Earthquake Resilience: Lessons from the 2016 Central Italy Earthquake Sequence

Emergency Response and Recovery

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EERI Team Objectives

*Emergency Management Emphasis*

- Emergency Counter-Measures
- Emergency Response - Displacement
- Temporary Housing
- Economic Impacts
- Historical/Cultural Preservation
- Recovery and Reconstruction
Arch. Alfiero Moretti - Dirigente del Servizio Organizzazione e Sviluppo del Sistema di Protezione Civile
Emergency Counter Measures
Vigili Del Fuoco - Fire Engineering Corps

Seismic Bracing - Norcia
Emergency Counter Measures
Seismic Bracing - Norcia
Ciro Del Vecchio, Engineer
Emergency Counter Measures
Building Safety Inspections
Central Italy EQ Numbers

- Four Regions - Marche, Umbria, Lazio, Abruzzo
- ~130 Communities with earthquake damage
- 50 Communities Evacuated ~32,000 people
- Visited - Visso, Ussita, Castel St.Angelo, Norcia, Preci, Cascia, Accumoli, Arquata, Onna, L’Aquila
- Total buildings inspected over as of Oct 2, 2017:
  - 74,060 AeDES (Agibilita e Danno nell’Emergenza Sismica)
  - 104,700 FAST (Fabbbricati per l’Agibilita Sintetica post-Terremero)
Assisted Populations

* i valori si riferiscono alle giornate immediatamente successive alla data dell’evento

TERREMOTO CENTRO ITALIA - FONTE: DIPARTIMENTO DELLA PROTEZIONE CIVILE
ACCUMOLI – May 11, 2017
Jay Wilson, Field Video Observation
Temporary Housing

Arquata

Accumoli
Temporary Housing

- Norcia
Economic Impacts
Historical Preservation

Castel St. Angelo

Norcia

Monks of Norcia

Accumoli
Seismic Safety and Cultural Heritage

Professor Domenico Libertore
Dept of Structural Engineering and Geotechnics
Sapienza, University of Roma
Recovery Onna
Reconstruction

Onna e le sue chiese

I segreti lasciati dall’arte, le tracce della transumanza, i percorsi della fede.
Anna, Pietro, Stefano, Giovanni, i nomi dei nostri Santi protettori.
La Madonna delle Grazie, madre che accoglie i suoi figli anche nel dolore.
La statua di tutte le generazioni di oranti.
Ora l’attesa, l’attesa del ritorno.

G. Parisse
Recovery
2009 - 2017
L’Aquila
Base Isolation - Housing

L’Aquila
L’Aquila Residential Resettlement and Adaptation
Seismic Mitigation – Residential Impacts
Professor Angelo Masi
Dept of Structural Engineering, University of Basilicata
Seismic Mitigation - Sustainability
Professor Angelo Masi
Dept of Structural Engineering, University of Basilicata
Conclusions

Community identity, belonging, and sense of place are strong factors to guide recovery.

Mass displacement has direct impact to social and economic welfare.

Resilience may be best defined by local and regional situation/norms.