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DAMAGE COMPENSATIONS PAID AFTER MARCH 4, 1977 ROMANIA EARTHQUAKE
AND LESSONS FOR TODAY’S DISASTER INSURANCE
March 4, 1977 M 7.2 Romania earthquake

- **Casualties:**
  - 1,578 deaths (1,424 or 90% in Bucharest)
  - 11,300 injured (7,600 or 68% in Bucharest)

- **Official data - damage to buildings:**
  - 35,000 homeless families
  - 32,900 collapsed or destroyed housing units
  - 763 collapsed or destroyed commercial/industrial units
  - 47 collapsed or destroyed hospitals
  - 257 collapsed or destroyed educational buildings
  - 181 collapsed or destroyed cultural buildings
Macroseismic map, March 4, 1977 Earthquake, M 7.2
Romania had a system of compulsory insurance...
How it covered the claims? Does the insurance impact fit to this MSK intensity pattern?
Bucharest – collapse of 25 pre-1940 buildings – Nestor Building
Bucharest, collapse of 3 recently built structures
Bloc OD 16, Bd. Pacii 7
EARTHQUAKE IMPACT, 1977

Economic losses

- First estimates - end of March - 10 Bln. Lei
- Later on, reported economic losses as being US$ 2 Billion (not in Ro Lei !!!!)
  - World Bank Report No. P-2240-RO, 17 May 1978...2.048 Bln USD
  - Best data, unpublished in Romania
  - ICCPDC Internal Reports (1978) – number of damage, unpublished in Romania

Engineering lessons:

- consistent and very important for earthquake design and seismic risk management
Spatial distribution of earthquake losses

- 23 of 40 counties were strongly affected, with Bucharest recording the highest loss, accounting for 70% of the total, i.e. US$ 1.4 billion.
- Counties in the south-east of the country (Teleorman, Dolj and Prahova) but also in north-east (Iasi, Bacau) suffered significant damage.
1977 - Effects on the housing sector

- 156,000 apartments in urban and 21,500 houses in rural zones were destroyed or seriously damaged;
- In addition 366,000 apartments in urban zones and 117,000 houses in rural areas needed to be repaired.
- Total: 660,500 (or 11% of Romania’s stock at the time!!)
INSURANCE WAS A PARTY AND STATE ISSUE

Official Address to CC RCP, to report the insurance situation, with signature of Nicolae Ceausescu

(June 1977)

ARCHIVAL DATA RECOVERED
MINISTRY OF FINANCE + ADAS –
A very fast work of field assessment

- All insurance evaluations were done until June 20, 1977
- For fully destroyed dwellings – May 16, 1977
- **377,700 claims - value of 889,000,000 lei**
- Besides these cases, there were ca **26,000 registered cases**, mostly in Bucharest, waiting for strengthening, and **their insured values will be based on the rehabilitation projects and paid to the contracting company.**
The value of paid compensations under compulsory insurance at June 20, 1977.  
(Ministry of Finance, June 1977. ANR CCRCP Chancellery 73/1977)

<table>
<thead>
<tr>
<th>Insured client</th>
<th>No. of claims</th>
<th>No. of evaluated claims</th>
<th>Insurance compensations</th>
<th>Approved as of May 16, 1977</th>
<th>Proposed for approval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No. of cases</td>
<td>Value of compensations</td>
</tr>
<tr>
<td>I. CITIZENS</td>
<td>375.4</td>
<td>375.4</td>
<td>205.6</td>
<td>427.2</td>
<td>169.8</td>
</tr>
<tr>
<td>a) Urban dwellings</td>
<td>148.5</td>
<td>148.5</td>
<td>83.3</td>
<td>260.2</td>
<td>65.2</td>
</tr>
<tr>
<td>- of which destroyed</td>
<td>4.9</td>
<td>4.9</td>
<td>4.9</td>
<td>98.9</td>
<td>-</td>
</tr>
<tr>
<td>b) Rural dwellings</td>
<td>223.7</td>
<td>223.7</td>
<td>121.8</td>
<td>163.4</td>
<td>101.9</td>
</tr>
<tr>
<td>- of which destroyed</td>
<td>6.8</td>
<td>6.8</td>
<td>6.8</td>
<td>56.9</td>
<td>-</td>
</tr>
<tr>
<td>II. COOPERATIVES</td>
<td>2.3</td>
<td>2.3</td>
<td>0.2</td>
<td>6.0</td>
<td>2.1</td>
</tr>
<tr>
<td>III. TOTAL</td>
<td>377.7</td>
<td>377.7</td>
<td>205.8</td>
<td>433.2</td>
<td>171.9</td>
</tr>
</tbody>
</table>
MARCH 4, 1977 EARTHQUAKE
INSURANCE COMPENSATIONS

- Compensations have been paid function of type and pattern of dwellings, damage degree, depreciation state, recovery of materials, under the principle that **30-40% of loss will be covered by the insured**.

- **For lost house – insurance paid as advance for reconstruction / new house credit**

- For partial damage, the compensation covered in average 43% of the repairs, at official prices.

- Of total, ca. 33% in urban and 58% in rural are under 1,000 lei value, while mean compensation is 2,753 lei in urban and 1,294 lei in rural.
COMPARISON OF SEISMOLOGICAL, AND ENGINEERING DATA WITH OTHER ARCHIVAL DATA

- Insurance data exist for each county
- The territorial distribution of insured losses reflected in general the order of most affected counties (17 counties), with some large values at large distance from epicenter
- Not the same like in ICCPDC data (Bucharest, Dolj, Prahova, Teleorman, Olt etc).
- Iasi County reported less claims, as number and value, than its rank in ICCPDC 1978 data (Georgescu and Pomonis, 2008).
The ICCPDC reports address the effects in 19 counties plus Bucharest City.

In total there were:

- 742,259 collapsed or damaged dwelling units, out of which 35,600 dwellings units were collapsed or condemned (4.8%), 351,835 dwellings units to be strengthened (47.4%) and 354,824 dwellings units to be repaired (47.8%); representing 12% of national stock.

- 8,228 social-cultural units lost and damaged, representing 29% of national stock.
Cumulative figures 1977 – Territorial distribution of ratio of dwelling units in affected buildings vs. the total stock of dwelling units / county
A cross-country profile of affected dwelling units ratio
Discussions vs. Explanations on ICCPDC data (1978)

- Order of damage vs. distance to Vrancea
  - Iasi, Bucharest, Dolj, Braila, Teleorman, Bacau, Prahova, Dambovita, Vaslui, Buzau, Galati, Gorj, Vrancea......

- Why? Hazard and local site conditions caused amplifications at large distances

- Vulnerability of many structures

- Codes used between 1940 and 1977

- Low design forces due to lack of local seismologic data
For more details, please read the following publications, with more findings, charts and figures


CONCLUSIONS

- In 1977 the number of damage compensation claims was very high, spread in territory.
- The response of MF – ADAS system was very fast – claims solved at June 20, 1977.
- The individual coverage was quite reduced, but prices were state controlled.
- But the payment for urban damage in 26,000 registered cases of high-rise buildings was delayed until making strengthening or repair projects.
- This would have been a normal decision – under normal conditions, many works started this way.
But on July 4, 1977 meeting Nicolae Ceausescu ordered to stop overall strengthening and accept only local repairs, without any increase of seismic resistance.

Thus, for many of 26,000 cases the overall works were almost stopped.

The cost of works, as well as of insurance to be paid was abruptly cut and limited.

The consequence was to let a very large number of high-rise structures to be at risk from next large earthquakes.

Thus, since July 1977 there was a politically driven risk increase.
IGSIC Telex No. 11264 of July 8, 1977 with working order to make only local repairs.
The number of future claims to PAID is likely to be large in case of earthquakes.

The insured loss value? ....See scenarios and simulations....

The assessment and settlement of compensation value will require a great number of field and desk staff.

Let's be better prepared!

THANK YOU VERY MUCH!