Rebuilding L'Aquila following the 2009 Earthquake: Priorities and Perspectives

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ABSTRACT: On April 6th 2009, a magnitude 6.3 earthquake devastated L'Aquila, Italy and the surrounding region. This study examines processes of recovery and reconstruction in L'Aquila over the one-year period between the April 2009 and 2010. Unlike past Italian earthquakes, the reconstruction of L'Aquila was administered by the central government for the first several months, with control ceded to the regional government in January 2010. Data were collected through 18 semi-structured face-to-face interviews with community leaders, public officials and building industry experts who are establishing priorities and shaping post-earthquake decision-making. This paper investigates the prioritization and process for post-earthquake reconstruction, integration of local community organizations and awareness of seismic risk both before and after the earthquake. Although leaders were satisfied with the Civil Protection Agency's emergency response, there was significant disagreement in how rebuilding of different structures should be prioritized. Citizen involvement in decision-making was more prevalent in some communities than others, and may have led to differences in the level of satisfaction residents expressed with reconstruction progress.

1 INTRODUCTION

1.1 *2009 L'Aquila, Italy Earthquake*

On April 6, 2009 at approximately 3:30 AM, an earthquake with magnitude (M_w) 6.3 struck the region of L'Aquila, Italy, shown in Figure 1. Significant damage occurred in the city of L'Aquila and more than twenty neighboring towns killing 305 people and injuring at least 1500 (Camata et al. 2009; Rossetto et al. 2009). In addition, an estimated 10,000 to 15,000 buildings were damaged or destroyed, leading to the temporary evacuation of 70,000 to 80,000 and leaving about 30,000 people homeless (Rossetto et al. 2009, Bazzurro et al. 2009). Earthquakes of this magnitude or greater occur in Italy approximately every 10 years (Boschi et al. 2009).

1.2 *Objectives*

This paper examines decision-making and progress in recovery and reconstruction in communities affected by the L'Aquila Earthquake in the one year after the seismic event. Data were collected through face-to-face interviews with community leaders, public officials and building industry representatives (including engineers, architects, and building managers) involved in reconstruction activities. Interview responses characterize key stakeholder groups' priorities for recovery and reconstruction and the role of community groups, local and national politicians, building industry and others in shaping the recovery agenda. Questions also address the primary factors affecting critical decisions and, crucially, how the role and interests of different groups is changing over time. Of particular interest is the incorporation of knowledge about seismic risk, building standards and mitigation strategies to decision-making and priority-setting processes. This paper focuses on three communities impacted by the earthquake: L'Aquila, a small city and the provincial capital, Onna, a village that lost approximately 11% of its residents during the earthquake, and the nearby town of Poggio Picenze.

Analysis of recovery progress and process following the L'Aquila Earthquake provides a compelling case-study, because the Italian government undertook a new approach to disaster recovery, and decisions and organizations have evolved over time. The study is intended more generally to enhance understanding of multidisciplinary aspects of decision-making related to recovery and risk in the built environment by bridging the gap between research in engineering risk-assessment and societal decision-making.

Figure 1. Location of 2009 L'Aquila earthquake.

2 CONTEXT OF RECONSTRUCTION AND RECOVERY IN L'AQUILA

The sequence of major reconstruction and recovery events in L'Aquila is summarized in Figure 2. Immediately after the earthquake, the Civil Protection Agency established tent communities and set up housing for displaced peoples in hotels on the Adriatic Coast. By late April 2009, the Civil Protection Agency and national government leaders had decided not to provide temporary homes, such as trailers. Instead, they elected to construct permanent structures intended to outlast the recovery timeframe, the €655 million so-called "C.A.S.E" project. C.A.S.E. consists of 185 seismically isolated buildings, with 4,600 apartments for 12,000 displaced people. The C.A.S.E buildings, one of which is shown in Figure 3, are located in 19 areas around the municipality of L'Aquila. These apartments provide housing for residents during reconstruction, and are intended to be repurposed as student dormitories for L'Aquila University within five years (Calvi and Spaziante 2009). C.A.S.E. construction began on June 7, 2009 and was completed by January 2010.

The Civil Protection Agency also organized a large team of engineers to inspect buildings soon after the earthquake. These inspections classified structures as "A" – usable, "B" – usable after short-term countermeasures, "C" – partially usable, "D" – building to be reinspected and "E" – unusable. Of those structures inspected, approximately 52% were assigned grade A, 12.5% B, 2.6% C, 1.0% D, 26.5% E, with the remainder being grade F (unusable based on external risk only) (Dolce et al. 2009). These efforts first prioritized schools, then buildings with solely industrial and commercial activities. For residential buildings, inspectors began in the least-damaged neighborhoods, progressing into communities with more damage.

According to Ordinances 3778 and 3779, which required inspections of homes with structural and nonstructural damage, the inspection classifications provide the basis for determining the amount of government funds building owners will receive to make repairs. Amounts will range from €10,000 for type "A" damage to a maximum of €750/m^2 for type "E" classified buildings (Ordinance 3881, June 2010).

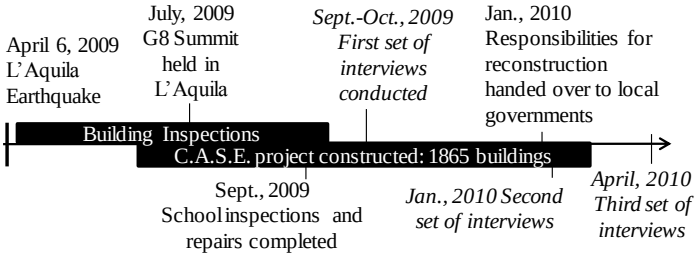

Figure 2. Timeline of reconstruction activities in L'Aquila with key dates in this research shown by italics.

The Italian government's management of reconstruction differed from past earthquakes including, most recently, the 2002 Molise earthquake (Foster et al. 2004). In L'Aquila, earthquake response and reconstruction was administered by the central government, with inspections and planning handled by the Civil Protection Agency. Many of the responsibilities for reconstruction were handed over to the Abruzzi regional government (of which L'Aquila is a part) in January 2010.


Figure 3. Building constructed as part of C.A.S.E. project (April 2010). All structures have similarly designed ground-floor parking and isolation systems, but the configuration and design of the apartment units vary.

3 RESEARCH METHODS

3.1 *Study Communities*

Interviews were conducted with leaders from three communities affected by the 2009 earthquake and shown in Figure 4: L'Aquila, Onna, and Poggio Picenze. These communities vary in terms of population, severity of ground-shaking and damage experienced, topography and dominant industry.

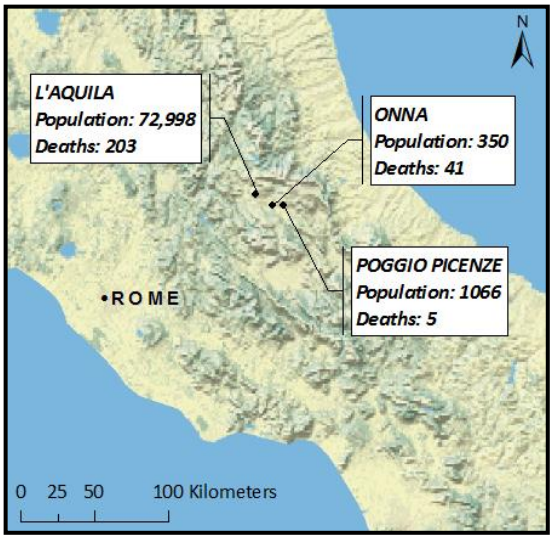

Figure 4. Communities of L'Aquila, Onna and Poggio Picenze.

L'Aquila is the largest city in the region, with a population of 73,000 (ISTAT, 2009). It is located approximately 6 km from the earthquake epicenter and experienced very strong ground shaking (Modified Mercalli Intensities of VIII or IX) (Camassi et al., 2009). Bearing masonry structures in the city's historic center suffered serious damage due to failed connections between walls, floors and roofs. Collapsed masonry homes caused many of the fatalities and a large number of historic monuments were severely damaged or destroyed (Camata et al., 2009; Bazzurro et al., 2009). Most of the newer buildings in the city are reinforced concrete, as illustrated in Figure 5, and typically condominium-type structures ranging in height from two to eight stories, many with retail and commercial space on the ground floor (Liel and Lynch, 2011). The earthquake caused significant nonstructural damage in these structures. In addition, a small number of concrete buildings collapsed, including a L'Aquila University dormitory and the Duca D'abruzzi Hotel (Camata et al., 2009; Bazzurro et al., 2009). L'Aquila's work force is concentrated in public services such as defense, health and education. Others work in the service industry or manufacturing, and the building industry is also important. Most homes in L'Aquila (75%) are owner-occupied (ISTAT 2001).

Figure 5. Street view in a modern neighborhood in L'Aquila (April 2009).

The community of Onna, located approximately 12 km from the epicenter, experienced the largest ground motions of the three study communities, with a MMI of X, corresponding to very violent shaking. These high intensity ground motions were attributed to Onna's valley floor alluvial soils, which amplified the shaking relative to other locations (Cultrera et al., 2009). More than 50% of Onna's historic center was destroyed, with 80% of unreinforced masonry buildings collapsing. Lesser damage was experienced in reinforced concrete construction (Bazzurro et al., 2009). Onna's population is included in the L'Aquila census total, but was estimated to be approximately 350 before the earthquake. The village workforce had been predominantly agriculture-based, but many residents also worked for a large electronics company nearby. For the last several years, the population has relied on small businesses or retirement income.

Poggio Picenze, a community with around 1100 people, is farther away from the earthquake (approximately 17 km) on a slope above the valley floor. The town experienced very strong ground shaking (MMI VII to IX). Poggio Picenze's built environment, shown in Figure 6, consists of approximately equal numbers of masonry and reinforced concrete homes; like L'Aquila, the town has expanded significantly outside its historic center core in the last 30 years. Poggio Picenze's economy is based on services and handicrafts.

Figure 6. Poggio Picenze (April 2010).

3.2 *Interview Participants*

Semi-structured face-to-face interviews were conducted with key representatives in each community from each of three groups: grassroots community (CL) leaders (including journalists, religious leaders and community organizers), building industry (IL) leaders (including engineers, architects and contractors), and government (GL) leaders (including public sector representatives). We also interviewed individuals who served as camp managers; these individuals were responsible for tent cities and other temporary post-earthquake housing. A total of 18 interviewees, listed in Table 1, were identified on the basis of their leadership roles in the recovery and reconstruction process. Many of these individuals have multiple roles or responsibilities, with only the primary role listed in Table 1. All of the interview participants are men and range in age from their mid-

forties to their mid-sixties. The interviews discussed in this paper were conducted between October, 2009 (six months after the earthquake) and January, 2010.

Table 1. Leaders interviewed.

ID	Community	Title	Interview Date
(1)	L'Aquila	President, Property Managers Association (CL)	10/2009
(2)	L'Aquila	Priest (CL)	1/2010
(3)	L'Aquila	Camp Manager (CL)	10/2009
(4)	L'Aquila	Architect (IL)	10/2009
(5)	L'Aquila	Entrepreneur (IL)	1/2010
(6)	L'Aquila	Town Councilor (GL)	10/2009
(7)	L'Aquila	Elected Official (GL)	1/2010
(8)	Onna	Journalist (CL)	10/2009
(9)	Onna	Director, Hospital (CL)	9/2009
(10)	Onna	Architect (IL)	9/2009
(11)	Onna	Contractor (IL)	10/2009
(12)	Poggio Picenze	Priest (CL)	10/2009
(13)	Poggio Picenze	Camp Manager (CL)	10/2009
(14)	Poggio Picenze	Architect (IL)	10/2009
(15)	Poggio Picenze	Contractor (IL)	10/2009
(16)	Poggio Picenze	City Councilor (GL)	1/2010
(17)	Poggio Picenze	Elected Official (GL)	10/2009
(18)	Poggio Picenze	Elected Official (GL)	1/2010

3.3 *Interview Process*

Interview questions focused on themes of government role in recovery and reconstruction, integration of local community organizations in recovery and reconstruction decisions, establishment of reconstruction priorities and awareness of seismic risk and building codes. Questions asked about the leader's involvement in the community and personal history, building practices and political climate before the earthquake and governmental response in helping and providing for those directly affected. Questions for community leaders centered on community meetings held regarding reconstruction, including the focus of these meetings, the role of local leadership, and priorities discussed. Interviews of industry leaders focused on many of the same questions, but also addressed progress and barriers inspection of homes, repair, strengthening and, eventually, rebuilding. Government leaders were questioned about how well the Civil Protection Agency had handled response as well as the advantages and disadvantages of the centralized decision-making structure for planning reconstruction. A final set of questions addressed perceptions of earthquake risk and its impact on decision-making in a time of community response and recovery.

Most of the interviews took place at the interviewee's home or workplace. Interviews were conducted in Italian by a group of two to three undergraduate engineering students at the University of Chieti-Pescara. The general procedure was for one student to ask questions, while another documented the answers. The audio from each interview was recorded for later study. Once the interview was completed, the student team discussed together what had been said and typed revised notes. Responses were then translated from Italian to English. Each set of interview notes was hand-coded to identify content related to primary themes of prioritization and decision-making. To identify commonalities and discrepancies, interview responses were then organized by theme, leader type and community.

4 DECISION-MAKING AND PRIORITIES BEFORE THE EARTHQUAKE

4.1 *Civic Involvement and Decision Climate Pre-Earthquake*

We first examined the prevailing attitudes of various constituencies at the local level toward local, national and regional government. Interview questions about pre-earthquake decision-making addressed public involvement in civic activities, perceptions of elected and other officials and community power structures.

Community and industry leaders in all three communities expressed negative perceptions of political leaders. Local governments are mired by administrative and bureaucratic problems and their decisions are strongly colored by politics and political ambition. Leaders described that the citizens had experienced a sense of abandonment by the local authorities and that local government leaders were seen as dividers rather than as uniters of the community. Building industry interviewees commented specifically on the lack of political leadership with regard to issues of seismic risk and risk mitigation. One architect explained that, in his view, politicians disregard seismic risk, without giving consideration to building professional's opinions. However, elected local government leaders themselves stated that local people had a positive impression of their political leadership. The regional Abruzzi authorities were generally viewed more positively.

Mayors and, to a lesser extent, city councils were responsible for decisions about built infrastructure and environment. Leaders from Onna emphasized that the decisions were made by the mayor of the municipality of L'Aquila (of which Onna is a part), not within their own village. Government leaders from Poggio Picenze emphasized their town's independence from L'Aquila. Most of the industry leaders stated that the building industry was not involved in important planning decisions.

The general public was not involved in decision-making related to planning and the built environment prior to the earthquake or was involved only at the end. The reasons given for the lack of community involvement included a lack of civic gathering spaces in which to hold meetings. In addition, one

community leader told interviewers that no one is willing to make sacrifices for social or civic services.

4.2 *Built Environment Pre-Earthquake*

Building practices before the earthquake were based on established seismic regulations and regulation set at the national level. Among the public, the focus was primarily on aesthetics. Several of the industry leaders noted that locals were not generally interested in discussing or investing in building seismic safety. One of Poggio Picenze's community leaders had formerly been an elected official, both at the municipal and provincial level, and he described previous efforts to establish safety measures with respect to a variety of risk, such as earthquakes, forest fires and natural disasters. In retrospect, however, he felt that seismic risk had not been adequately considered. Others agreed that politicians should have listened more to scientists and professionals, particularly with regard to issues related to seismic risk.

5 RECONSTRUCTION PRIORITIES, DECISION-MAKING AND DECISION-MAKERS

5.1 *Role of National Government*

The federal government directed the response phase and, subsequently, led the establishment of the initial priorities and trajectory for recovery. Of particular interest were local leaders' perceptions of the Civil Protection Agency's role, of advantages and disadvantages of the centralized decision-making structure as it developed, and of factors affecting the development of decision-making procedures.

The initial government response to the earthquake was viewed as essential, timely, and helpful. Many of the interviewees remarked on the speed with which the Civil Protection Agency began providing assistance to afflicted areas, supplying a hot meal by lunch time (approximately 9 hours after the earthquake) and tents before nightfall. Community leaders stated, "we felt close to the government," and the Civil Protection Agency "performed brilliantly in their duties." Another leader acknowledged both the advantages and the disadvantages of the centralized decision-making in the emergency response phase saying, "The Civil Protection made the decisions during the emergency, and even though at times the decisions seemed overbearing, they avoided possible conflicts between various figures of the local administration." However, others offered broader criticisms of the Civil Protection's response, especially those who believe that the foreshocks experienced in the months before the earthquake should have enabled officials to predict the event. Another criticism related to the provision of temporary accommodations on the coast, too far from the affected communities.

Satisfaction with the national government response decreased in the months following the earthquake. Several leaders described the Civil Protection Agency's active work in April and May (the two months immediately following the earthquake), but lamented that there was a lack of a longer term government plan for reconstruction and rebuilding. They worked "without thinking of the future," according to one community leader. In the words of another community leader: "The failure of the government was to impose a priori choices; it already arrived with a pre-built package for the reconstruction and the new town …"

The national government's primary activity between April, 2009 and January, 2010 was the design and construction the C.A.S.E. Project. The Civil Protection Agency made choices about how and where the houses would be built, and that they would build houses that could be repurposed as dormitories. Priority was given to families in severely damaged houses and to house people as close as possible to their original dwellings. Most of the local leaders expressed significant concerns about the implementation, funding and priorities of the C.A.S.E. project. Although one leader did commend the speed with which the buildings were constructed, the C.A.S.E. project accommodations were described as inadequate in number, too scattered and distant from residents' existing homes, and too institutional. Others alleged that the project implementation contributed to the further disruption of social systems and networks. There is "no work in L'Aquila so people will leave," said an industry leader. Some local residents said that they had been assured that they would be allowed to stay in temporary housing near their homes, but this did not happen. A more overarching concern expressed by a number of leaders was that the focus on C.A.S.E. "deferred the reconstruction of the entire city". "They used all the money for C.A.S.E.", a community leader said, "so we won't have anything left."

5.2 *Community Involvement in Recovery and Reconstruction Decisions*

In light of the centralized decision-making structure that emerged during the emergency and early reconstruction phases, the relationship between the local community and the national leaders in reconstruction was of prime importance. Interview questions related to the level of community involvement and how and why this participation occurred. The experience in each of the three study communities – Onna, L'Aquila and Poggio Picenze – is described below, as different patterns of community involvement in decision-making emerged as the result of specific

characteristics of each community and its local leadership.

Leaders in Onna expressed pride that their village had made important decisions about reconstruction locally, with a high degree of community involvement. Although leaders described few residents participating in civic activities before the earthquake, there was an existing non-profit organization, which provided an avenue through which citizens took an active role in discussing reconstruction. According to one leader, citizen involvement was high because residents strongly preferred to remain in their community and to live in temporary wooden homes. Another stressed the importance of weekly meetings that occurred in the tent camps. After the initial provision of temporary shelter (which include wooden homes and a new school near to the heavily damaged village center), community representatives have been working with the German government to develop a master plan for rebuilding that also revitalizes the economy and tourism. Town meetings have been held in developing this plan, but it must be approved by the local (L'Aquila) authority and the regional authority. Despite this engagement, some leaders expressed concern at the lack of definitive plans for reconstruction, saying that citizens have not received any answers from government officials. Building industry representatives felt excluded from the decision-making process.

The larger communities of L'Aquila and Poggio Picenze had lesser levels of community involvement in recovery and reconstruction decision-making. Community leaders in L'Aquila commented that all reconstruction decisions affecting L'Aquila had been made by the national government, leaving citizens no opportunity to provide input. Professionals from the building industry "are not considered at all." According to another interviewee, "the prime minister … has never attended a City Hall meeting," despite 24 visits to L'Aquila. The general opinion was that the meetings that were held were not very useful because "everyone wants to operate separately" and because meetings did not focus on the most important issues related to establishing priorities and planning for reconstruction. "Too many meetings," one L'Aquila government leader said, and many residents attend "just to be seen.' Others described the meetings as "a lot of confusion" and "heavily influenced by politics." In addition, residents were frustrated that "decisions bypassed local authorities and the citizens" and about secret meetings held between Civil Protection, central government leaders and certain companies. As a result, "there was a general isolation," according to one community leader.

5.3 *Prioritizing Structures for Reconstruction*

In the first nine months following the earthquake, the central government led the establishment of recovery and reconstruction priorities targeting particular structures and communities for earliest repairs and reconstruction funding and other government assistance. We were particularly interested in understanding how the roles of central government, local government and community, described above, played out in the process of establishing priorities and in the views of community representatives toward reconstruction priorities.

Local leaders emphasized priorities for houses and schools. Early discussions about shelter emphasized the importance of temporary wooden homes. However, once everyone had a place to stay, later interviews focused more on other issues. A number of leaders expressed their view that the C.A.S.E. and temporary safety/stabilization measures had occurred at the expense of reconstruction of people's homes. As inspections of damaged homes finished and repairs began, some of those interviewed voiced frustration that the reconstruction started with the least damaged houses. Others complained that, despite the central government emphasis on rebuilding housing, there were significant delays because of confusion about how rebuilding costs and construction standards would be handled. Industry leaders described a system of reconstruction that was trying to fix everything with "equal priority."

In later interviews, it became clear that the emphasis on schools and homes in the first year after the earthquake had to led leaders to worry about the progress and prospects for other critical structures in the community. A significant concern among a number of the leaders interviewed was the absence of consideration of "productive business activities" and of the importance of the region's commercial and industrial structures for long-term economic revitalization. In addition, interviewees described the little progress made in reconstructing the historic center of L'Aquila, or the smaller surrounding towns, including the communities' cultural and historic landmarks.

5.4 *Factors Affecting Decision-Making*

Some of the interview questions related specifically other factors affecting recovery and reconstruction, including the G8 Summit, bribery and criminal activity. Most of those interviewed believed that the decision to hold the G8 Summit in L'Aquila in July 2010 (three months after the earthquake) brought a lot of attention to the region. One leader stated that the G8 "introduced Italians" to the region of L'Aquila and the earthquake damage; others said the G8 event helped secure funds for reconstruction. The G8 Summit also led to repairs of some specific facilities, such as a nearby airport in Preturo. However, another leader expressed disappointment that people from around the world had offered money to rebuild

the area during the G8 Summit, but that little of this money had actually been received.

The perceived political influence of bribery or criminal activity reconstruction and recovery activities varied among interview participants. Many leaders mentioned a few instances of looting after the earthquake. Although local government leaders said that bribery and corruption were not a problem in L'Aquila's post-earthquake reconstruction, industry leaders noted that corruption is widespread in building industries throughout Italy. A L'Aquila community leader discussed rumors that some construction companies involved in reconstruction were associated with the Mafia. Others alleged that construction contracts were given to companies run by relatives of government officials.

6 AWARENESS OF SEISMIC RISK AND RISK MANAGEMENT

The final group of questions addressed awareness of earthquake risk and its impact on decision-making in a time of community recovery. These discussions dealt with community awareness of and attitude toward seismic risk and building codes, and changes in these perceptions since the recent earthquakes.

6.1 *Awareness of Seismic Risk*

Many residents apparently did not know that the L'Aquila region was seismically active until just a few months before the April 2009 earthquake, when frequent smaller earthquakes began. This lack of awareness was attributed to poor communication by the government of past earthquakes and seismicity in the region. After the earthquake, residents were described as being very fearful of another earthquake and very aware of seismic risk. "People scream," even when there are just small earthquake shocks, on leader noted. "L'Aquila is like a ballerina," another said, and continued shaking is a frequent reminder of seismic safety. Industry leaders described the people of L'Aquila and surrounding towns as aware that a larger earthquake could happen. Immediately after the earthquake, some considered sleeping outside rather than in their homes. Others are thinking of selling their houses because of concerns about seismic risk and the future.

Local government leaders expressed the hope that the awareness of seismic risk will remain with the people for a long time so that L'Aquila, and other cities in Italy, can be built accordingly in the future. They also stressed that the knowledge that the buildings are being built and strengthened to be able to withstand another large earthquake is very important to the mental health of the public.

6.2 *Actions Regarding Seismic Risk*

The leaders interviewed cited changes to building codes, the use of innovative building technologies in new buildings, such as base isolation, and efforts to strengthen existing buildings as evidence of positive steps toward reducing seismic risk. All new buildings are constructed according to an updated seismic code, adopted in July 2008, which has been made mandatory since the earthquake, and industry leaders described as "excellent." Leaders described residents as having a positive view of the new codes. They understand that the new code provides a higher factor of safety, said one architect, and that, as a result, structures designed and constructed according to the provisions may cost more.

Because "people now want to be guaranteed that their home is safe," some new buildings are being constructed with technologies that were rarely used in L'Aquila before the earthquake. The C.A.S.E. project utilized base isolators and leaders indicated that residents had shown a broader interest in structures which integrate these technologies. Residents also expressed desire for timber homes, because of their better seismic resistance than the existing masonry or concrete frame with masonry infill walls, and there is a significant demand for technical assessments showing that housing is safe and interest in strengthening buildings to be able to withstand a larger earthquake.

Despite these positive signs and community demands for seismically safe structures, leaders expressed significant doubts about whether these concerns would have tangible effects on the rebuilding. Several said they saw little evidence that rebuilding would reflect increased consciousness about seismic risk. Real estate development and financial concerns were expected to be prioritized at the expense of construction quality. In addition, there is a lack of expertise in L'Aquila regarding building with timber because it much different from the region's traditional building methods. Another interviewee described problems with professionals going house to house to offer engineering expertise, but are also trying to scare people into extra repairs and strengthening. Leaders emphasized the importance of public education to help homeowners make better decision in the reconstruction process. Others expressed concern that there is insufficient funding and financing to ensure that buildings are built to better withstand an earthquake.

In addition, almost all the leaders proposed further technical changes to improve construction and reduce seismic risk. Some indicated that better seismic design and risk maps, using microzonation, should be developed. The importance of strengthening older building to prevent future damage in historic centers and especially masonry homes was mentioned several times. In addition, leaders stressed the importance

of ensuring that, in the words of one elected official, "no deviations from construction and design standards be allowed." One community leader proposed that building safety could be enhanced by not following the usual politics of "condoni," which periodically "pardon" tax and other types of fraud.

7 CONCLUSIONS

A series of 18 interviews with community, industry and government leaders in three communities impacted by the 2009 L'Aquila Earthquake were conducted to characterize the decision-making and prioritization processes in recovery and reconstruction. Responses were then analyzed to identify how responses differed according to the community each leader was representing (L'Aquila, Onna and Poggio Picenze) or among different leader groups (industry, community or government representatives).

Some of the significant findings include a generally positive impression of the Civil Protection Agency during the emergency phase. However, in the reconstruction phase, national leaders were criticized for not sufficiently considering citizens' desires, e.g. to remain living close to their home and neighborhood. Civic participation in reconstruction decision-making appeared to vary significantly from community to community, with responses from Onna describing the highest engagement of local people.

8 FUTURE WORK

This paper documents one part of a larger study on recovery and reconstruction in L'Aquila. In addition to those leaders whose responses are described here, we also interviewed four national leaders of the reconstruction: Mauro Dolce, the Director of Seismic Risk for the Civil Protection Agency and Professor of Earthquake Engineering at the University of Naples Federico II; Gaetano Manfredi, President of ReLuis (a university network for seismic engineering), Michele Calvi, Professor at University of Pavia who is overseeing new housing (e.g. C.A.S.E. Project) and Guido Bertolaso, Director of the Civil Protection Agency. These responses will be analyzed to understand how decisions were made at a national level and differences between locals and national perceptions of priorities and progress. Some follow-up interviews with local industry, community and government leaders were also conducted in April 2010. These interviews will be used to characterize how decision-making structures and priorities had changed in the five months since the first set of conversations.

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