Experiences of the City of Zagreb during the earthquake and pandemic 2020/2021
City of Zagreb

- Capital of Republic of Croatia
- According to data from 2020; 809,268 inhabitants live in Zagreb
- Area of the city - 641 km²
- 17 city districts and 69 other settlements

On March 22, 2020, an earthquake of M 5.5 on the Richter scale shook the city
Earthquake in Zagreb (2020;06:24AM)

- COVID-19 - „Lockdown”
  - the day before the earthquake
  - “IMPACTS”
  - one casualty, 26 injured psychological shock and panic (> 20,000 left their homes)
  - damage to buildings, especially in the historical center of the city
  - financial costs significantly higher than expected for an earthquake of such strength

photos from the historic center (source: HCPI, 2020; AIR-RMLD d.o.o.; Šavor Novak et al. 2020.)
Earthquake in Zagreb (March 2020)

- **EDUCATION**
  - *improvisation* based on experience and exercises
  - *adjustment* with regard to feedback from the field (damage)
  - *webinari* ([www.hcpi.hr](http://www.hcpi.hr)) – motivated by COVID – 19
  - *WhatsApp groups* (consultation with the headquarters, counselling the younger ones, ...)
  - ...

  ![Image of group of people in an indoor setting, possibly working on a construction project, with one person pointing at a screen, and another person looking at a document on a table, with a handout in the background.]

- **second week (webinar)**

  ![Image of a webinar screen with a slide that appears to be discussing a technical or educational topic, possibly related to construction or engineering, with a red arrow pointing to the right.]
Forms

- urgent programming of the **mobile application** (Collector for ArcGIS) for field surveys
- **simplified acc. feedback from the field** (characteristic damage to gable walls, roofs and chimneys)
- ”motivated” by COVID – 19 (limiting the epidemics spread – avoiding unnecessary contacts)
- ...

---

Earthquake in Zagreb (March 2020)

third day !!!

GDi i Esri

Official Distributor
Earthquake in Zagreb (March 2020)
Database – our goal
Earthquake in Zagreb (March 2020) - coordination of engineers

Rezultati procjena oštećenja građevina nakon potresa

Pregled zgrade

25.578

Aktualne obavijesti
A volunteer organization in a time of crisis after the earthquake:

- Faculty of Civil Engineering, University of Zagreb,
- Croatian Chamber of Civil Engineers,
- Emergency Management Office Zagreb
- Civil Protection Directorate (MUP)
- City of Zagreb
- Experts worldwide ...

~ 500 engineers in the field
(100 – 200 by the day)

City of Zagreb (>30 experts)

Expert group assembled at the Faculty of Civil Engineering
(about 25 experts)

“HQ in bunker”
(about 10 people)

Consultation with „the World”
(~20 experts)
Earthquake in Zagreb (March 2020)

- **Equipment**
Estimation of costs - WB
Raising the level of knowledge

... more than 50 experts

... 594 pages

"ALL IN"
URBAN RENOVATION WAVE TRIGGERED BY EARTHQUAKE

Structural reconstruction

"all in" (build back better)
Earthquake in Petrinja (December 2020)

28.3. 2021 – KRAJ ”brzih” pregleda
(tri mjeseca nakon potresa – kao i u Zagrebu)

oko 2000 ljudi !!!

> 1700 stručnjaka na terenu
(cijela RH, Niemačka, Austrija, ...)

35 volontera u HCP stožerima
(GFZG, GradZG, Petrinjci, Glima, Stičani, HKIG, HKa, HMS, firme, ...)

GDI (baza podataka, GIS, licence, analiza podataka, ...) 
DGU, GradZG, volonteri, ...
brojni sponzori i podupiratelji

Nacionalni stožer
(koordinacija/zaštitna/sakrje...,)
SMZ (ugovori), INA (gorivo), ...

osiguranja oštećenih auti

NOVI RAZORNI POTRES (3. put) ??
(tko?, pravna osnova? procedure?, edukacija?, odgovornost?)

Headquarters ...
Thank you for your attention!