance. Furthermore, the reconciliation between work and life, repeatedly present in the discussions of employed workers, is not only the expression of a direct experience (the possibility of reconciliation), but also the recognition of a persistent need in their own and others' life that opens the possibility to accept and embrace others who experience the same problems ("welcome" in terms of active and not passive agentivity is an exclusive word of employees).

Word	χ^2	SUB	Total
Over-used words			
Home	16.64	88	129
Mother	12.93	16	17
To bring	10.03	13	14
Project	9.07	12	13
Civil protection	7.17	10	11
Expense	6.22	9	10
Life	6.22	9	10
To call	6.03	11	13
To live	5.53	16	21
She	5.48	24	34
Folk	5.29	8	9
Morning	5.2	12	15
People	4.49	31	47
Elderly	4.36	7	8
Door	4.36	7	8
Possibility	4.36	7	8
First	4.36	7	8
Under-used words			
Work	−18.97	44	136
Own	−15.88	4	29
You	−8.21	7	29

Table III.
Linguistic specificities (both characterizing and little characterizing) of employees

Word	OCC	Word	OCC
Patient	14	Control	6
Psychologist	12	To receive	6
Mrs	11	Study	6
Department	11	Carabineer	6
Tent city	10	Documents	5
Association	9	Origins	5
Bus	8	Saturday	5
To come in	8	Trauma	5
To conceal	7	To use	5
Sensation	7	You	5
Ground floor	6	Necessary	5

Table IV.
Exclusive linguistic specificities of employees

The possibility of mutual support seems to be an interesting and fascinating element, which deserves to be further investigated, focusing on the conditions under which working women can give and receive help in terms of work–life balance in extreme conditions such as the post-earthquake situation.

Last but not least, the active agentivity that women express may become important in terms of a more general disaster management: from prevention to recovery. This calls for a more complex and integrated risk and disaster management where women may play an active role, as well as in disaster risk governance to guarantee an engendered development and prevent situations of unbalanced disaster costs (Saito, 2011). In particular, it seems to us that not only institutions are not cable of taking into account gender-based vulnerabilities but also that they often hide women's capacities as individuals and as a group, as our focus groups have shown for what concerns working abilities and desires.

Notes

1. On May 16, 2009 the Services' Conference of the Council of Ministers, approved the project "Sustainable and Environmentally Friendly Anti-seismic Complexes", called C.A.S.E., a project that aimed to provide a provisional accommodation to the earthquake victims in the shortest time possible. The goal of C.A.S.E. was the development, within 5–6 months, of new anti-seismic houses simultaneously with the progressive dismantling of the tent cities built during the initial emergency phase.
2. Pescara is the city with the largest number of inhabitants in Abruzzo (119.820 inhabitants). It is located along the Adriatic coast, and it is about 100 km from L'Aquila.
3. Italian State body that co-ordinates National Insurance funds.

References

Avanzi, L., Cortini, M. and Crocetti, E. (2012), "When age matters: the role of teacher aging on job identity and organizational citizenship behaviours", *Revue Internationale De Psychologie Sociale*, Vol. 25 Nos 3-4, pp. 179-210.

Avanzi, L., Albertini, S., Fraccaroli, F., Sarchielli, G., De Plato, G. and van Dick, R. (2018), "Exploring identity dynamics from a combined social exchange and social identity perspective", *International Public Management Journal*, Vol. 21 No. 4, pp. 677-702, doi: 10.1080/10967494.2015.1115450.

Barbour, R.S. and Morgan, D.L. (2017), *A New Era in Focus Group Research*, Palgrave MacMillan, Portland, OR.

Benevene, P., Kong, E., Barbieri, B., Lucchesi, M. and Cortini, M. (2017), "Representation of intellectual capital's components amongst Italian social enterprises", *Journal of Intellectual Capital*, Vol. 18 No. 3, pp. 564-587, doi: 10.1108/JIC-12-2016-0127.

Bradshaw, S. and Fordham, M. (2014), "Double disaster: Disaster through a gender lens", in Collins, A., Jones, S., Manyena, B. and Jayawickrama, J. (Eds), *Hazards, Risks and Disasters in Society*, Elsevier, Amsterdam, pp. 233-251.

Chirumbolo, A. and Mannetti, L. (2004), *Le Ricerche di Marketing*, Carocci Editore, Bologna.

Commissariato delegato per la ricostruzione in Abruzzo (2011), "Prime considerazioni sugli scenari di sviluppo e le strategie di intervento da mettere in campo per il territorio dell'Aquila", available at: www.commissarioperlaricostruzione.it/Informare/Normative-e-Documenti/Atti-e-documenti-della-Struttura-Tecnica-di-Missione-STM/Idee-e-strumenti-per-la-ricostruzione-pesante/Prime-considerazioni-sulle-strategie-di-sviluppo-e-gli-scenari-di-intervento-da-mettere-in-campo-per-il-territorio-dell-Aquila (accessed December 12, 2017).

Contreras, D. (2016), "Fuzzy boundaries between post-disaster phases: the case of L'Aquila, Italy", *International Journal of Disaster Risk Science*, Vol. 7 No. 3, pp. 277-292, doi: 10.1007/s13753-016-0095-4.

Contreras, D., Blaschke, T. and Hodgson, M.E. (2017), "Lack of spatial resilience in a recovery process: case L'aquila, Italy", *Technological Forecasting and Social Change*, Vol. 121 No. 8, pp. 76-88, doi: 10.1016/j.techfore.2016.12.010.

Corbin, J.M. and Strauss, A. (1990), "Grounded theory research: procedures, canons, and evaluative criteria", *Qualitative Sociology*, Vol. 13 No. 1, pp. 3-21, doi: 10.1007/BF00988593.

Cortini, M. (2005), "Fare Ricerca con i focus group: quanti partecipanti per gruppo?", *Sociologia e Ricerca Sociale*, Vol. 4 Nos 76-77, pp. 29-42.

Cortini, M. (2011), "Job Insecurity e Terremoto", Indagine con Focus Group, in Ufficio delle Consigliere di Parità d'Abruzzo, Decent Work e Insicurezza Lavorativa, Unpublished Report, Pescara.

Cortini, M. (2014), "Mix-method research in applied psychology", *Mediterranean Journal of Social Sciences*, Vol. 5 No. 23, pp. 1900-1905, doi: 10.5901/mjss.2014.v5n23p1900.

Cortini, M. and Tria, S. (2014), "Triangulating qualitative and quantitative approaches for the analysis of textual materials: an introduction to T-lab", *Social Science Computer Review*, Vol. 32 No. 4, pp. 561-568, doi: 10.1177/0894439313510108.

Di Pietro, G. and Mora, T. (2015), "The effect of the L'Aquila earthquake on labour market outcomes", *Environment and Planning C: Government and Policy*, Vol. 33 No. 2, pp. 239-255.

Ehrenreich, B. (1976), "What is socialist feminism?", *Working Papers on Socialism & Feminism, Win Magazine*, June 3, available at: www.marxists.org/subject/women/authors/ehrenreich-barbara/socialist-feminism.htm

Enarson, E. (2012), *Women Confronting Natural Disaster: From Vulnerability to Resilience*, Lynne Reiner, Colorado, CO.

Enarson, E., Fothergill, A. and Peek, L. (2007), "Gender and disaster: foundations and directions", *Handbook of Disaster Research*, Springer, New York, NY, pp. 130-146.

Fielding, N.G. and Fielding, J.L. (1986), "Linking data: the articulation of qualitative and quantitative methods in social research.

Fois, F. and Forino, G. (2014), "The self-built ecovillage in L'Aquila, Italy: community resilience as a grassroots response to environmental shock", *Disasters*, Vol. 38 No. 4, pp. 719-739, doi: 10.1111/disa.12080.

Fordham, M.H. (1998), "Making women visible in disasters: problematising the private domain", *Disasters*, Vol. 22 No. 2, pp. 126-143.

Furukawa, H., Takeuchi, T., Yano, E. and Muto, S. (2015), "Factors influencing psychological distress after the great east japan earthquake and tsunami", *Journal of Community Psychology*, Vol. 43 No. 5, pp. 521-526, doi: 10.1002/jcop.21695.

Gaillard, J., Fordham, M. and Sanz, K. (2015), "Culture, gender and disaster: from vulnerability to capacities", in Krüger, F., Bankoff, G., Cannon, T. and Schipper, L. (Eds), *Cultures and Disasters: Understanding Cultural Framings in Disaster Risk Reduction*, Taylor & Francis, London, pp. 222-234.

Gaillard, J.C., Sanz, K., Balgos, B.C., Dalisay, S.N.M., Gorman-Murray, A., Smith, F. and Toelupe, V. (2017), "Beyond men and women: a critical perspective on gender and disaster", *Disasters*, Vol. 41 No. 9, pp. 429-447, doi: 10.1111/disa.12209.

Galluccio, A (2014), "Terremoto dell'aquila e responsabilità penale. Nesso causale ed addebito di colpa nella sentenza 'Grandi Rischi'", *Diritto Penale Contemporaneo – Rivista trimestrale*, Vol. 4 No. 1, pp. 190-214.

Gheno, S. (2010), *La Formazione Generativa*, Franco Angeli, Milano.

Gigantesco, A., Mirante, N., Granchelli, C., Diodati, G., Cofini, V., Mancini, C., Carbonelli, A., Tarolla, E., Minardi, V., Salmaso, S. and D'Argenio, P. (2013), "Psychopathological chronic sequelae of the 2009 earthquake in L'aquila, Italy", *Journal of Affective Disorders*, Vol. 148 Nos 2-3, pp. 265-271, doi: 10.1016/j.jad.2012.12.006.

Glaser, B.G. and Strauss, A.L. (1988), *Grounded Theory, Strategien Qualitativer Forschung*, Huber, Bern.

Greenhalgh, L. and Rosenblatt, Z. (1984), "Job insecurity: toward conceptual clarity", *Academy of Management Review*, Vol. 9 No. 3, pp. 438-448.

Haslam, S.A. (2004), *Psychology in Organizations: The Social Identity Approach*, 2nd ed., Sage, London.

Heaney, C., Israel, B. and House, J. (1994), "Chronic job insecurity among automobile workers: effects on job satisfaction and health", *Social Science and Medicine*, Vol. 38 No. 10, pp. 1431-1437.

Hoffman, S.M. and Hearn Morrow, B. (1998), "Eve and adam among the embers: gender patterns after the Oakland Berkeley Firestorm", *The Gendered Terrain of Disaster: Through Women's Eyes*, International Hurricane Center, Laboratory for Social and Behavioral Research, pp. 55-61.

Lancia, F. (2012), "T-Lab 8.1 user's manual tool for text analysis", available at: www.tlab.it

Madi, K. (2017), "Haiti and why we need more women managing disaster risk. UNISDR", *The Huffington Post*, March 10, available at: www.huffingtonpost.com/entry/haiti-and-why-we-need-more-women-managing-disaster_us_58befc86e4b05386ddc0ca86 (accessed January 10, 2018).

Manuti, A. and Mininni, G. (2010), "Metaphor as an expressive resource of human creativity in organizational life", *World Futures: Journal of General Evolution*, Vol. 66 No. 5, pp. 335-350.

Mininni, G. (2002), *Virtuale.com. La parola spiazzata*, Idelson-Gnocchi, Napoli.

Parkinson, D. (2015), "Women's experience of violence in the aftermath of the Black Saturday bushfires", thesis submitted in Fulfilment of the Requirements for the Degree of Doctor of Philosophy, Clayton, School of Social Sciences, Faculty of Arts, Monash University, Clayton.

Patton, M.Q. (1990), *Qualitative Evaluation and Research Methods*, 2nd ed., Sage Publications, Newbury Park, CA.

Piccoli, B., De Witte, H. and Reisel, W.D. (2017), "Job insecurity and discretionary behaviors: social exchange perspective versus group value model", *Scandinavian Journal of Psychology*, Vol. 58 No. 1, pp. 69-79.

Potter, J. and Wetherell, M. (1987), *Discourse and Social Psychology: Beyond Attitudes and Behaviour*, Sage, London.

Saito, F. (2011), "Women and the 2011 East Japan disaster", *Gender & Development*, Vol. 20 No. 2, pp. 265-279.

Sennett, R. (1998), *The Corrosion of Character: The Personal Consequences of Work in the New Capitalism*, WW Norton & Company, New York, NY.

Suzuki, J., Isozaki, H., Carreras, X. and Collins, M. (2009), "An empirical study of semi-supervised structured conditional models for dependency parsing", *Proceedings of the 2009 Conference on Empirical Methods in Natural Language Processing: Volume 2, Association for Computational Linguistics*, *August*, pp. 551-560.

Van Dick, R. (2001), "Identification in organizational contexts: linking theory and research from social and organizational Psychology", *International Journal of Management Reviews*, Vol. 3 No. 4, pp. 265-283.

Verrocchio, M.C., Cortini, M. and Marchetti, D. (2012), "Assessing child sexual abuse allegations: an exploratory study on psychological reports", *International Journal of Multiple Research Approaches*, Vol. 6 No. 2, pp. 175-186, doi: 10.5172/mra.2012.6.2.175.

Wisner, B., Berger, G. and Gaillard, J.C. (2016), "We've seen the future, and it's very diverse: beyond gender and disaster in West Hollywood, California", *Gender, Place and Culture*, Vol. 24 No. 1, pp. 27-36.

Zara, C., Weiss, C. and Parkinson, D. (2013), *Men on Black Saturday: Risks and Opportunities for Change. Vol. 3 Men, Masculinity, Disaster: A Literature Review*, Women's Health Goulburn North East, Wangaratta.

Further reading

Alexander, D. (2012), "An evaluation of medium-term recovery processes after the 6 April, 2009 earthquake in L'Aquila, central Italy", *Environmental Hazards*, Vol. 13 No. 1.

Minardi, V., Gigantesco, A., Mancini, C., Quarchioni, E., D'Argenio, P. and Cofini, V. (2016), "Behavioural risk factors in L'Aquila (Central Italy) 3-5 years after the 2009 earthquake", *Epidemiologia e prevenzione*, Vol. 40 No. 2 S1, pp. 34-41.

UNIFI (2011), *MICRODIS – Key Findings*, Vol. 6, University of Firenze Press, Firenze.

Corresponding author
Michela Cortini can be contacted at: cortini@unich.it

Resilience and resisting resilience: ethnographies in neoliberal L'Aquila post-earthquake

Rita Ciccaglione
Dipartimento di Storia Culture Religioni, Universita degli Studi di Roma La Sapienza, Roma, Italy

Received 28 February 2018
Revised 19 August 2018
16 November 2018
6 January 2019
24 March 2019
20 April 2019
Accepted 20 April 2019

Abstract

Purpose – The purpose of this paper is to analyze the relationships between neoliberal institutional management of the 2009 L'Aquila earthquake and the local dwelling practices, which consequently originated in the new urban layout.
Design/methodology/approach – It presents itself as a post-catastrophe ethnography carried out from a specific approach, that is, the street ethnography that consists of collecting the practices and discourses of inhabitants, administrators, experts and commercial operators, which take place on or around the street.
Findings – Illustrating the stages from the declaration of the state of emergency to the expertise-proposed reconstruction models, it shows the differences between resilient strategies and policies of urban management and resistant dwelling practices that are analyzed progressively focusing on a particular social group: the teenagers of the alleys.
Research limitations/implications – Descending in the alleys means to take a micro-sight that ables to identify present living paths.
Practical implications – Based on a long fieldwork, it bridges the gap between "theories" and practices, and it highlights those fields of action that despite being dominated by wide-ranging disaster management and urban planning logics bring out the work of social life in reweaving its threads in contexts of crisis.
Social implications – Paying attention to a social portion that often escapes from ethnographic investigation, this study has the merit of dealing with teenagers in this kind of situation.
Originality/value – Indeed, this part of society and its creative "culture" receive the focus of a few studies, especially in case of catastrophes.

Keywords Urban planning, Adolescents, Earthquake, Disaster management,
Emergency management policies, Resilience strategies, Socio-cultural resistance, Urban reconstruction

Paper type Research paper

Introduction

The purpose of this study is to analyze the relationships and intersections between institutional disaster management and local dwelling practices in the aftermath of the 2009 L'Aquila earthquake, referring to the urban space shifting. Considering disaster as a process (Hoffman and Oliver-Smith, 1999), it presents a post-catastrophe ethnography, which not only provides a temporal and processual analysis of disaster but also provides its descending reading from an institutional perspective to a micro-sight in everyday local practices.

It means to bring out the work of social life in reweaving its threads in contexts of crisis, despite the great scenographic rhetoric of emergency and reconstruction I am going to describe, by highpointing wide-ranging political, economic, urban planning and disaster management logics. It means to find in everyday practices that negative capacity (Lanzara, 1993) that allows people to face the suspension of the world that disasters cause.

To interpret the methods of construction and legitimization of institutional power and its disaster management policies, my study highlights those connections between culture of emergence and culture of resilience, leaving room for capitalism of disaster, which contribute to accelerate (Oliver-Smith, 1996) the transformations of urban space in a neoliberal sense. Moreover, through the street ethnography, I collected the practices and discourses in or around the street acted by inhabitants, administrators, experts, commercial operators.

Disaster Prevention and Management
Vol. 28 No. 4, 2019
pp. 501-512

0965-3562
DOI 10.1108/DPM-02-2018-0064

My study can recognize that distinction that de Certeau (2010) operates between concept of city and urban practices. Whereas the former produces a panorama city, by organizing an abstract space through a top-down sight, spatial practices are made by those who "live 'down below', below the thresholds at which visibility begins. […] They are walkers, whose bodies follow the thicks and thins of urban 'text' they write without being able to read it" (de Certeau, 2010, p. 145).

As mentioned in next paragraphs, from the first tent camps to reconstruction, the declaration of the state of emergency to the expertise-proposed development models, this study shows the differences between urban policies adopted in disaster management and a stubborn centripetalism in dwelling practices of inhabitants, analyzed following a specific post-earthquake social group, the teenagers of the alleys.

From a theoretical point of view, this path also means a progressive shift from a dark anthropology to an anthropology of the good. The former considers "several emergent trends in anthropology […] against a backdrop of the rise of neoliberalism as both an economic and a governmental formation" (Ortner, 2016) focusing on power, domination and suffering subject. The latter aims "to explore the different ways people organize their personal and collective lives in order to foster what they think of as good" and to realize such a project (Robbins, 2013). Looking for an integration between the two theoretical investigative formulas, the second perspective is precisely in relation to those models of well-being that are, instead, constructed, proposed and realized by power in its various facets.

The neoliberal use of emergency and resilience in disaster management: a theoretical framework

In culture of emergency, as defined by the author, catastrophe and destruction become legitimizing for the proclamation and definition of the crisis and the state of emergency, when action and choice can be contracted in the name of necessity and urgency.

The emergency of the situation and the danger for victims justify the exceptional intervention (Fassin and Pandolfi, 2010). A necessary limited temporality is activated, so that a specialized and professionalized action must be dedicated for the recovery management through the production of external expertise and technocracy (Revet, 2011). Emergency is built as governmentality (Foucault, 2005) corresponding to a state of exception[1] (Agamben, 2005) wherein higher levels of government exercise their power in a completely centralized way.

In the last decades, we have moved from a culture of emergency to a culture of resilience within the disaster management and DDR policies (Benadusi, 2011a; Barrios, 2016). This category acquires a pre-eminent role by placing human beings at the center, as result of their adaptive relationship with the environment, and presenting catastrophe as an "opportunity" to better develop these positive skills of permanent adaptation (Benadusi, 2011a, 2013, 2014). Nevertheless, this agenda appears strongly standardized at both linguistic and practice level so that resilience is becoming a naturalized buzzword (Benadusi, 2014).

In fact, both the culture of emergency and that of resilience, representing change as a product of the catastrophe itself, allow capitalism of disasters to operate within them and in union with them. Both read the catastrophe as a disruptive and destructive element of a pre-existing order to which local institutions and communities respond with attempts to restore or produce a new structure. Both are aimed at resolving the crisis triggered by the disaster: the former by insisting on the urgency of the intervention and the latter by presenting the catastrophe as an opportunity for transformation and improvement.

In disaster capitalism, the rhetoric of the opportunity is activated through the instrumental use of the catastrophe by national and transnational governmental institutions to promote and authorize a series of private and neoliberal capitalist interests (Schuller, 2008). It is based on a mechanism of creative destruction, which Harvey (2007) identifies at the base of

neoliberalism[2], highlighting how it always benefits from the exploitation of the crisis to legitimize a top intervention that manages the crisis itself, creating a tabula rasa (Klein, 2007) on which economic and political processes of development can be established.

More generally, contemporary neoliberal urbanism is expressed as a process that alternates moments of destruction with creative ones, favoring the neoliberalization of urban spaces (Brenner *et al.*, 2009). Moreover, these kinds of mechanisms are recognizable in a broad trend of "re-representation" of the city and of its image linked to global capitalism, in configuring itself in forms of spectacularization, by looking at consumption, entertainment and cultural activities as driving forces for retraining and regenerating (Stevenson, 2003).

Furthermore, focusing on levels of resilience (Forino, 2012), it should be emphasized, as in the analyzed context, that the institutional one corresponds to certain narratives functional to the neoliberal power (Vale and Campanella, 2005), whereas the ones related to the people living in the affected areas, "to their personal experiences and individual representations of the catastrophe" (Zaccaria and Zizzari, 2016), do not correspond to an emic incorporation of the concept, neither in discourses nor in practices. Rather, by ethnographically observing the latter, it is possible to note some forms of resistance in the present to these strategies of resilience proposed for the future economic recovery of the city.

Methodology

My fieldwork in L'Aquila began in June 2009 during the emergency phase (Ciccaglione, 2012). Although a brief description of that period will be provided in the following paragraph, referring also to other studies, the findings here presented are derived from a subsequent research step.

I spent 16 months (from April 2015 to July 2016) on the field with the aim of reconstructing a biography of post-earthquake relations between inhabitants and urban space, experimenting and mapping – and consulting maps and documents – this space through an oscillating attitude between participant observation and observing participation.

The author attended forums, conferences, meetings and public offices related to urban reconstruction and planning. Nevertheless, the plurality and heterogeneity of the actors that characterize the post-catastrophe stage led me to apply a multiplicity of methodological approaches to ethnography. If an attempted paraetnographic sketch (Islam, 2014) has constituted the method for the meeting with technical and administrative expertise, a street ethnography guided by an experiential approach (Turner, 2014) has represented the way of relating to the inhabitants and urban space.

I analyzed spatial practices in the relationship that space had with people who live it, by siting my ethnography in daily street life. Accordingly, roaming around in the street, I could observe, understand and meet people who explained to me their relation with post-catastrophe urban space among them and within it. I participated not only in practices, but also in talks, in the "chitchat" about the city. Being space inhabited and utilized, but also enunciated, told, described the street was both a setting of practices (including ethnography) and an object of discourses and representations.

Altogether, I conducted 100 semi-structured or unstructured interviews and collected mental maps also through walking interviews, my interlocutors, aged between 14 and 76 years (with an average age of 37), were mainly those whose place of work was in the downtown part, as well as its few inhabitants.

In adopting this specific placement, I focused on L'Aquila downtown certainly. Since both commercial activities and administrative offices are subject to continuous relocations, such as housing routes follow the progressive reconstruction, it is difficult to offer a typology that permanently locates people.

Nevertheless, it was impossible to understand it if it was not in relation to the town as a whole and the disruption of the previous urban layout. To grasp its following redefinition

not just from a "central" point of view, during my long fieldwork, I interviewed many people who lived their daily work and housing life in suburbs. Moreover, I continuously experienced those spaces through the frequent movements that the urban layout requires, whether they are immediately out of the downtown, the resettlement sites, shopping malls or enormous empty spaces among them.

I interviewed 21 adolescents when they were living in a precarious housing path. After the earthquake, most of them moved from their own home first to the hotels, then to the outskirts or to neighboring villages in autonomous accommodations, in the CASE Project (Sustainable and Environmentally friendly Anti-seismic Complexes) or MAP (Temporary Housing Prefabs) sites. With them, it was possible to activate, through regular and long-term attendance, an experiential sharing in terms of resonance and reflexivity that arose not only in a mutual trust, but in a collaboration in building an ethnographic discourse, respecting their narrative (Ciccaglione, 2018).

Findings

The miracle narrative of emergency management

On April 6, 2009, a strong earthquake hit Abruzzo region, provoking 309 casualties, 1,600 injured and 67,500 evacuees and damaging or destroying tens of thousands of buildings. The most affected area was the town of L'Aquila and in particular its historical center with enormous consequences on heritage architecture and social life.

Emergency management was administered by the head of Civil Protection Agency[3], Guido Bertolaso, under the direct control of the Prime Minister, Silvio Berlusconi, through the toolkit of an external commissioner and extraordinary ordinances, as an exception to normal legislation and rules equivalent to a state-centralized decision making.

The state relief effort included some measures of temporary sheltering with the immediate provision of 170 tent camps within the municipality of L'Aquila, accommodating over 30,000 evacuees. Other 30,000 people were located in tourist hotels along the Adriatic coast (Pirone and Rebeggiani, 2015). Nevertheless, some actual reconstruction policies were included in emergency management. Two strategies were enacted for relocation: MAP were filled in damaged pre-existing villages, and large "new towns," called CASE Project at 19 residential sites around L'Aquila, scattered away from the town center and from the first suburb ring (Forino, 2012).

The media attention and coverage during first emergency were part of a propaganda system based on a miracle narrative of management, in order to create a political and instrumental use of the catastrophe. Berlusconi asserted himself as a charismatic and salvific leader, who was able to offer inhabitants a "true" home, inspired by criteria of environmental sustainability and safety, guaranteeing their realization in record time (Ciccozzi, 2010).

In L'Aquila, the catastrophe management was expressed in an emergency response that crushed the intervention on immediate effectiveness and a specific narration of the disaster policies was produced through the political use of media communication (Marchezini, 2015).

During the immediate aftermath and out of any technical debate – in the name of a sudden response to the housing crisis, and a high standard as an alternative to the usual containers – CASE were presented as the best possible solution by national disaster management with the slogan "From tents to C.A.S.E."[4]. Moreover, their designated use, once the real reconstruction had been completed, was presented in the perspective of a future development of the territory, offering accommodation for tourism and university hosting sector.

Expertise reconstruction for a resilient city

L'Aquila emergency was definitively closed with the Law 134/2012, proposed by the Minister for Territorial Cohesion, Fabrizio Barca, and it contained a package of measures

that determined the end of the emergency management and the restoration of ordinary administration by simplifying the reconstruction procedure.

Moreover, a number of studies were promoted for overcoming the emergency and strategically supporting local administration with guidelines for post-disaster reconstruction. Some reports were conducted by OCSE and the Groningen University, combined with an economic, a legal and an urban planning national commission.

The concept of resilience gets into the vocabulary of the catastrophe communicative frame. In the report entitled "Policy action after natural disasters. Helping the regions to develop resilience. The case of post-earthquake Abruzzo region," the resilience of territorial systems is defined as "the ability to withstand and recover from external and adverse shocks, through adaptation processes that restore or improve the previous conditions of the system. A sufficiently high degree of resilience is essential to maintain or increase long-term well-being in places exposed to threats of natural disasters, whose occurrence may suddenly require new allocation of resources and the transition to a new development model" (OECD, 2013, p. 17).

Therefore, the recovery from the disaster has predominantly declined as a possibility of change and "economic" resilience to be developed in the future.

The urban development strategy proposed to achieve this goal is aimed at the European model of cities: the city of knowledge, the smart city, the creative city and, finally the open and inclusive city (OECD, 2013). Whereas the first model refers to the fundamental role of university, as of other cultural and research centers, in L'Aquila economic structure, the second one refers to the introduction of new technologies for energy efficiency and environmental sustainability (as the "Smart Tunnel" which is currently building in the downtown underground). The third one focuses on attracting users through the improvement of a cultural scene, especially with artistic and social events, and finally the fourth one promotes the participation of civil society in the city governance (through some initiatives such as the "Urban Center"). If the smart city, broadly and metaphorically, seems to include some possibilities declined through the others, all of them have at their core the aim to improve the territorial development and life quality.

Indeed, looking at urban planning documents, the culture of resilience is not so much articulated in terms of preparation for a potential future hazard due to catastrophic events (if not in direct relation with a technocratic resilience addressed to the reduction of seismic vulnerability), but toward a more general development of the territory, thinking of an "economic" resilience. In the "Preliminar document to the Masterplan" (2015) resilience, urban development and improvement of life quality are included in a single discursive frame wherein urban regeneration is the tool to achieve these purposes. According to international and European policies, their strategic combination represents the driver for increasing urban attractiveness, economy and social life.

Changing dwelling practices in the new L'Aquila town

To the effect of emergency intervention, the spontaneous action by private sector should be added in shifting the urban layout. Some wooden houses, as an independent accommodation response to housing crisis, contribute not only to the dispersion of space and to the land use increase but also to a series of shopping malls that arise in the immediate post-earthquake, often to accommodate those relocated activities because of their destructed or unfit declared premises.

The concrete outcome is an intensification of the expansive model for building density. The sprawling phenomenon[5], to which L'Aquila was already subjected, accelerates turning into sprinkling (Romano and Zullo, 2014), or the extreme dispersion of a dense settlement on large interstitial areas of the main conurbations. One of the few inhabitants of the downtown explains:

> The change depends on the nefarious choice to create the so-called "new towns" that have spread a modest population on the territory […] To disrupt a city, projecting it like radial links on 19

> unrelated points, unhooked among them, unassimilable among them […] C.A.S.E. scattered the population in areas of the territory and we do not understand what the criteria chosen by national politics […] That is to the origins […].

A 35-year-old girl who opened her shop in the rebuilding downtown illustrates the impact of the change of urban space has on living practices in its various facets:

> The city has changed, because it has expanded but we are few […] So you go, running like mad […] I realize it with my friends, with the people before I usually met […] Now I don't even know where many of them live […] Before we were everybody closer, we met each other almost every day in downtown […] There was the habit of a walk […] Now I have to phone and make an appointment with my friends […] Also the shops, you never know where they are […] Whenever I need a shop, for me it is as if it is located in the downtown somewhere, but instead you have to find the shop you want in a shopping center […].

Urban shape changes from a hierarchical polycentrism characterized by a concentric pattern, in which downtown was a protagonist over suburbs and districts, and was represented by inhabitants as a proud centripetalism, to a linear polycentrism wherein new centralities are monofunctional, punctual and poorly connected. Services and functions are dispersed and the distances to be covered are expanded; mobility, consumption and relationship habits change.

Other reconstruction policies, as the device of the equivalent substitution of damaged houses, contribute in changing the urban real estate market in a suburbanized characterization. A 50 year-old woman explains how her family decided to move:

> My house was demolished […] Really, we didn't choose, we checked around and around […] We didn't move there because we liked that area […] Simply, we found what was right for what we needed […] It should be an equivalent house, of the same value […] So, we looked for a house which had the requirements of the previous one […] There are some parameters […] They evaluate your house and you have to look for that amount. We moved away because we couldn't get closer […] We wanted to move towards the downtown area, but it was impossible […] Also because there wasn't anything which had been rebuilt […] The main part of under construction houses were already owned […] Then we saw that there were homes for sale, but we all know that those houses had the most damage […] Prices haven't increased so much, but there are no houses in the central area or you do not trust the reconstruction work.

Post-earthquake downtown

Focusing on downtown, the extraordinary intervention during the emergency phase establishes a red zone, determining the prohibition of its use as an impassable place because of its lack of security. It tends to be a place of exception: homes as private property are declared condemned, first by law and then by expert evaluation, creating a space in which public authority takes over control and respect for order. However, special surveillance by National Army did not correspond to a real capacity for controlling space, and public authority failed also to maintain a public order in terms of cleanliness. The downtown became a tabula rasa in its physical material dimension wherein conditions of environmental degradation added to earthquake-caused destruction.

Moreover, since few families went back to live there, most homes were freely opened to everyone. As they were in a building site or violated over time, doors and gates were constantly open and houses were explored for various purposes by thieves, reconstruction workers, curious people, tourists and residents.

However, in the degraded center, there was room for a specific consumption regime, that of nightlife, so that downtown was presented in new urban conformation as one of monofunctional centralities in this characterization.

In the aftermath, to encourage the rebirth of downtown, public authorities took advantage of night entertainment as part of a University City that wanted to increase its attractiveness. Nightlife in the downtown, together with the production of cultural events, became a possible declination of the "idea" of University City that embodied the different models of cities offered by the expertise. Local administration created a device for declaring a partial compliance with safety standards and reopening to those activities was not in the destroyed premise but in the red zone. Moreover, the proliferation of bars and pubs was due to high prices in rental rates with which only this type of activity could cope in the absence of a veritable walking during the day because of building sites in progress. A 60-year-old grocer told:

> Before the earthquake you could choose […] You found a location where you wanted and at the price that was right, because the town was alive […] But now crossed roads are few and rents are high […].

As University City, downtown was potentially gentrified through a studentification (Smith, 2005) already before the earthquake, as well as there was a nightlife. Anyway, it was perceived as being integrated into other activities that throughout the whole day were held in the center, part of a right to the city (Lefebvre, 2014) practiced by various subjects. Nowadays, the current monofunctionalization is connoted as a process of commercial gentrification (Semi, 2015) aimed at the creation of elite consumption spaces.

Teenagers in the alleys

In the described "red zone," some of L'Aquila's teenagers decided to live and "dwell" the downtown, enacting an alternative form to relate to the changing urban space. These young people composed a network of 20–40 subjects, with most of them being high school boys and girls between the ages of 14 and 19 years.

In teenagers' dwelling practices, a sort of opposition between center and suburbs, between the city's recognized center and those monofunctional areas of entertainment and consumption that emerged in immediate post-earthquake, arised. A 17-year-old boy explained:

> We have started to come, to go out in downtown with friends, those that we grew up with, because the alternatives were two […] We were young, the first time we began to hang out with our friends […] Or you went to the shopping center, L'Aquilone […] And first, everyone went there […] Or you came here in the city center […] And because we have never liked the people who went to L'Aquilone, we said: "Do you know what? We have start going to downtown […]".

For a part of teenagers, discotheques and shopping malls became places to avoid as consumer sites were attended by "swanky kids," who led a different lifestyle. Thus, the center and specifically its alleys had lived as a place of distinction (Bourdieu, 1983) through explicit disagreement in how to live the town in peer relationships. A girl said:

> I make some distinctions among people […] There are the swanky kids, those who dress up, they have "risvoltini", the "pleated pants", and go to the disco […] The males are more females than me […] Then, there are the more easy going people, with which sincerely I do better […] We do not need anything […] The scenario is what you create […] Buy the wine at Carrefour and sit on the ground and spend your time […] While other people consider it inappropriate […] So there are these distinctions […].

The use of urban space was fundamentally claimed by these teenagers (Lefebvre, 1976) rather than its consumption. Moreover, a 19-year-old girl said:

> When we can find a meeting place, when you go out and you know what to do, where to go, you know you can meet the right people there […] It's a bit like living in the downtown of the past […] Because the downtown "lived" before the earthquake, just like a center, a meeting center […] Go for

> a walk […] I didn't lived this because I was a child, while mom and dad tell me how was like going out in the center […].

They seek such a space as a different form of sociality because older adults and relatives have used it and recognized it as a social and living space, the space always in "use" of the historical center. In an intergenerational transmission of the center-centered idea of the town, the continuity of practices is an unconscious (but not too much) claim of a right to the city (Lefebvre, 2014).

The assimilation that the red zone creates between public and private space, along with degradation and neglect, transforms the downtown into a "no-man's land," where lack of control allows teenagers to explore, to jump over, to enter where the doors are already open and to open them when they are closed. A boy said:

> Then, after all, the "red zone" was everything. So, either you were violating or staying at home […] And about staying at home, we didn't want to […] So we opted for illegality […] Anyway, it was to go into homes, that are private property […] So we grew up in illegality […] It was illegal that of going into the homes, it was illegal to write on the walls […] But it was a way we had to express ourselves […] It has always been a flee-run […].

Illegality becomes for these young people almost a required choice in which abandoned and empty space in the red zone is interpreted as usable.

Most of these teenagers process emptiness and destruction by creating relationships with places and channeling it in a specific cultural form: hip-hop. A 17-year-old boy explained:

> We came here to be tranquil for writing, because basically we wanted to train […] And this was the focus of our experience related to hip hop […] We started writing here, doing freestyle here […] Because anyway there was nothing in L'Aquila […] Maybe it stimulated us to get moving, to find a way to escape […] For example, I started to draw and make graffiti […] And we had a whole "red zone" of building that would have been demolished to exercise […] And we started doing that, graffiti, writing and singing rap.

Another 18-year-old boy said:

> Before there was hip hop in L'Aquila, but now there are many more people singing or doing graffiti […] Here in L'Aquila, hip hop has been used for this, to express ourselves, to communicate our problems […] Hip hop is social protest […] I want to talk about what I don't like, to express what I feel and make you understand […] But also for beautiful things […] It is also a way to joke […] You have seen in Piazza Palazzo[6], the parties always end with a rap all together […] Hip hop is something thanks to which we can communicate […] Maybe, it is the hip hop that made us to be so, I mean it brings people together […] We share this aspect, this vision in addition to other things […].

The illegibility of the center is filled by filling silence with music, walls of houses with writing and bombing. Hip-hop is taken as a form of use of urban space. Rap becomes a soundtrack to the experience of these young people in continuity with the immediate post-earthquake in which new crews were born and earthquake-dedicated mix tapes were recorded. Actively, freestyle becomes a narration of the relationship with the city, writing a form of the appropriation of the alleys, primarily a form of use of these spaces. In addition, the cultural universe of hip-hop is re-imagined by adolescents and the practices of this world become identity in peer relationships and in the relationship with the town.

The dwelling practices that teenagers act in the downtown alleys are more than a mere appropriation – a real production of spaces of desire (Harvey, 2015) through the daily use of places for the their own needs. Through the creativity of hip-hop, part of L'Aquila's teenagers claim a right to use and access to the city in that place that embodies such a right in the spaces of representation, reinventing it through their wishes.

They resist to social space displacement by presenting this idea in the downtown through action and by opposing peers who take on other space practices. They find in the

relationship between subjects and places the way to define the relationship among subjects in the places and among places in the representations of subjects.

They adapt and elaborate the space they find available as a stage, producing tactics in favor of desire, promoting the satisfaction of their personal needs, aiming to transform their existence but without contribution of real changes to the social order, by perceiving and experiencing it in daily life and in the present. A 17-year-old boy said:

> Now, growing up it is a little less, but I always have been seen as the one who smoked joints in the alleys, to which you had to be careful of […] There is a verse of a song […] "Clutch your shoes, in the mirror turn up your nose, more you look fouler more you feel a rapper" […] It was like that […] How fucking true it is […] You really feel satisfaction!

Their practice is very similar to the resistance of the Hammertown lads described by Willis (2012). Indeed, those teenagers resisted actively to the dominant cultural model received at school, opposing their working class values. Similarly, the teenagers of L'Aquila alleys adopt their "street culture" as an opposition that they make primarily among peers "to protect their identity, threatened by the rules of behavior, by the languages and the orientations of privileged value" (Benadusi, 2011b, p. 25) from the consumption models of urban neoliberalism. The teenagers of the alleys choose to perpetuate the old space of representation of the city and, with it, the right to the city itself that it represented in spatial terms.

Discussions and conclusions: resisting resilience?

In L'Aquila, disaster management carries out a process of creative destruction for the space of the city as a whole and for the downtown in particular. The urban planning intervention, implemented through the extraordinary and emergency procedure, activates a series of mechanisms for the neoliberalization of urban space, which can be certainly described as capitalism of disaster.

Brenner, Peck and Theodore, analyzing the transformations of the built environment and urban layout, underline the destructive moment of the "restructuring of the urban real estate market" to which a creative moment of "emergency and transition provisions for the homeless" (Brenner *et al.*, 2009, p. 60) corresponds, as CASE and other examined institutional tools. Moreover, the establishment of red zone was a destructive moment on which a neoliberalization of urban space could be built, aimed at the production of specific areas of consumption and leisure. (Brenner *et al.*, 2009).

Actually, the increasing cultural and economic integration on European and global scale contributes to define the degree of competitiveness among cities on the contemporary scene. It is possible to identify real trends around which city models are built and subsequently the broader discourse of urban development is also built, which are indicated as universal recipe for pursuing the goal.

Even in L'Aquila through external consultancy and expertise, these trends become part of the urban planning agenda, in which a city must develop strategies that can increase its attractiveness to individuals and businesses through the acquisition of certain characteristics such as a high degree of environmental quality, connectivity and energy efficiency (Calafati, 2012). Consequently, reconstruction practices dependent on strategic decisions implemented by actors in positions of influence, whether institutional or socio-political, directly influence the built environment, its transformation and the social relations that take place in it, legitimizing it through the declared will of implementing the life quality.

In this, a penetration of the rhetoric of resilience in the culture and management of emergency could be noted, by implying the idea that the reconstruction period can become a bridge between urgency and development (Benadusi, 2013), by seizing the

catastrophe as an opportunity. Strategies of resilience are trained through a technocratic and economic guideline, in which reconstruction becomes a way for intervening after the disaster to better rebuild and improving the living conditions of the affected population.

In this regard, Barrios (2017) emphasizes how the emergency management also assumes a biopolitical connotation wherein "the decisions that […] powers make do not so much concern the killing of bare life to protect a biopolitical social body […] as they do about what kinds of lives are deemed worth living and which are not" (pp. 237-238). Nevertheless, it is possible to think about the daily practices of adolescents of the alleys as resistance in the present that guarantees continuity to the spaces of representation and to the practices of the city space as a complex cultural system.

They do it by improvising, combining the elements of the available space, using it creatively and resisting primarily to models of cities and consumption, which seem to be complicit in managing disasters wherein the culture of resilience offers the side to the capitalism of disasters. Therefore, the gaze into the alleys allows to ethnographically touch the anthropology of the good in the meeting with these social actors and with the creativity they put in place for the production of spaces of desire.

Ethnographic research demonstrates how in post-disaster contexts, political and cultural elites attempt to define recovery in ways that align with their socioeconomic interests. Moreover, it also documents how subaltern groups can challenge dominant narratives of what it means to "rebuild better," definitely clarifying "that defining success in disaster recovery, or resilience, is a polyvocal and contested process" (Barrios, 2016, p. 33).

Therefore, resilience can be recognized as a function of political power, in which physical reconstruction becomes a description tool of propaganda and consensus, by relying "on a dominant, progress-oriented narrative, one that sees the devastation and reconstruction of cities as nothing more than an extreme version of the usual processes of capitalism of creative destruction" (Vale and Campanella, 2005, p. 15). On the other side, ethnography shows that some local dwelling practices can resist to this path and choose alternative ways of being "resilient," "if by resilient we mean the capacity to carry on, improvise, and survive despite overwhelming challenges" (Barrios, 2016, p. 31).

Definitely, the creativity that the teenagers of alleys act in the process of producing places of desire can be understood as a "negative capacity" in self-determinating own routines, in acting and making sense to them, in different contexts (Lanzara, 1993). It is a form of cultural improvisation, which unfolds by modulating the circumstances of the present environment and the performative engagement with its materiality. It is a power of adaptation and response to the conditions of a world-in-training (Hallam and Ingold, 2007), an ability to imagine and produce social space and a right to the city improvising "places" in a space wherein sociality is banned or commercialized.

Notes

1. It consists of an unusual extension of power, based on the sovereign's ability to transcend the rule of law in the name of the public good, and it becomes a normal paradigm of government in the twentieth century.
2. It favors the deregulation of the market by depriving public authorities on behalf of private entrepreneurship, allowing a colonization of the same state through a privatization of profits but maintaining costs and losses on the public finances.
3. It is the structure of Italian Republic Government in charge of the coordination of policies and activities on defense and civil protection. It deals with the forecasting, prevention, management and overcoming of disasters and calamities and other emergency situations at a national level.
4. The acronym coincides with the Italian word "case," whose meaning is "homes."

5. The sprawl typically distinguishes aggregate growth to pre-existing parts of the city, preserving a continuity of the urban fabric as it increases its spatial development.
6. In this square, guys used to celebrate the 18th birthday, bringing with them some alcohol to offer to friends who were invited through a word of mouth.

References

Agamben, G. (2005), *Homo Sacer. Il potere sovrano e la nuda vita*, Einaudi editore, Torino.

Barrios, R.E. (2016), "Resilience: a commentary from the vantage point of anthropology", *Annals of Anthropological Practice*, Vol. 40 No. 1, pp. 28-38.

Barrios, R.E. (2017), *Governing Affect: Neoliberalism and Disaster Reconstruction*, University of Nebraska, Lincoln.

Benadusi, M. (2011a), "Il futuro-presente dell'emergenza umanitaria. Nuove ricette d'intervento a seguito dello tsunami del 2004", *Quaderno di comunicazione*, Vol. 12, pp. 91-102.

Benadusi, M. (2011b), "Sopravvivere all'istruzione, ovvero… la scuola come campo di battaglia, la scuola come laboratorio di scultura", *Scuola democratica*, No. 3, pp. 22-46.

Benadusi, M. (2013), "Cultiver des communautés après une catastrophe. Deferlement de generosité sur les cotês du Sri Lanka", in Langumier, J. and Revet, S. (Eds), *Le gouvernement des catastrophes*, Karthala, Paris, pp. 103-146.

Benadusi, M. (2014), "Pedagogies of unknown: unpacking culture in disaster risk reduction education", *Journal of Contingencies and Crisis Management*, Vol. 22 No. 3, pp. 174-183.

Bourdieu, P. (1983), *La distinzione. Critica sociale del gusto*, Il Mulino, Bologna.

Brenner, N., Peck, J. and Theodore, N. (2009), "Neoliberal urbanism: models, moments, mutations", *SAIS Review*, Vol. XXIX No. 1, pp. 49-66.

Calafati, A.G. (2012), "L'Aquila 2030 – Una strategia di sviluppo economico", Ministero per la Coesione Territoriale.

Ciccaglione, R. (2012), "Perché parlare di tendopoli a L'Aquila dopo due anni dal loro smantellamento?", in Carnelli, F., Paris, O. and Tommasi, F. (Eds), *Sismografie*, Effigi, Grosseto, pp. 51-58.

Ciccaglione, R. (2018), "Advocacy ed etnografia all'Aquila post-sisma. Dalle coreografie della governance ai vicoli degli adolescenti", *Illuminazioni*, No. 46, pp. 193-224.

Ciccozzi, A. (2010), "Aiuti e miracoli ai margini del terremoto de L'Aquila", *Meridiana*, Nos 65–66, pp. 227-255.

de Certeau, M. (2010), *L'invenzione del quotidiano*, Edizioni Lavoro, Roma.

Fassin, D. and Pandolfi, M. (Eds) (2010), *Contemporary States of Emergency*, Zone Books, New York, NY.

Forino, G. (2012), "Narrazione delle strategie di resilienza nella ricostruzione aquilana", in Calandra, M.L. (Ed.), *Territorio e democrazia*, L'Una Edizioni, L'Aquila, pp. 253-264.

Foucault, M. (2005), *Sicurezza, territorio, popolazione*, Feltrinelli, Milano.

Hallam, E. and Ingold, T. (Eds) (2007), *Creativity and Cultural Improvisation*, Berg, Oxford.

Harvey, D. (2007), "Neoliberalism as creative destruction", *The Annals of American Academy of Political and Social Sciences*, No. 610, pp. 21-44.

Harvey, D. (2015), *La crisi della modernità*, Il Saggiatore, Milano.

Hoffman, S. and Oliver-Smith, A. (1999), *The Angry Earth: Disaster in Anthropological Perspective*, Routledge, New York, NY.

Islam, G. (2014), "Practitioner as theorists: para-ethnography and the collaborative study of contemporary organizations", *Organizational Research Methods*, Vol. 18 No. 2, pp. 231-251.

Klein, N. (2007), *Shock Economy: L'ascesa del capitalismo dei disastri*, Rizzoli, Milano.

Lanzara, G.F. (1993), *Capacità negativa: Competenza progettuale e modelli di intervento nelle organizzazioni*, Il Mulino, Bologna.

Lefebvre, H. (1976), *La produzione dello spazio*, Moizzi, Milano.

Lefebvre, H. (2014), *Il diritto alla città*, Ombre corte, Verona.

Marchezini, V. (2015), "The biopolitics of disasters: power, discourses, and practices", *Human Organization*, Vol. 74 No. 4, pp. 3262-3374.

OECD (2013), *L'azione delle politiche a seguito dei disastri naturali: aiutare le regioni a sviluppare resilienza. Il caso dell'Abruzzo post-terremoto*, OECD Publishing.

Oliver-Smith, A. (1996), "Anthropological research on hazards and disasters", *Annual Review of Anthropology*, Vol. 25, pp. 303-328.

Ortner, S.B. (2016), "Dark anthropology and its others", *Hau*, Vol. 6 No. 1, pp. 47-73.

Pirone, F. and Rebeggiani, E. (2015), "Saperi e poteri nella gestione pubblica dell'emergenza: la presa in carico degli sfollati del terremoto a L'Aquila", in Saitta, P. (Ed.), *Fukushima, Concordia e altre macerie. Vita quotidiana, resistenza e gestione del disastro*, Editpress, Firenze, pp. 209-220.

Revet, S. (2011), "El mundo internacional de las catastrofes naturales", *Politica y sociedad*, Vol. 48 No. 3, pp. 537-554.

Robbins, J. (2013), "Beyond the suffering subject: toward an anthropology of the good", *Journal of the Royal Anthropological Institute*, No. 19, pp. 447-462.

Romano, B. and Zullo, F. (2014), "Riutilizziamo l'Italia. Land transformation in Italia e nel mondo. Fermare il consumo di suolo, salvare la natura e riqualificare le città", Report WWF.

Schuller, M. (2008), "Deconstructing the disaster after disaster. Conceptualizing disaster capitalism", in Gunewardena, N. and Schuller, M. (Eds), *Capitalizing on Catastrophe: Neoliberal Strategies in Disaster Reconstruction*, Altamira Press, New York, NY, pp. 17-27.

Semi, G. (2015), *Gentrification. Tutte le città come Disneyland?*, Il Mulino, Bologna.

Smith, D.P. (2005), "Studentification: the gentrification factory?", in Atkinson, R. and Bridge, G. (Eds), *Gentrification in a Global Context: The New Urban Colonialism*, Routledge, London, pp. 72-89.

Stevenson, D. (2003), *Cities and Urban Cultures*, Open University, Philadelphia, PA.

Turner, V. (2014), *Antropologia dell'esperienza*, Il Mulino, Bologna.

Vale, L. and Campanella, T.J. (2005), *The Resilient City: How Modern Cities Recover from Disaster*, Oxford University, Oxford.

Willis, P. (2012), *Scegliere la fabbrica. Scuola, resistenza e riproduzione sociale*, CISU, Roma.

Zaccaria, A. and Zizzari, S. (2016), "Spaces of resilience: Irpinia 1980, Abruzzo 2009", *Sociologia urbana e rurale*, No. 111, pp. 64-83.

Further reading

Comune dell'Aquila (2015), *Documento preliminare al nuovo Piano Regolatore*, Comune dell'Aquila, L'Aquila.

Corresponding author
Rita Ciccaglione can be contacted at: rita.ciccaglione@gmail.com

The Ecovillage of Pescomaggiore (L'Aquila)

Birth and death of a self-determined post-disaster community (2009-2014)

Isabella Tomassi
Univérsité Lumière Lyon 2, Lyon, France, and
Giuseppe Forino
University of Newcastle, Callaghan, Australia

Received 17 September 2018
Revised 28 March 2019
Accepted 1 May 2019

Abstract

Purpose – The purpose of this paper is to aim at exploring the relationship between community building and the changes occurred in the context of a post-disaster self-built ecovillage (*Eco Villaggio Autocostruito* (EVA)), spontaneously born after the L'Aquila earthquake in 2009. The community eventually dissolved in 2014, following a series of changes in the organization, that resulted in an increasingly centralized decision-making process, and in individual and community relationships, that were fueled by conflicts and contrasts.
Design/methodology/approach – Through a self-ethnography method, the paper provides the insider perspective of the lead author who was a part of EVA since the beginning. Self-ethnography allowed developing a narrative of EVA across its life course.
Findings – Findings reveal that the community into EVA was initially pursuing community-building goals through self-construction, sustainability, mutuality and reciprocity relationships out of market. However, several events occurred and changed community goals, organization and decision making. Eventually, individual goals and vertical decision making emerged among the community members, leading to the death of EVA.
Research limitations/implications – The paper just considered those main events that marked the collective and individual life of the lead author since the beginning until the end of the ecovillage. Others events, equally important, were not considered due to word length. In addition, self-ethnography is still considered by some authors as a subjective method.
Originality/value – The paper is one of the few exploring community experiences into post-disaster ecovillages. Moreover, there are no papers investigating post-disaster ecovillages through a self-ethnography approach. Therefore, the paper offers an innovative and original perspective on the under-investigated topic of post-disaster ecovillages and employs a promising research method in disaster studies.

Keywords Community, Post-disaster reconstruction, Ecovillage, Self-government, L'Aquila
Paper type Research paper

Introduction

On April 6, 2009, a 6.3 M earthquake occurred in L'Aquila and nearby areas. It caused 309 deaths, over 1500 injured and around 67,000 displaced people (Venturini and Verlinghieri, 2014). Few weeks after the earthquake, the Italian government decided to relocate the affected people into new earthquake-proof buildings called *Complessi Anti-Sismici Sostenibili Ecocompatibili* (CASE, earthquake-proof and eco-compatible complexes) (Alexander, 2010). Most of these new buildings lacked basic services or amenities (Venturini and Verlinghieri, 2014). The affected communities had no voice to negotiate the relocation and prioritize their needs; likewise, no participative mechanisms were enacted to promote a shared and place-based reconstruction (Calandra, 2012, 2018).

Pescomaggiore is one of the mountainous villages of L'Aquila that was affected by the earthquake. The Italian government decided to relocate most of the *Pescolani* (the inhabitants of Pescomaggiore) far from the village (Fois and Forino, 2014). Before the earthquake,

The Authors would like to thank the two anonymous reviewers and Dr Viola Sarnelli for their kind comments to the paper.

Disaster Prevention and Management
Vol. 28 No. 4, 2019
pp. 513-526

0965-3562
DOI 10.1108/DPM-09-2018-0305

Pescomaggiore was already facing depopulation and ageing population, and for this reason since 2007 the Committee for the Rebirth of Pescomaggiore (*Comitato per la Rinascita di Pescomaggiore* (CRP)) was trying to restore and recreate a sense of community. Toward this goal, the CRP fostered the participation of both *Pescolani* and people from L'Aquila by promoting social and environmental initiatives in Pescomaggiore (Tomassi, 2011; Fois and Forino, 2014).

After the earthquake most of the members of the CRP lost their houses. During the immediate emergency they met a group of young political activists in L'Aquila, who were also in housing need. As already seen in other post-disaster worldwide experiences (Scuddern and Colson, 1982), both these groups refused to forcibly leave their places and to be resettled into CASE under government control[1]. They also shared a strong skepticism about the top-down emergency management by the Italian government, that created soil sealing and urban sprawl (Frisch, 2009), disrupted and radically changed the landscape (Clemente and Salvati, 2017) and exacerbated social and spatial inequalities (Calandra, 2012, 2018; Alexander, 2019). Therefore, these groups decided to opt for a self-recovery strategy (Twigg *et al.*, 2017) and organized an autonomous self-governing tent camp, independent from the Italian government.

To satisfy their housing need in a sustainable way and to continue life in Pescomaggiore, these groups decided to self-build an ecovillage. This decision was also a highly symbolic and political act. It was a way to promote communitarian and environmental values inherent ecovillage practices after the disaster (Nelson, 2018) and to change individual and collective life through self-organization and community building (Twigg *et al.*, 2017). People belonging to these two groups were aware of the loss of memory about previous earthquakes in the Abruzzo region, as well as of the abuse on land and environment by urban sprawl and regional planning (Romano and Zullo, 2014) and by a market-oriented and anti-ecological economic growth (Clark, 2013). Through the ecovillage, these people intended to restore the lost connections with the local environment. These reasons represented a first, common baseline for starting a self-organization experience, and marked the birth of the embryonic idea for the future community living within the ecovillage. Overall, this experience was conceived as a way to openly confront the post-disaster context in L'Aquila in its impacts on society, culture and human-environmental relations (Tomassi, 2011).

The ecovillage community was composed by 12 people aging 28–70 years, with diverse backgrounds (e.g. journalists, lawyers, farmers and students); more than half of them were from areas nearby to Pescomaggiore (Fois and Forino, 2014). This community gathered under the Misa[2] association while the ecovillage was named *EcoVillaggio Autocostruito* (EVA, self-built ecovillage). It was decided to build EVA by using local materials such as straw and wood and adopting sustainable and earthquake-proof techniques (Bonoli *et al.*, 2015; D'Alençon Castrillón and Rota, 2015). EVA would have supported local economy and promoted an environmentally sustainable lifestyle, e.g. by recycling and reusing materials and through "ecological communication" (Liss, 1992). EVA also intended to create strong relationships with the *Pescolani* to strengthen their attachment with Pescomaggiore (Fois and Forino, 2014). The community aimed at building itself and EVA through collective efforts and cooperative spirit, by transforming a group of people into a common entity. A participatory decision making was going to regulate everyday life into EVA, together with mutual and non-market-oriented obligations.

To interpret the EVA experience, the concepts of "anthropotechnical collective" and *munera* as discussed by the Dutch philosopher Peter Sloterdijk (2014, 2016) are crucial. According to him, human beings find their place on the Earth by opening space for new opportunities to be situated within an anthropotechnical collective, that is a cultural practice (anthropo) to be used as a shield (technical) to protect from the perils of life (Sloterdijk, 2014). EVA community was an example of anthropotechnical collective. Ecovillage values represented the cultural practice of the community, to be used as a way to protect from, and to confront with, a dangerous situation such as the post-disaster housing need. *Munera* is a Latin word that indicates

reciprocity, while the derived Latin expression *cum munus* (with reciprocity) is the root of the word "community." The housing need and community building transformed a group of people into an "integrated entity" through *munera*, where reciprocity, mutuality and non-commercial values were the baseline for the relationships within the community.

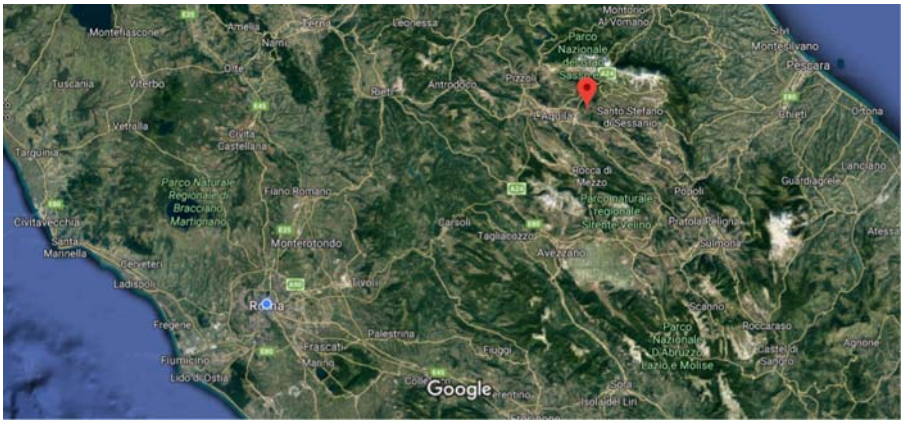
Sloterdijk (2014) also argues human beings establish a common way of life and define their collective identity through everyday practices that become functional for a community. Everyday practices into EVA allowed the community to define its collective by reaching an individual and collective equilibrium with the place (Pescomaggiore) and its memory (Sloterdijk, 2014). Everyday practice into EVA represented an attempt to establish an alternative living and become part of a higher form of being (Spoelstra, 2016). These practices are self-formative and transitory, highly vary through time and space and are influenced by multiple and complex factors (environmental, cultural and psychological), both individual and collective. These practices therefore represent a collective attempt to overcome the individualistic and consumer lifestyle of neoliberal times.

Along the years, however, these practices moved toward directions diverging from those initially accepted by the community. The initial idea of EVA as a place for common living was replaced by the idea of using EVA for green and slow tourism purposes. While the community expected changes and considered them as part of community building, however some changes were so deep that five years after the EVA's birth, EVA and its community did not exist anymore. At the time of writing (March 2019), EVA is an empty space and the land is abandoned. Just one of the former ecovillagers lives close to EVA, in a temporary shelter provided by the Italian government.

This paper aims at investigating the reasons why things have changed so deeply and unexpectedly. To do this, the paper uses a self-ethnography method to develop and present a narrative of the main events occurred into EVA leading to such changes. Discussions and conclusion will reflect upon the EVA experience, with insights for future research in communities and ecovillage in post-disaster contexts (Figure 1).

Post-disaster ecovillages: an underexplored topic

Ecovillages are those communities forming spontaneously by sharing an ideal, a philosophy of life, a spiritual or political path (Gilman and Gilman, 1991). The Global Ecovillages Network defines an ecovillage as "an intentional, traditional or urban community that is consciously



Notes: Immediately on the left there is L'Aquila. In the South West corner, there is Rome
Source: Google maps

Figure 1.
Location of Pescomaggiore, in the Abruzzi region

designed through locally owned participatory processes in all four dimensions of sustainability (social, culture, ecology and economy) to regenerate social and natural environments"[3]. An ecovillage community has ecological goals and a social structure consisting of individuals who choose interdependence based on strong ethical or political motivation and not for imposed social bonds (Guidotti, 2017). The ecovillage idea joins selected characteristics of traditional villages as connected place-based communities and highly localized economies, with strong environmentally concerned practices to cope with and adapt to the limits of the planet (Nelson, 2018).

Literature on post-disaster ecovillages is very limited. Svensson (2002) explored the potential of ecovillages as suitable planning strategies for communities aiming at recovering from disasters. Abe *et al.* (2012) and Abe and Shaw (2015) then explored an eco-housing project promoted by the United Nations Environment Programme and UN-HABITAT in Lagoswatta (Sri Lanka) after the Indian Ocean tsunami in 2004. In its conceptualization and practice the ecovillage in Lagoswatta highly differs from EVA. The ecovillage in Lagoswatta was promoted by international organizations with a specific eco-housing purpose to ensure environmental sustainability (Abe *et al.*, 2012; Abe and Shaw, 2015). It was also planned and built by a partnership of international and local NGOs with Sri Lankan institutions (Abe *et al.*, 2012). Additionally, the local government selected its inhabitants, while a local NGO choose its name and site (Abe *et al.*, 2012). Conversely, EVA was born as a reaction to the intervention by the Italian government, and as a place able to give back to the community a sense of place and identity through community life (Fois and Forino, 2014). EVA also had a larger perspective of community building; it involved hundreds of volunteers, supporters and friends from outside Pescomaggiore and was able to create an international network of solidarity and support (Fois and Forino, 2014). EVA was also organized around three key factors in resettlement projects (Coburn *et al.*, 1984) that are: the physical environment of the new settlement; the relationship with the old village; and the capacity of the community to develop itself[4]. Therefore, EVA has specific characteristics that cannot be found in literature on post-disaster ecovillages. This makes EVA as a relevant case study to advance knowledge on (post)disaster ecovillages.

Methodology

Primary data were built upon a self-ethnography of EVA as experienced by the lead author. Self-ethnography is an increasingly popular qualitative methodology into disaster studies (Cohen, 2012). Initially, self-ethnography was merely an ethnographic methodology applied to the culture of researcher in a reflexive way (Hayano, 1979). Then, this methodology evolved and started to challenge, resist or extend the boundaries of conventional ethnographic writing practices (Bochner and Ellis, 2016). In this way, self-ethnography became a critical response to concern about silent authorship. It urges the need for researcher reflexivity, and for a political and personal form of representation that is humanizing, aesthetic and emotional (Bochner and Ellis, 2016). Self-ethnography acknowledges and accommodates subjectivity, emotionality and the researcher's influence on research and can also be a therapeutic medium for the researcher to reveal the investigated topic (Cohen, 2012). Some scholars see self-ethnography as a subjective method, that is limited to the comprehension and understanding of the researcher who decides to take responsibility for narrating something personal that cannot be told as objective (Butler, 2005). However, others argue that self-ethnography is a reliable, valid and generalizable research method (Cohen, 2012).

The paper presents a self-ethnography based on the experience of the lead author. At the time of data collection (2009–2014), the lead author was not a "researcher" who was intentionally adopting self-ethnography as a research method. Rather, she was a *terremotata*, one of the citizens of L'Aquila that was affected by the earthquake and forced to leave her house and look for a housing solution. After the earthquake, she was deeply engaged into activities by Misa, taking part of the creation of EVA from its birth until the death of

the community. She was, afterwards, one of those disaster scholars who decided to analyze a post-disaster context by starting from the subjective experience as survivors from that disaster (Benadusi, 2015).

The result of this self-ethnography is a chronological narrative "from birth to death" of EVA, based on the *in vivo* presence into disaster (Revet and Langumier, 2013) of the lead author, and on her personal notes about main events taking place into EVA between 2009 and 2014. This narrative is also supported by a text recently published by the lead author providing a personal and emotional account of the EVA experience (Tomassi, 2019) and by archive of emails exchanged between ecovillagers during the EVA experience. With this narrative, the paper makes an attempt to reveal the context in which EVA was created, and to open to questions and doubts about that experience. For the sake of synthesis and due to word limit, only the events that the lead author considered as key for EVA will be reported. Obviously, other "minor" events and experiences also contributed to the birth and death of EVA, together with hundreds of people who over these years joined EVA for a long time or just for 1 h. Below, a chronology of the changes occurred to EVA is presented, divided in five phases crossing the five years of the life of EVA (2009–2014).

Results

Phase 1: the construction of EVA

August 2009: first steps toward a common life into EVA. In August 2009, the EVA experience began. With the support of an architecture studio, specialized in self-construction and community building, the community opted for self-building new houses with straw. This was the most suitable solution based on financial constraints, time limits and available local materials (Tomassi *et al.*, 2011; Marcoré and Tomassi, 2014). This solution allowed matching the technical aspects of EVA with the local material culture such as the traditional wheat and straw production. On August 17, 2009, the works officially started with the support of dozens of volunteers who converged in Pescomaggiore to help (Fois and Forino, 2014). At that time, there was no regulation in Italy for self-construction buildings[5]. However, for any future administrative and bureaucratic procedure EVA should have complied with, it was necessary to find a "legal" solution. Therefore, the community submitted a development application for private temporary shelters to the Municipality of L'Aquila, later issued through the Municipal Resolution No. 58/2009[6]. Since the end of August 2009, EVA also had a website[7] reporting information and update about EVA, where also potential donors could make donations and ecovillagers could share their stories and reflections.

This is how Tomassi (2019) described the choice of creating EVA: "[T]his choice was not only linked to the earthquake: many of us were already in a precarious situation […] [D]eciding the path of solidarity, of sharing the efforts towards a life that was worth living, was the way we found ourselves, without government and governors, without civil protection or saviours."

Need for pragmatism. Given the amount of work needed to make EVA the place for the community to live in, pragmatism was necessary. The community did not have enough skills to live into an ecovillage and to do it into the rural and mountainous area of Pescomaggiore, where traditional agriculture was practiced across centuries. To gain these skills, the community asked for suggestions to the *Pescolani*. Common doing and mutual help build the new community of ecovillagers who acquires knowledge, autonomy and cohesion by effort. Through everyday interactions, *Pescolani* shared all their local knowledge with the ecovillagers. Step-by-step, ecovillagers gained skills about agricultural practices, soil management, and interpreting changes in weather conditions. In this way, the community was "forced" to farm, to use construction tools, as well as to put hands on straw and bulbs to be planted. In this way, the EVA community established tight relations with the *Pescolani* and knew better the local landscape. Day-by-day, the community discovered new life paths and was proud of building

itself in Pescomaggiore. This made the community as feeling more rooted into Pescomaggiore, like "real" *Pescolani* (Plates 1 and 2).

September–November 2009: self-institutionalization and establishment of a complex governance system. On September 7, 2009, the association Misa was founded as a bureaucratic step to ensure a "formal" status to the ecovillagers and to provide insurance for all volunteers helping to build EVA. Therefore, Misa was a significant milestone. It was the first step toward the self-institutionalization (Bacqué, 2005) of activities within EVA that were decided and performed until then in an informal and unstructured way. This self-institutionalization implied the creation of basic governance mechanisms, e.g. the election of a president and a treasurer. It also implied the development of a business plan on the basis of traditional specialized labor division, according to individual skills and competences. Initially, the community thought Misa would have been just a formal step, but little by little it became a

Plate 1.
EVA: the construction site (2009)

Source: Authors

Plate 2.
EVA with the Pescomaggiore village on the background

Source: Authors

substantial aspect that regulated almost all aspects of life within EVA and inhibited most of the existing informal and mutual support. Indeed, responsibilities covered by Misa and the CRP began to partially overlap. Essentially, Misa became a tool to put into practice the statutory purposes of the CRP, and the CRP President was part of Misa too. This formalization of working practices and common activities also introduced to a gradual centralization and verticalization of the decision-making process that had been so far mostly horizontal and shared.

On October 16th, the CRP President released and shared online a document called *Atto Unilaterale*[8] (Unilateral Act), without consulting the ecovillagers. This Act stated that the *donators* (donors) of more than 250 Euros to the CRP would have been included into the *Tavola Pescolana*, a board of which members were allowed to participate into the decision making of EVA together with ecovillagers. The Act had no statutory value but contributed to create tortuous governance mechanisms into EVA. With this Act, ecovillagers should have taken into account for the opinions by donors (who did not live into EVA) into their decisions. Just one out of 250 donors intervened one time into EVA's decision making, but having external stakeholders with a potential voice into the decision of the community created tensions among ecovillagers.

On November 2, 2009, the CRP President released the document *RiPesco ALMA* (*Abitare Lavoro Memoria Ambiente*) (ALMA Inhabit Work Memory Environment), designing a vision for EVA on the basis of a socio-economic analysis of Pescomaggiore. The document proposed an "ethical" and "green" action to combat depopulation in Pescomaggiore. Accordingly, the beauty of the landscape, the high quality of crops and food and the traditional craftmanship in combination with the creativity and vitality of the *Pescolani* revealed a potential of Pescomaggiore as a tourist attraction. EVA would have been part of such vision, thanks to its facilities to be used for tourism purposes (e.g. food and hospitality). However, as also occurred in other occasions, the document was not discussed with the ecovillagers and represented one of the major points around which conflicts would arise within the community.

We can summarize Phase 1 through the words of Tomassi (2019), as it follows: "The sense of EVA had been so far the engine to endure all the difficulties. This sense was given by our collective work, by being able to decide autonomously on our own destiny, on how to live with whom and where, by the sense of the denied places […] by all things that would have been impeded in a voluntary submission to the government's regime of extraordinary control."

Phase 2: ecovillagers settle into EVA

Further conflicts arising within the EVA community. On February 19, 2010, while construction works were in progress, the President of CRP drafted a contract about the use of EVA houses, to be signed by ecovillagers. This contract mentioned ecovillagers as *beneficiari* (beneficiaries) of EVA. By using this term, the contract represented a first more substantial attempt to exclude ecovillagers from decision making about EVA. Rather than considering the ecovillagers as part of the material and immaterial heritage of EVA community, the contract designated ecovillagers as people merely involved into the construction and maintenance of EVA, with the right to use it. Following remonstrances by the ecovillagers, on the February 23, a Commitment Act slightly amended the contract. The status of ecovillagers moved from beneficiaries to *primi beneficiari* (first beneficiaries).

On February 27th, the first house (54 m^2) was completed. Meanwhile, the collaboration between the CRP and the architectural studio which helped the EVA community in its initial stages ended due to significant communication issues and inconsistencies between the initial plan and its realization. Later that year, Misa released a document on behalf of the CRP, again with no consultation of the EVA community. According to this document, the everyday activities into EVA should follow the statutory purposes by Misa, including research in green building, agriculture and protection of material and immaterial heritage of Pescomaggiore.

This demonstrated how complex the relation and overlaps existing between CRP and Misa into EVA were since the beginning. In September 2010, ecovillagers started to move into EVA. The President of the CRP moved into a completed house, and in December other two couples of ecovillagers, including the lead author and her partner moved into another house.

Phase 3: collective life: traditional agriculture and local knowledge

Strengthening bonds with the material and immaterial heritage of Pescomaggiore. Living in a rural area affected by an earthquake meant for EVA inhabitants to develop strong roots with the place and rebuild a community identity. Agriculture became therefore the center of the everyday life into EVA. Agricultural work produced most of the food into EVA. Traditional local crops such as saffron, solina wheat and turquoise potato were planted. Projects were also established with the Gran Sasso and Monti della Laga National Park to protect and restore local crops. In relation to agricultural practice, in 2011 the lead author and another ecovillager started a research on the oral memory of collective work in Pescomaggiore. Through this research, ecovillagers gained further knowledge about traditional agriculture practice in Pescomaggiore, particularly in relation to crop characteristics and seasons, local climate and carrying capacity. In addition, the research represented an input to reactivate the old-fashioned and abandoned common oven in the center of Pescomaggiore. Ecovillagers organized together with the *Pescolani* the reactivation of the oven to produce homemade bread with local flour and to tighten social and human relationships. Several purchasing groups also supported EVA by purchasing saffron and saffron bulbs. Relationships between ecovillagers and the *Pescolani* were slowly consolidating together with a renewed attachment for Pescomaggiore and its landscape (Plates 3 and 4).

Mounting discontent among ecovillagers. In March 2011, the CRP released a first draft of the regulations ecovillagers should follow about the use of EVA. On August 25th, the CRP updated this draft by proposing a loan contract to the ecovillagers, who should pay a monthly non-interest-bearing deposit based on the square meters of the occupied house, until the full completion of EVA. Once the houses were completed, the deposit would be returned. This condition seems to be acceptable for ecovillagers but it will never be respected from the CPR. One year after, on August 13, 2012, a severe fire destroyed the shed (the only building not in

Plate 3.
Straw production into EVA

Note: In the background: EVA houses in construction
Source: Authors

Source: Authors

Plate 4.
Crop production into EVA

wood and straw) where construction and agricultural equipment and machinery were stored. The fire also reached the roof of the control unit space for the solar thermal system, as well as the roof of the CRP President's house. While no damages were reported in the latter, the fire caused thousands of Euros of damages for EVA. Nevertheless, the fire was important for ecovillagers as it proved that straw and wooden buildings were highly fire-proof. Ecovillagers suspected that the accident had been accidentally caused by the CRP President, but this assumption could not be proven. However, all the ecovillagers paid for the damage, with further mounting discontent among them. What occurred in Phase 3 can be described again through the words of Tomassi (2019) as it follows:

> We felt that there could be no greater difficulty than living that unreal situation of destruction. In a somewhat ideological and cultural distrust, we had set ourselves in the position of expecting that government institutions would incarnate an external and hostile "enemy" that would endanger the patch of reconstituted land we were building. […]. We were wrong on two points: first, from the "external" institutions we would have received mostly indifference for the first three years and then, a formal recognition. Second, it was from the inside that manipulation, deception and retaliation had to be expected.

Phase 4: further steps toward the self-institutionalization into EVA

Misa and a polarized decision-making process. On February 16, 2013, the new Misa board was elected with a narrow majority. It included the CRP President, his best friend and his partner. However, all these three members were not experiencing the everyday life of EVA anymore. The CRP President and his partner had left EVA in April 2012 to live in Pescomaggiore, into a temporary housing unit provided by the Italian government. Notwithstanding this, they still had the right to use their previous house into EVA. Meanwhile, the CRP President's best friend lived in Pescara, a coastal city far from Pescomaggiore and not affected by the earthquake. The election of the new Misa board further imposed a technocratic labor organization on EVA. Instead of fostering discussion and confrontation among ecovillagers, the Misa board organized everyday activities within EVA mainly via e-mail, through online documents to be appropriately filled and formatted, and deadlines to be met. In addition, the Misa board did no attempts to openly discuss one of the most urgent topics for the ecovillagers, that was, ensuring a long-term housing solution for all of them.

Overall, the election of the new Misa board compromised definitively EVA's decision-making process, reducing further any real participation from the ecovillagers. On May 12, 2013, after an exhausting and conflictual meeting chaired by a free-lance facilitator, the ecovillagers decided to organize a series of internal meetings to discuss strategies for re-establishing a common and shared decision-making process within EVA. However, these planned meetings never took place because of the sabotage of the members of the Misa board.

The end of formal emergency in L'Aquila. On September 1, 2012, the state of emergency that was declared after the earthquake formally finished in L'Aquila. Normal bureaucracy and regulations, including those related to urban planning, were re-established. EVA should have therefore been aligned with urban planning regulations by the City Council of L'Aquila. Toward this goal, a meeting took place on July 18, 2013 where the CRP President explained to the ecovillagers all the procedures to be followed. This meeting was also important for other reasons. For the first time, the budgeting of EVA (even though partial) was also openly presented. Additionally, it was stated that construction activities into EVA ended on August 13, 2012 (day of the fire); however, such statement neglected all the ongoing or scheduled work (e.g. the completion of the last house, or work into the agricultural fields). Meanwhile, it was decided unilaterally that only the CRP President could access the CRP's bank account. On July 24th, the CRP President released a further document, again with no consultation of other ecovillagers. The document was called "12 shared points" and introduced some changes to the status of ecovillagers in respect of the EVA houses. This document defined EVA as a *bene comune* (common good) of Pescomaggiore, to be regulated by the CRP. The ecovillagers would have been just *fruitori* (users). The distinction between first beneficiaries and users lies in the fact that while beneficiaries are people who are recognized to enjoy a good or a right, while the users are those who merely use a good, in this case occupying a place in the house. This is how Tomassi (2019) described the consequences of self-institutionalization:

> A new management had established itself, with all those beautiful English words that they like so much to please the powerful. […] [T]his took away the legitimacy of the assembly, chaotic but in which all the people in transit could also speak, precisely because it was believed that their point of view had a value. […] We found ourselves in the absurd situation of once again demanding "participation" as if we were addressing the government institutions we had deserted by self-building our homes and our future. Where until the day before we were protagonists, now we were only "usurpers of a common good".[…].

Phase 5: the death of EVA and the ideology of the earthquake as an opportunity

On July 31, 2013, the CRP President noticed ecovillagers to accept his new conditions or alternatively to leave EVA. On August 4th, the CRP President sent to the inhabitants of Pescomaggiore and to the members of the CRP an Information Note summarizing the activities conducted within EVA. This Information Note underlined the commitment by the CRP in all the activities conducted in EVA, while minimized the role played by ecovillagers both in EVA and Pescomaggiore. The Information Note changed (again) the status of ecovillagers from users to *occupanti temporanei* (temporary occupants) and invited them to a meeting to be held on August 7th.

In the early days of August 2013, the Misa board published the technical document "Rough estimate for the closure of the building site and urban planning regulations." It stated that the survival of EVA would depend on the alignment with the planning regulations by the City Council of L'Aquila. To do so, the ecovillagers must pay further money for retrofitting EVA houses and associated costs. However, even after covering these further costs, the ecovillagers would still be left without any guarantee about their future housing situation. For the ecovillagers, this sounded like an unacceptable ultimatum which generated further mistrust and frustration.

On August 7th, the scheduled meeting was held in the square of Pescomaggiore. It was a public meeting, and also several *Pescolani* took part. The meeting focused on the housing situation in EVA, but suddenly turned into a sort of indictment for ecovillagers. The CRP publicly accused ecovillagers of not accepting the conditions proposed by the CRP about the decision-making process within EVA and the use of the houses. On August 20th, the CRP released another document named "Eviction for the release of housing units." It stated that ecovillagers were not entitled to stay into EVA houses anymore. Since then, the CRP threatened two times the interruption of power and water supply. The CRP President stated that he wanted to compensate ecovillagers for leaving the house, without specifying the amount. The compensation hypothesis however was never discussed with the ecovillagers, and alternative options were also not evaluated.

On September 28th, the CRP President released another document named "Novation transaction act." The document defined the ecovillagers as *occupanti sine titulo* (no entitled to live in EVA) and proposed a monthly fee of 354 Euros per person to the ecovillagers to complete construction works into EVA and to align to City Council's planning regulation. Misa would have been in charge of drawing a proposal for the future use of EVA. Such proposal was supposed to be "participative", but once again it was meant to be prepared with no contribution by the ecovillagers.

On October 2, 2013, the Misa President sent an e-mail asking for an assembly to repeal Misa. This e-mail represented, once again, an attempt by the Misa board to discredit the ecovillagers. Indeed, in this e-mail the Misa board accused the ecovillagers of exacerbating conflicts into EVA through "various and significant irregularities" in managing the Misa's bank accounts. On October 21, 2013, the Misa President convened a meeting to define a new participatory strategy of EVA. However, this strategy was meant to set the future use of EVA as a market opportunity. EVA was not conceived anymore as an ecovillage based on community building and decision making, but as a leisure space for tourists, to be managed by both Misa and CRP.

In November 2013, the ecovillagers organized a meeting with their lawyers to discuss with a surveyor the question of the land ownership, together with the CRP President, his lawyer and the Misa President. The meeting ended up in a further threat of expulsion from EVA for the ecovillagers. Four ecovillagers realized that a solution would never be found, and on April 6, 2014, after the commemoration of the fifth anniversary of the earthquake, left EVA definitively. *De facto*, this marked the death of the EVA experience, as Tomassi (2019) reported:

> In the spring we had a good feast of life, on April 6th, and then we left to emigrate to France, where I still am now. I had found a house, a large extended family, a future where even today to imagine one seems impossible and I was forced to leave.

Discussion and conclusions

Through a self-ethnography, the paper presented and discussed in a narrative form the main events occurring from the birth to the death of EVA, an ecovillage built in Pescomaggiore, near L'Aquila, after the April 2009 earthquake. The paper showed that EVA was an attempt to establish common self-building practices and promote self-sustainable agriculture to cope with housing need and material everyday constraints. The practice of self-building as performed into EVA had a strong relational potential, including self-empowerment, in-depth participation into the reconstruction project, and a limited dependence from money that gave more value to manual work and investment of personal time for community purpose. During the process of self-construction, the whole EVA became the result of the community's own work, intelligence, commitment, as well as ethical and environmental values *à la* Sloterdijk (2014, 2016).

Since its first phases, conflicts emerged into EVA among ecovillagers, CRP and Misa around what to do, how to do it and what sort of future EVA should expect. The idea and values behind

community building within EVA were indeed progressively challenged by requests of some of its members to comply with bureaucracy and engaging with managerial organization forms, leading toward a final vertical self-institutionalization of an autonomous and spontaneous initiative such as EVA. Issues also emerged into decision making with an ambiguous role played by some ecovillagers toward the others. Little by little, personal interests overtook the communal ones. Bureaucracy was employed as a mean to inhibit community practice and to replace little by little community goals with individual ones. Subtly, community relationships were used as an opportunity to make personal profits from some aspects of the life in EVA. Therefore, the EVA experience demonstrates that sharing needs and common efforts are necessary but not sufficient conditions for building a post-disaster community. In this way, claiming that EVA represented a window of opportunity to create a resilient community after the disaster (Fois and Forino, 2014) is questionable. Indeed, EVA experience seems to represent an opportunity for few people to use the disaster for personal purposes.

Ideally, to avoid this situation, before starting the EVA construction ecovillagers should have spent more time to commonly decide roles and organization within EVA, to openly talk about ownership rights, as well as to stat since the beginning a discussion about a shared vision of EVA and in the medium and long term. Meanwhile, when it was realized that a complex governance system was going to be established into EVA, ecovillagers should have found ways to resist such governance and dismantle attempts of prioritizing individual goals over the collective ones by building more trustful relations with each other. This does not mean that ecovillagers did not try to create trustful occasions for discussion, to promote collective actions or to consult experts such as lawyers and technicians for a better understanding and clarification of bureaucracy constraints. However, ecovillagers prioritized housing need at that time, leaving slightly behind issues that at that time were not considered as crucial but at the end they became fundamental for the survival of EVA. Nevertheless, these are reflections in retrospect that cannot trivialize contextual issues into the individual and collective life into EVA.

In conclusion, the paper opens new space for future investigations on ecovillages in post-disaster areas. In particular, it offers to scholars a background for analyzing the evolution and dynamics occurring into ecovillages and more in general into communities which are spontaneously and autonomously born in a post-disaster context.

Notes

1. See Oliver-Smith (1991) about post-disaster resettlement as a way for government to keep control of the affected area.
2. Misa was a young woman who centuries ago was killed in Pescomaggiore under the accusation of witchcraft. The association was named Misa to recall a local symbol of self-determination and free thought.
3. https://ecovillage.org/projects/what-is-an-ecovillage/ (accessed February 25, 2019).
4. Similarly, Oliver-Smith (1991) refers to "site, layout, housing and popular input" (p. 15).
5. First regulation just appeared in 2015, when the Tuscany Region released the "Guidelines for safety of self-construction and self-recovery sites" See https://terrasemplice.files.wordpress.com/2015/04/linee-guida-autocostruzione-toscana.pdf (accessed March 1, 2019).
6. A specific act for L'Aquila to allow temporary housing construction during emergency without following bureaucratic procedures for development approval.
7. www.pescomaggiore.org (accessed February 26, 2019).
8. www.pescomaggiore.org/demo/wp-content/uploads/2015/10/Atto-Unilaterale.pdf (accessed February 26, 2019).

References

Abe, M. and Shaw, R. (2015), "Ten years of resettlement in eco-village, Sri Lanka", in Shaw, R. (Ed.), *Recovery from the Indian Ocean Tsunami. Disaster Risk Reduction (Methods, Approaches and Practices)*, Springer, Tokyo, pp. 435-449.

Abe, M., Shaw, R. and Takeuchi, Y. (2012), "Chapter 14 eco-villages: can eco-villages be a 'build back better' strategy after tsunami disasters?", in Shaw, R. and Tran, P. (Eds), *Environment Disaster Linkages*, Emerald Group Publishing, Bingley, pp. 257-283.

Alexander, D.E. (2010), "The L'Aquila earthquake of 6 April 2009 and Italian government policy on disaster response", *Journal of Natural Resources Policy Research*, Vol. 2 No. 4, pp. 325-342.

Alexander, D.E. (2019), "L'Aquila, central Italy, and the 'disaster cycle', 2009-2017", *Disaster Prevention and Management: An International Journal* (in press).

Bacqué, M.-H. (2005), "Action collective, institutionnalisation et contre-pouvoir: action associative et communautaire à Paris et à Montréal", *Espaces et sociétés*, Vol. 4, pp. 69-84.

Benadusi, M. (2015), "Antropologia dei disastri. Ricerca, Attivismo, Applicazione. Un'introduzione", *Antropologia Pubblica*, Vol. 1 No. 1, pp. 33-60.

Bochner, A. and Ellis, C. (2016), *Evocative Autoethnography: Writing Lives and Telling Stories*, Routledge, New York, NY and London.

Bonoli, A., Rizzo, S. and Chiavetta, C. (2015), "Straw as construction material for sustainable buildings: life cycle assessment of a post-earthquake reconstruction", in Mileto, C., Vargas, F., Garcìa, L. and Cristini. V. (Eds), *Vernacular Architecture: Towards a Sustainable Future*, CRC, London, pp. 143-146.

Butler, J. (2005), *Giving An Account of Oneself*, Fordham University Press, New York, NY.

Calandra, L.M. (2012), *Territorio e democrazia. Un laboratorio di geografia sociale nel doposisma aquilano*, Edizioni L'Una, L'Aquila.

Calandra, L.M. (2018), "Governance of risk and disasters: consideration of the role of citizen participation in L'Aquila (Italy)", in Forino, G., Bonati, S. and Calandra, L.M. (Eds), *Governance of Risk, Hazards and Disasters: Trends in Theory and Practice*, Routledge, London and New York, NY, pp. 65-80.

Clark, J.P. (2013), *The Impossible Community: Realizing Communitarian Anarchism*, Bloomsbury Publishing USA, London and New York, NY.

Clemente, M. and Salvati, L. (2017), "'Interrupted' landscapes: post-earthquake reconstruction in between Urban renewal and social identity of local communities", *Sustainability*, Vol. 9 No. 11.

Coburn, A.W., Leeslie, J. and Tabban, A. (1984), "Reconstruction and resettlement 11 years later: a case study of Bingöl Province, Eastern Turkey", in Schupisser, S. and Studer, J. (Eds), *Earthquake Relief in Less Industrialized Areas, International Symposium*, Balkema, Rotterdam, pp. 49-56.

Cohen, E. (2012), "Flooded: an auto-ethnography of the 2011 Bangkok flood", *Austrian Journal of South-East Asian Studies*, Vol. 5 No. 2, pp. 316-334.

D'Alençon Castrillón, R. and Rota, F. (2015), "Heritage and catastrophe: prevention, emergency, restoration and transformation in 2009 L'Aquila Earthquake", available at: www.pescomaggiore.org/demo/wp-content/uploads/2015/02/UM-Report_L__Aquila.pdf (accessed March 22, 2018).

Fois, F. and Forino, G. (2014), "The self-built ecovillage in L'Aquila, Italy: community resilience as a grassroots response to environmental shock", *Disasters*, Vol. 38 No. 4, pp. 719-739.

Frisch, G.J. (2009), *L'Aquila: non si uccide così anche una città?*, CLUEN, Napoli.

Gilman, D. and Gilman, R. (1991), "Eco-villages and sustainable communities", Report for Gaia Trust by Context Institute, Langley, WA.

Guidotti, F. (2017), "Ecovillaggi: vivere leggeri sul pianeta", *Riflessioni Sistemiche*, No. 17, pp. 176-192.

Hayano, D.M. (1979), "Auto-ethnography: paradigms, problems, and prospects", *Human Organization*, Vol. 38 No. 1, pp. 99-104.

Liss, J. (1992), *La comunicazione ecologica*, Manuale per la gestione di gruppi di cambiamento sociale, La Meridiana.

Marcoré, E. and Tomassi, I. (2014), *Yes We Straw*, communication in ESBG, Paris.

Nelson, A. (2018), "Ecovillages: sustainability and system change", in Nelson, A. (Ed.), *Shared Living on a Shared Planet*, Pluto Press, London, pp. 130-157.

Oliver-Smith, A. (1991), "Successes and failures in post-disaster resettlement", *Disasters*, Vol. 25 No. 1, pp. 12-23.

Revet, S. and Langumier, J. (2013), *Le gouvernement des catastrophes*, Karthala Editions, Paris.

Romano, B. and Zullo, F. (2014), "The urban transformation of Italy's Adriatic coastal strip: fifty years of unsustainability", *Land Use Policy*, Vol. 38, pp. 26-36.

Scuddern, T. and Colson, E. (1982), "From welfare to development: a conceptual framework for the analysis of dislocated people", in Hansen, A. and Oliver-Smith, A. (Eds), *Involuntary Migration and Resettlement: The Problem and Responses of Dislocated People*, Westview Press, Boulder, CO, pp. 267-287.

Sloterdijk, P. (2014), *Globes, Spheres Volume II: Macrospherology*, Semiotext, Los Angeles, CA.

Sloterdijk, P. (2016), *Foams: Spheres III*, Semiotext, Los Angeles, CA.

Spoelstra, S. (2016), "Book review: in search of organizational acrobats", *Organization*, Vol. 23 No. 2, pp. 308-310.

Svensson, K. (2002), "Ecovillages: a planning paradigm for natural disaster areas", in Jackson, H. and Svensson, K. (Eds), *Ecovillage Living: Restoring the Earth and Her People*, Green Books, Totnes, pp. 153-155.

Tomassi, I. (2011), "Questo non è un format", *Progetto Città: Quaderni del dopo terremoto*, Vol. 1, pp. 59-64.

Tomassi, I. (2019), "Almeno siamo liberi!: storia di E.V.A. (ecovillaggio autocostruito) a Pescomaggiore (AQ)", in Comitato, 3e32 (Ed.), Nati alle 3e32. Contro-racconto del post terremoto aquilano, Round Robin editrice, Rome, pp. 83-106.

Tomassi, I., Robazza, P. and Savini, F. (2011), "Dalle case di paglia: partecipazione, autocostruzione, sostenibilità, rapidità, economia, legame col territorio", *Progetto Città: Quaderni del dopo terremoto*, Vol. 2, pp. 72-75.

Twigg, J., Lovell, E., Schofield, H., Morel, L.M., Flinn, B., Sargeant, S., Finlayson, A., Dijkstra, T., Stephenson, V., Albuerne, A., Rossetto, T. and D'Ayala, D. (2017), "Self-recovery from disasters. An interdisciplinary perspective", Working Paper No. 523, Overseas Development Institute, London.

Venturini, F. and Verlinghieri, E. (2014), "Scarcity, post-scarcity and local community: L'Aquila as a case study", *Planum II*, Vol. 29, pp. 51-69.

Corresponding author
Giuseppe Forino can be contacted at: g.forino@gmail.com