Emergency Management vs Reconstruction

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L'Aquila – September 18, 2025

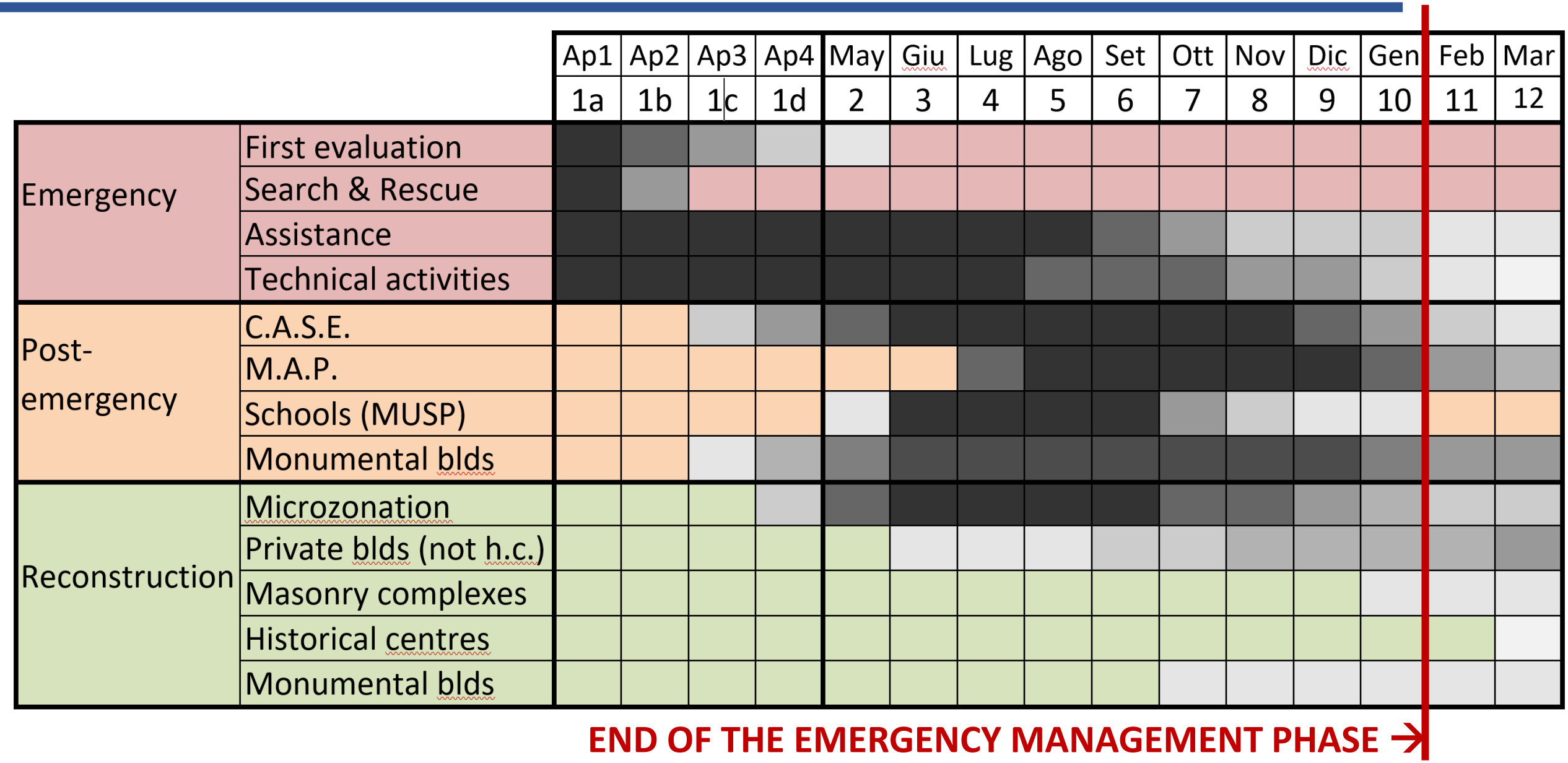
National Civil Protection Service Mandate
(according to Law n. 225/1992)

National Civil Protection Service aims at safeguarding human life and health, goods, national heritage, human settlements and the environment from all natural or man-made disasters.

It deals with:

- **Forecasting and Warning**
- **Prevention and Mitigation**
- **Rescue and Assistance**
- **Emergency overcoming**

ONE YEAR OF EMERGENCY, POST-EMERGENCY AND RECONTRUCTION ACTIVITIES IN L'AQUILA



The Decree n.39 "Abruzzo" of 28 April 2009

(converted to Law N.77 of 23 June 2009)

MAIN POINTS

- **Enforcement of the new National Technical Standards**
- **Funding national seismic prevention program: 950 M€ in 7 years**
- **Provisions for repair and strengthening or reconstruction of private and public buildings**
- **Seismic safe temporary housing: Project C.A.S.E.**

POST-EARTHQUAKE DAMAGE/USABILITY ASSESSMENT

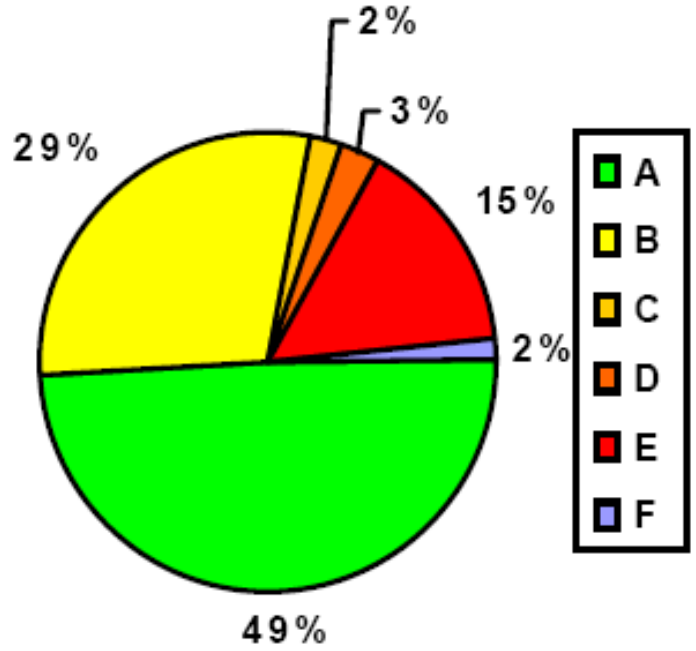
USABILITY

Post-earthquake usability evaluation is a quick and temporarily limited assessment, based on expert judgement of specially trained technical teams, on visual screening and on easily collected data, aimed to detect if, during the current seismic crisis, damaged buildings can be used, being reasonably safeguarded the human life.

A) USABLE	**Building can be used without measures. Small damage, but negligible risk for human life.**
B) USABLE WITH COUNTERMEASURES	**Building is damaged, but can be used when short term countermeasures are taken**
C) PARTIALLY USABLE	**Only a part of the building can be safely used**
D) TEMPORARILY UNUSABLE	**Building to be re-inspected. Unusable until the new inspection.**
E) UNUSABLE	**Building can not be used due to high structural, non structural or geotechnical risk for human life. Not necessarily imminent risk of total collapse.**
F) UNUSABLE FOR EXTERNAL RISK	**Building could be used, but it cannot due the high risk caused by external factors (heavy damaged adjacent or facing buildings, possible rock falls, etc.)**

SCHOOL BUILDINGS → DAMAGE/USABILITY AND SAFETY

- Due to the importance of **school continuity** to **recover normal life condition** and **avoid depopulation**, school buildings were prioritized in the **damage assessment** activities
- In the **l'Aquila municipality, 106 school buildings** were inspected
- In **64 municipalities** of the Province of L'Aquila, **309 school buildings** were inspected



- **School** activities were **stopped** after April 6, 2009
- **Parents** demanded for **safer schools** for their children
- The need for a **comprehensive progam to guarantee safer schools** by the end of **September** was immediately clear, to avoid depopulation of the city

THE PROGRAM FOR SCHOOL SAFETY

After the event, a program was activated, completed in October of the same year, for the regular restart of the school year, including:

- **Repair and seismic strengthening** of **35 slightly damaged school buildings** in the **municipality of L'Aquila** and **24 outside L'Aquila,** for **7,000 students** → **Total cost: 31 M€**
- **33 provisional school modules (MUSP)** for **6000 students** → **Total cost: 67 M€**

The **average cost per student** was approximately:

- **4,500 €/student** to repair and strengthen slightly damaged schools
- **14,200 €/student** to build MUSP's

In addition, the **amortization of costs** is clearly favorable to interventions on damaged buildings with respect to build temporary school modules

STRENGTHENING OF SLIGHTLY DAMAGED SCHOOL BUILDINGS

Local strengthening of beam-column joins with carbon fibers

The school “Dante Alighieri” at the end of the repair and strengthening WORKS

Strengthening against tilting of infilled panels

TEMPORAY SCHOOL MODULES (MUSP)

Reconstruction	Microzonation
	Private blds (not h.c.)
	Masonry complexes
	Historical centres
	Monumental blds

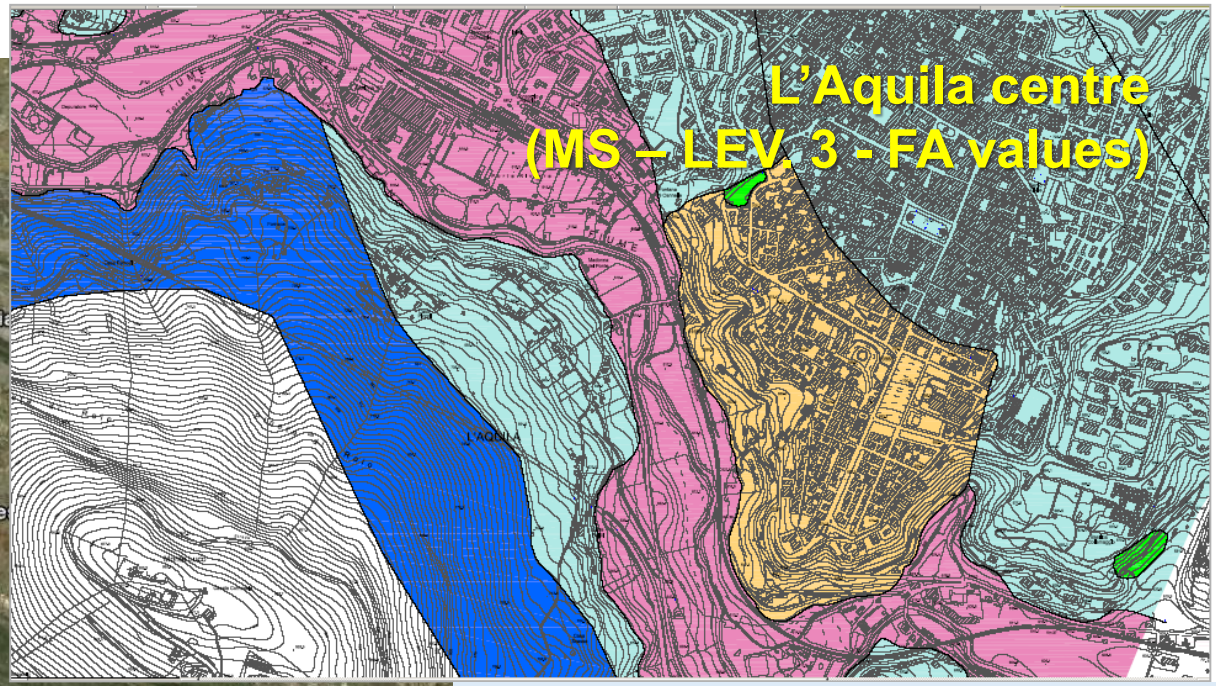
SEISMIC MICROZONATION

Seismic Microzonation to improve the knowledge of **site effects** in municipality territories is essential to "**build back better**".

- The activities in Abruzzo began in **May 2009**, in the middle of the emergency phase, and ended **9 months** later.
- The timeliness of the activation soon after the event made it possible to **collect aftershock data** through monitoring aimed at improving seismic microzonation.

*A similar operation, albeit in different ways, was adopted by the **Commissioner for Reconstruction,** appointed **few days after the first event** of the sequence of earthquakes in **Central Italy, in 2016-17,** to carry out the **3rd level seismic microzonation** of the **140 affected municipalities**.*

SEISMIC MICROZONATION

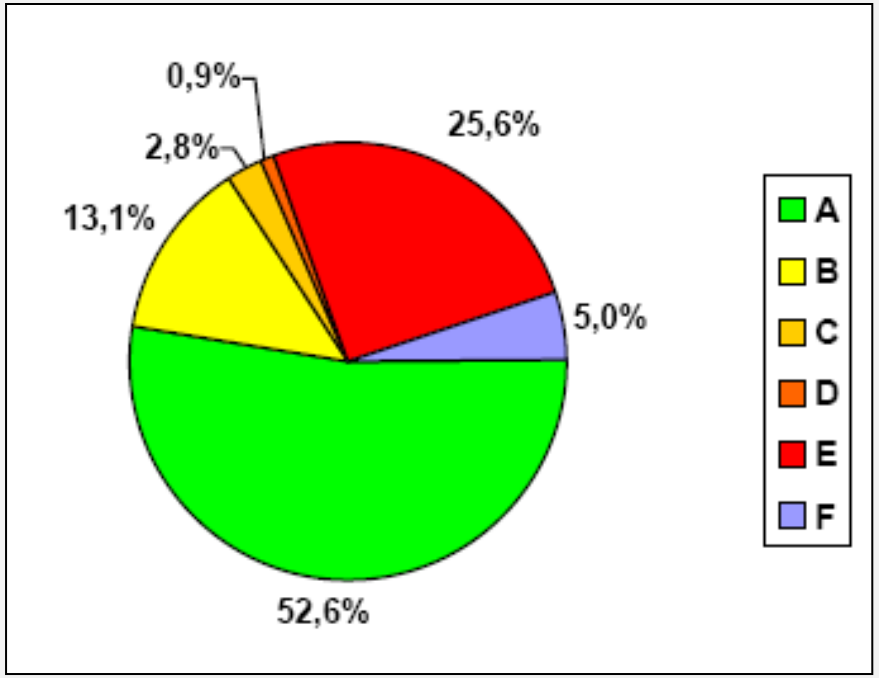


The Civil Protection Dept. coordinated a group of **160 researchers and experts** for **microzonation studies** in the **MCS≥7** areas, to be completed according to the ***Guidelines for Microzonation***

RECONSTRUCTION OF PRIVATE BUILDINGS OUTSIDE HISTORICAL CENTRE

The emergency management phase ended about **10 months** after the main shock, when the entire population had found **accommodation** in temporary housing solutions: **CASE, MAP** (temporary housing modules), or **CAS** contribution for autonomous accommodation.

A significant part of the uninhabitable houses were **little or moderately damaged** and many of them **outside the historic centers**, and could be repaired and strengthened in a relatively short time, leading to a **significant reduction** in the **hardship of the population**, as well as in the **need for temporary housing** and **economic commitment for the CAS**.



RECONSTRUCTION OF PRIVATE BUILDINGS OUTSIDE HISTORICAL CENTRE

The "**Reconstruction**" activities were started with some **Civil Protection Ordinances 4 months after** the event and **6 months before** the end of the emergency phase, together with the activation of the control chain of the **FINTECNA-ReLUIS-CINEAS** for the repair/upgrading/reconstruction projects.

→ The first **light reconstruction outside historic centers** were activated **before the end of the emergency** management.

Solving the problem promptly, the return of the population to poorly damaged homes has the following advantages:

- a significant **reduction** in the **costs of caring** for the population,
- a clear **improvement** in the **social** condition
- a faster **recover** to normal living conditions.

RECONSTRUCTION OF PRIVATE BUILDINGS OUTSIDE HISTORICAL CENTRE

Most important civil protection ordinances for the reconstruction start

6 June 2009 – OPCM 3778


MODULARIO P.C.M.- 198

Presidenza del Consiglio dei Ministri

Ordinanza n. 3778

Ulteriori interventi urgenti diretti a fronteggiare gli eventi sismici verificatisi nella regione Abruzzo il giorno 6 aprile 2009 e altre disposizioni urgenti di protezione civile.

Category A

6 June 2009 – OPCM 3779


Presidenza del Consiglio dei Ministri

Ordinanza n. 3779 (*)

Ulteriori interventi urgenti diretti a fronteggiare gli eventi sismici verificatisi nella regione Abruzzo il giorno 6 aprile 2009 e altre disposizioni urgenti di protezione civile.

Categories B e C

9 July 2009 – OPCM 3790


MODULARIO P.C.M.- 198

Presidenza del Consiglio dei Ministri

Ordinanza n. 3790 (*)

Ulteriori interventi urgenti diretti a fronteggiare gli eventi sismici verificatisi nella regione Abruzzo il giorno 6 aprile 2009 e altre disposizioni urgenti di protezione civile.

Category E

12 november 2009 – OPCM 3820


MODULARIO P.C.M.- 198

Presidenza del Consiglio dei Ministri

Ordinanza n. 3820

Ulteriori interventi urgenti diretti a fronteggiare gli eventi sismici verificatisi nella regione Abruzzo il giorno 6 aprile 2009 e altre disposizioni di protezione civile.

Masonry complexes

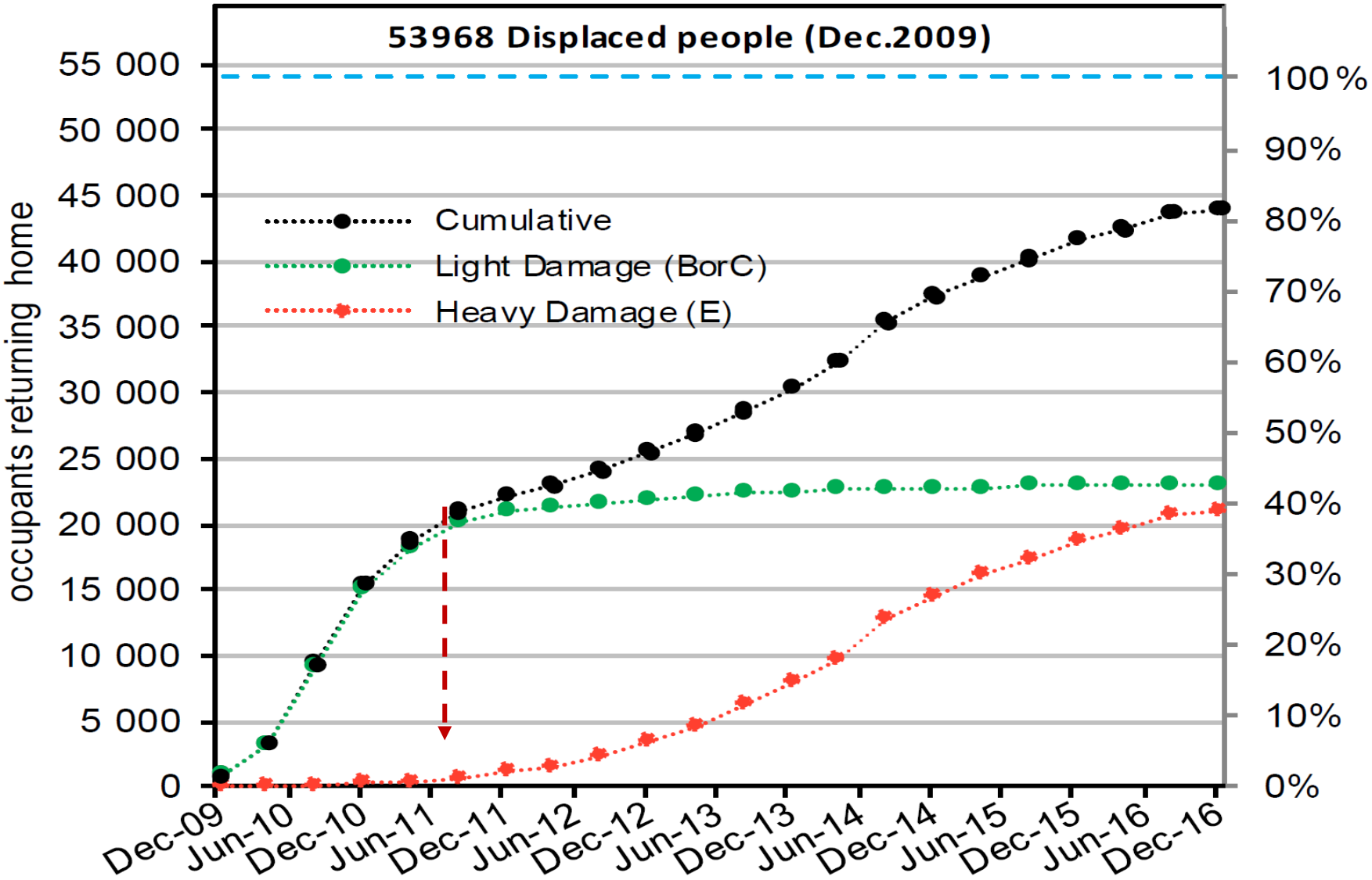
(*) and relevant instructions

RECONSTRUCTION OF PRIVATE BUILDINGS OUTSIDE HISTORICAL CENTRE

Based on the results of the damage and usability assessment (**AeDES**), the following categories of work were regulated:

1. **OPCM 3778 – 09.06.09** → Repair with a **forfait reimbursement of 12.5 k€/apartment** for "**A**" usable buildings
2. **OPCM 3779 – 09.06.09** → Repair with no limit of reimbursement + local strengthening (of critical structural and non structural elements) with 150-250 €/sqm for "**B**", "**C**" buildings and for "**E**" buildings with slight or no structural damage
3. **OPCM 3790 – 09.07.09** → Repair with no limit of reimbursement + seismic retrofit with 400-600 €/sqm for "**E**" buildings
4. **OPCM 3790 – 09.07.09** → Reconstruction or substitution for **collapsed** buildings
5. **OPCM 3820 – 12.11.09** → Special concern for the old **masonry building complexes**

Effectiveness of the reconstruction process: People returning home



CONCLUSION (1)

The experience gained after the Italian strong earthquakes in recent decades suggests that reconstruction activities must start as soon as possible after the event, because:

- Their immediate start makes **emergency management more efficient and faster**,
- **Reconstruction** can **benefit from and better direct** some fundamental **emergency management activities and preparatory actions** to "**build back better**", with lower costs and in a shorter time.

CONCLUSION (2)

- **Synergies** between the emergency management and reconstruction phases make it desirable that they are **not temporally successive**, but partially **overlapping**,
- The **competences and responsibilities** of the two phases, emergency and reconstruction, must be **clear and distinct**, and the **interactions** appropriately **regulated**.

Alternatively, a **clear temporal separation** of the two phases requires that some **synergistic activities** within the competence of reconstruction be **included in the emergency management** (e.g. the start of light reconstruction interventions and/or outside the historic centers, the repair/strengthening of schools, microzonation studies).

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