

Constructing Disasters One Building at a Time

Kahramanmaraş EQ
WHAT – WHY – HOW

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Webinar L2MGC
03.03.23

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WHAT

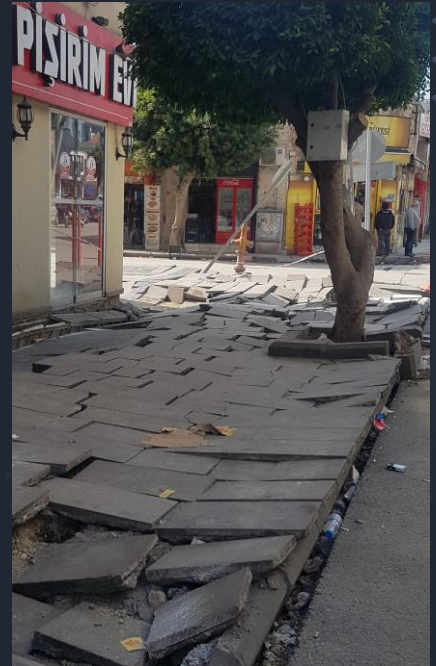
WHAT

**The
Guardian**



WHAT SOFT STORY

- PROBLEM: **KNOWN**
- SOLUTION: **KNOWN**



WHAT LIQUEFACTION

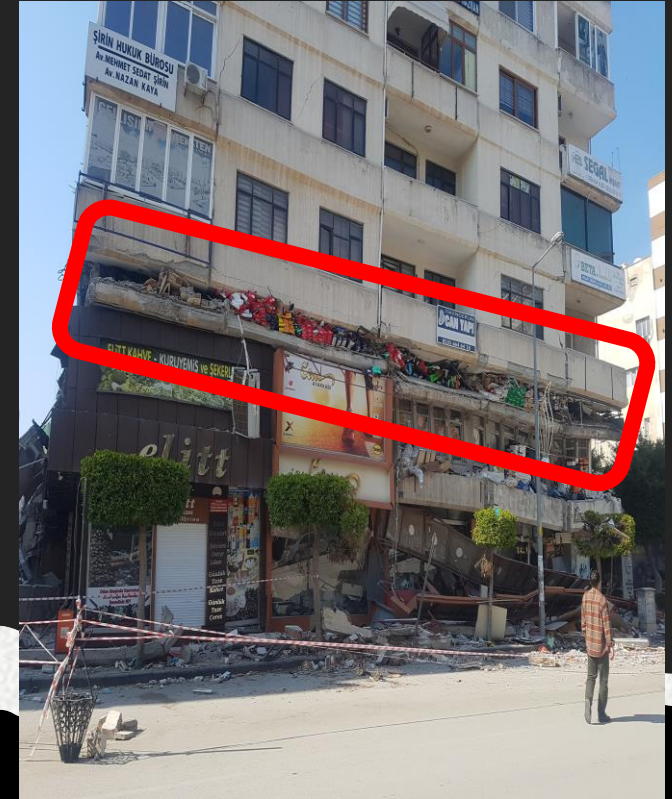
- PROBLEM: **KNOWN**
- SOLUTION: **KNOWN**



WHAT – LOW SHEAR CAPACITY

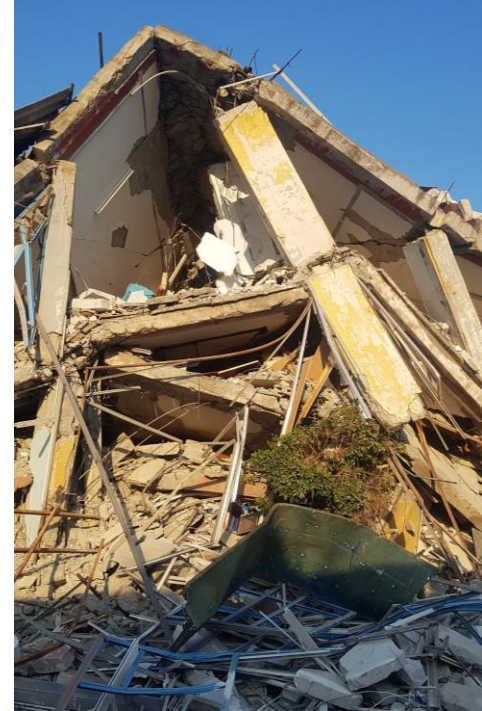
- PROBLEM: **KNOWN**
- SOLUTION: **KNOWN**





WHAT
SHORT COLUMN

- PROBLEM: **KNOWN**
- SOLUTION: **KNOWN**



WHAT
NO DUCTILITY

- PROBLEM: **KNOWN**
- SOLUTION: **KNOWN**



WHAT POOR DESIGN and MATERIALS

- PROBLEM: **KNOWN**
- SOLUTION: **KNOWN**



WHAT CONTRACTORS WORKERS MALPRACTICES

- PROBLEM: **KNOWN**
- SOLUTION: **KNOWN??**



WHAT DELAMINATION

- PROBLEM: **KNOWN**
- SOLUTION: **KNOWN**



WHAT INDUSTRIAL STRUCTURES

- **PROBLEM:** mostly **KNOWN**
- **SOLUTION:** mostly **KNOWN**



WHAT URBAN STONE BUILDINGS

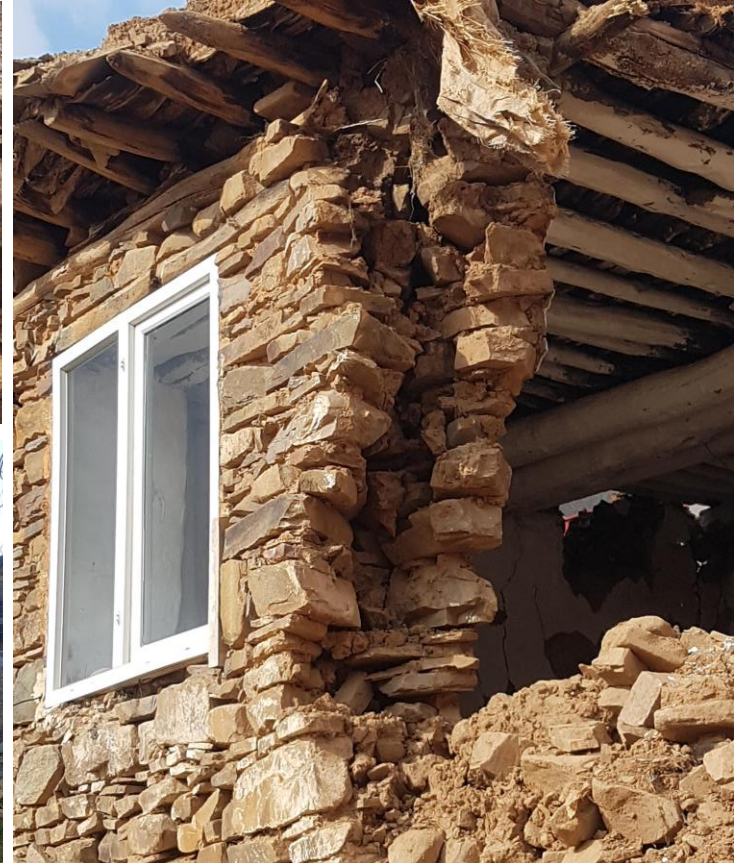


- PROBLEM: **KNOWN**
- SOLUTION: **KNOWN**



WHAT RURAL STONE HOUSES DELAMINATION

PROBLEM: **KNOWN**
SOLUTION: **KNOWN**



WHAT

KNOWN

PROBLEMS

KNOWN

SOLUTIONS

WHY

WHY
SOLUTIONS **IGNORED**
WHEN CONSEQUENCES
WERE **KNOWN**



Lack of
material/economic
resources?

Lack of
governmental
institutions?

Lack of
previous
experiences?

NO!
WHY?

Lack of
proper
building
code?

Lack of
engineering
skills?



WHY

**The exceptions,
not the rule**

- TOKI: PUBLIC HOUSING
Over 133,000 houses built by TOKI not damaged in Türkiye quakes [REF](#)
- Traditional constructions

- **Turkey has all the resources needed to build paraseismic structures:** seismic codes, well-trained structural engineers, inspection firms, money... **but**
- Builders are often allowed to use **substandard** construction practices and materials, and ignore building codes to **fatten profits**
- Builders set up inspection firms to inspect themselves
- Government grants **amnesties** regularly to legalize structures that are known to be **substandard**
- **→ Result: erecting structures that are known not to be able to survive quakes**
- These **deficiencies are well-known** among engineers, contractors, officials, public... but **deliberately ignored**

A large crowd of people at night, many holding Turkish flags, with text overlaid. The text is in white and red, with the word 'elephant' in red and 'CULTURE' in red. The word 'DISRESPECT' is underlined.

The **elephant** in the room
A DEEPLY ENGRAINED
CULTURE
OF DISRESPECT,
CARELESNESS AND
CORRUPTION

DELIBERATELY

IGNORING

WHY

KNOWN

PROBLEMS

HOWW

PROBLEM

THE PEOPLE

HOW

SOLUTION

THE PEOPLE

How – Can Change Happen?

- EDUCATION – Skills transfer?
 - 1. Ethics**; 2. Discipline; 3. Critical thinking... then 4. Skills
- PUBLIC, ENGINEERS...:
Demand proper constructions
- GOVERNMENT
Strictly enforcing laws, regulations
- Change **not** expected to happen

WHAT

- Dominant failure mechanisms: well-known
Feasible solutions: numerous and well-known
- Proper building code; sophisticated engineering expertise; skilled labor force; adequate government regulations on paper; financing: **ALL AVAILABLE**

WHY

- **Lack of ethics deeply engrained in the culture**
- → Human losses NOT an accident; **HOMICIDE**
- → Economic losses NOT an accident; **THEFT**

HOW

- Fundamental change in the leadership's approach
- → Not to be expected: people, society can't change