

# Beyond Physical Risk

*Looking through a socio-economic lens*

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GEM session | **Wednesday 2nd July 15:30 - 17:00**

*perspectives from Academia, Business, Government and NGOs*



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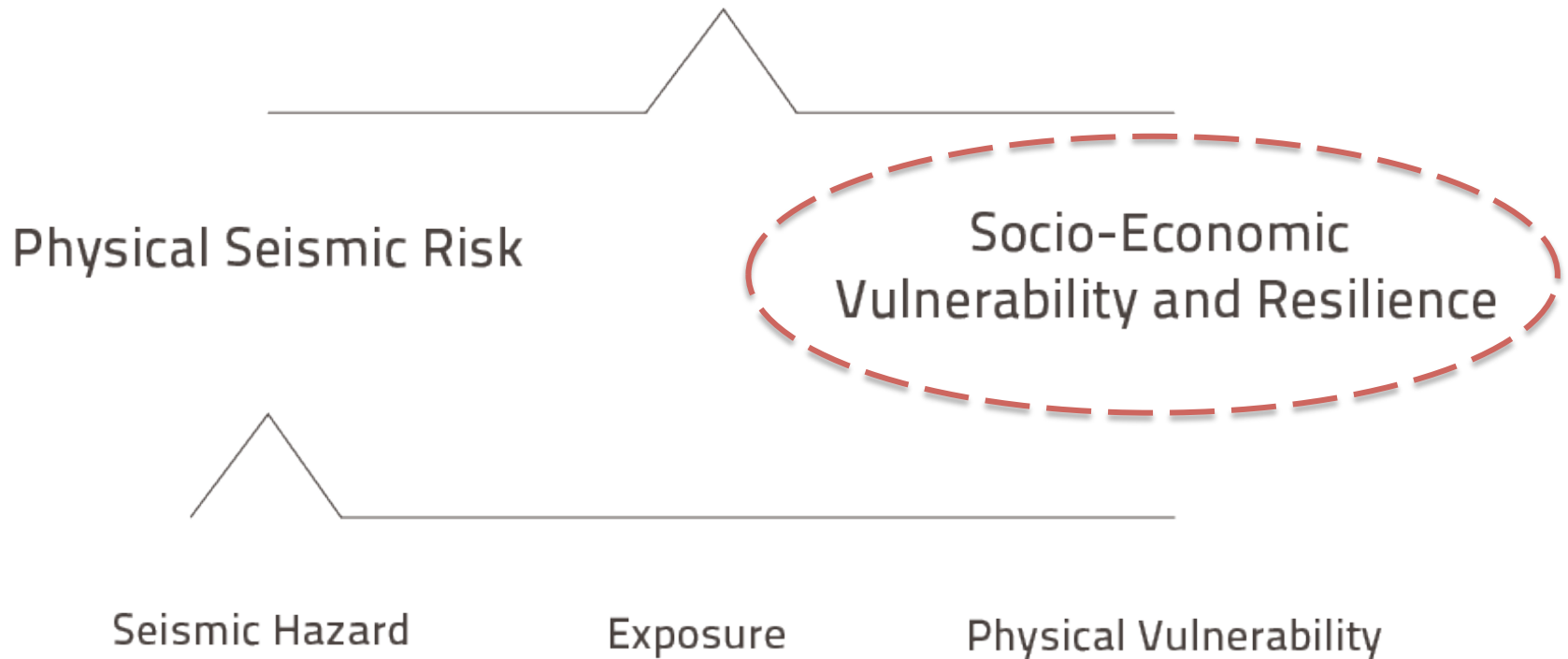




# Resilience Modeling is Key to GEM

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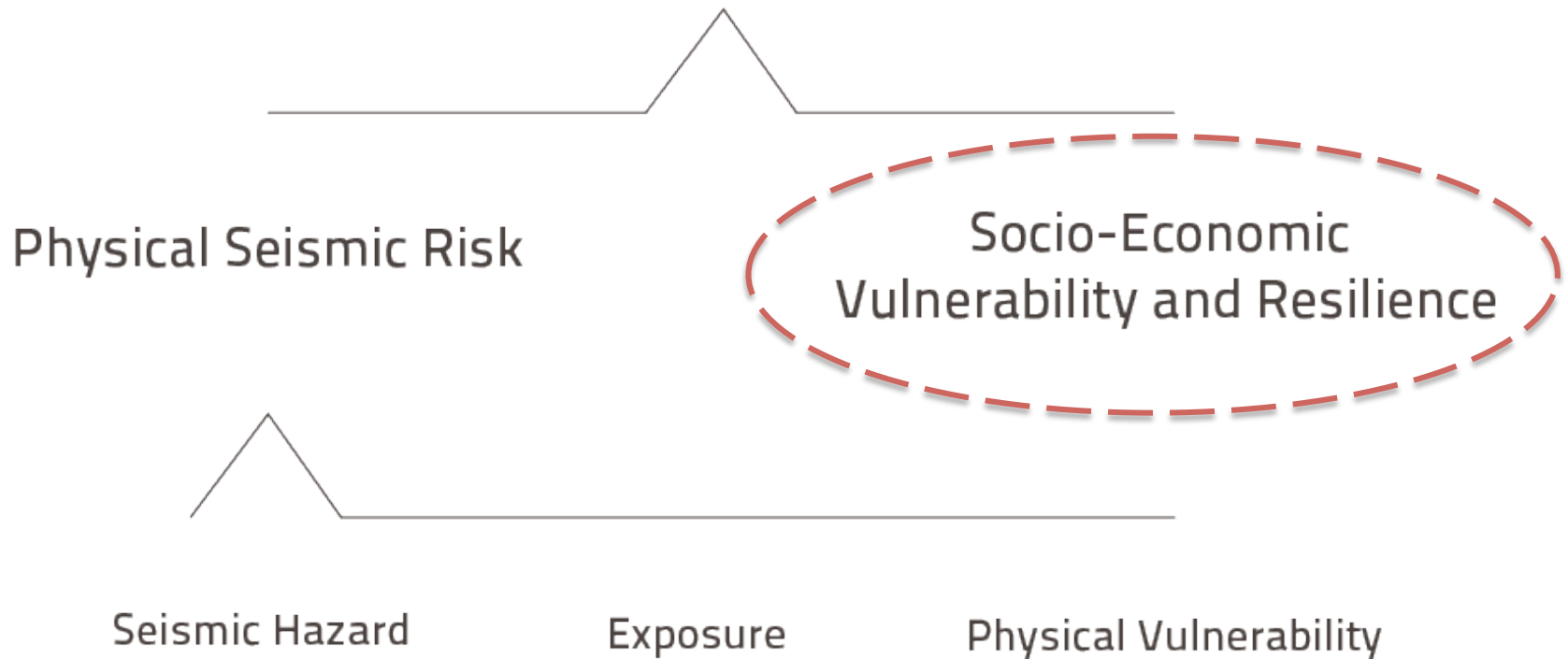
Integrated Seismic Risk



# Resilience Modeling is Key to GEM

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Integrated Seismic Risk





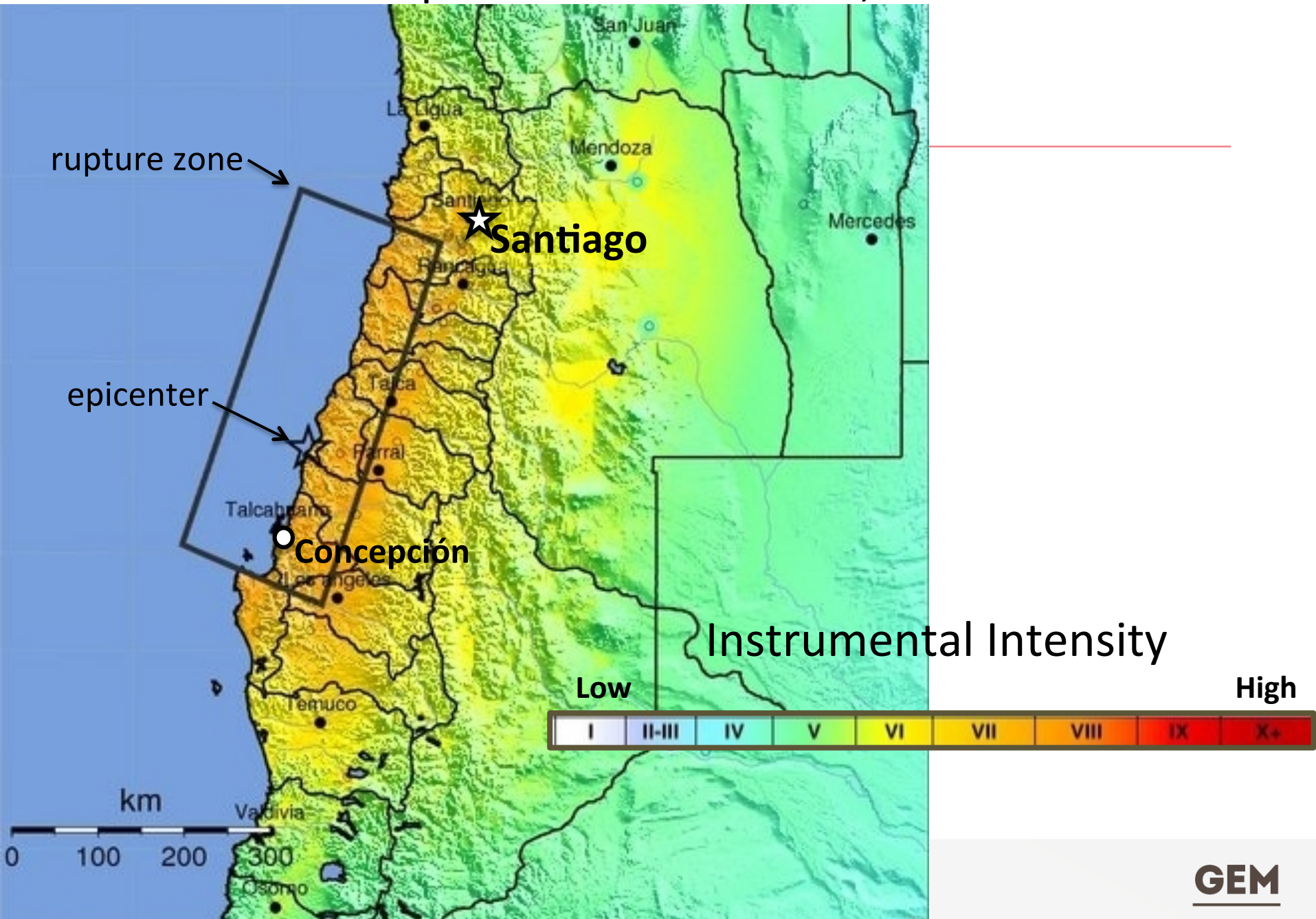
# M8.8 central Chile

Feb 27, 2010

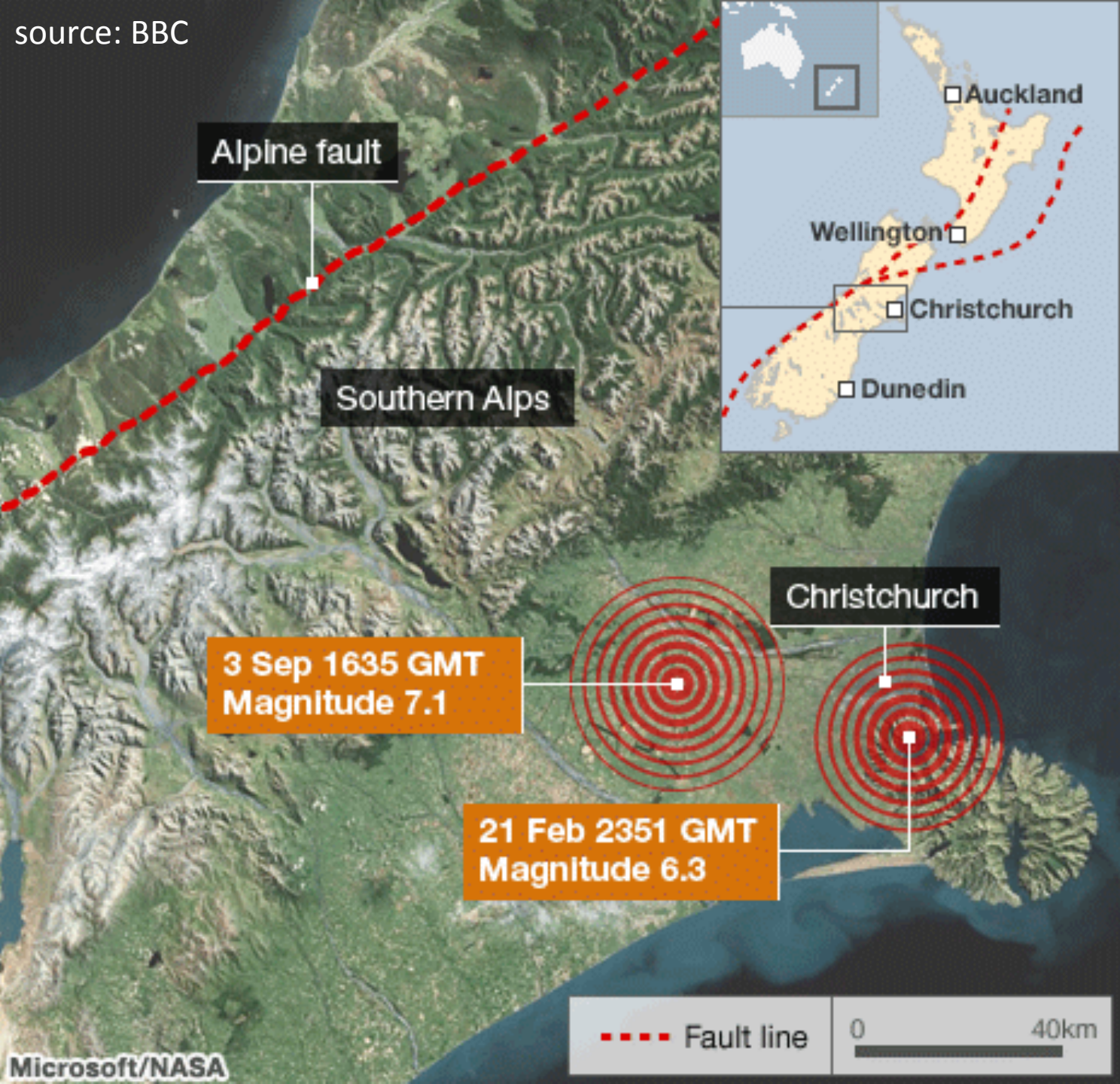




# USGS ShakeMap: OFFSHORE MAULE, CHILE



source: BBC



Alpine fault

Southern Alps



3 Sep 1635 GMT  
Magnitude 7.1

21 Feb 2351 GMT  
Magnitude 6.3

Christchurch

--- Fault line

0 40km

Microsoft/NASA

GEM

# Christchurch Central Business District

Red zone  
boundary on May  
27, 2011  
(36 city blocks)

Zone decreased  
in size, but...

Cordon was not  
fully lifted until  
June 2013



Current as of 12noon 27 May 2011

Temporary traffic management subject to change.  
Drive with caution and obey traffic signage.  
Cordon opening dates have been, and will continue to be,  
dependent on the ability to make these areas safe to enter.

## Cordon Reduction Map Zone 6

credit: CERA







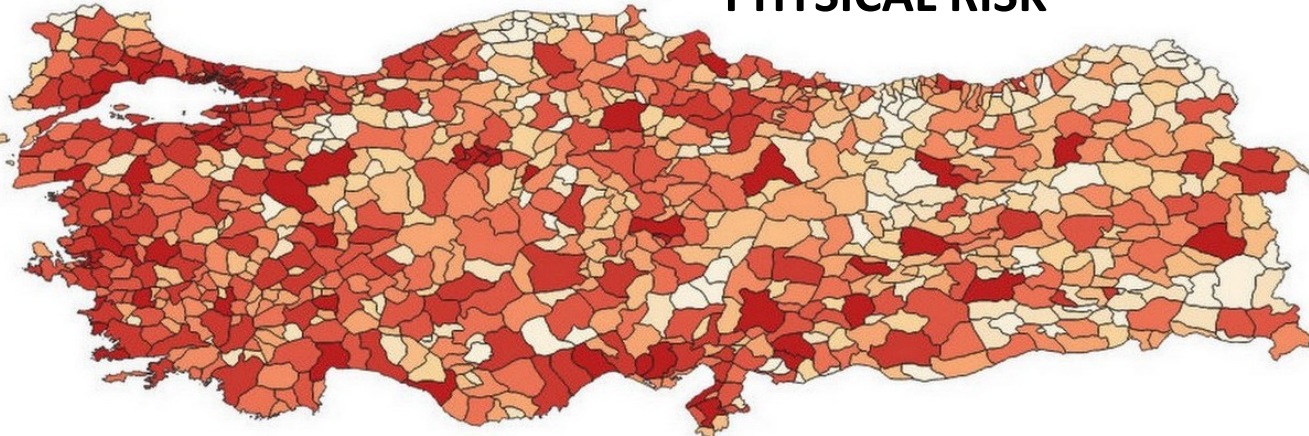
# San Francisco, then and now



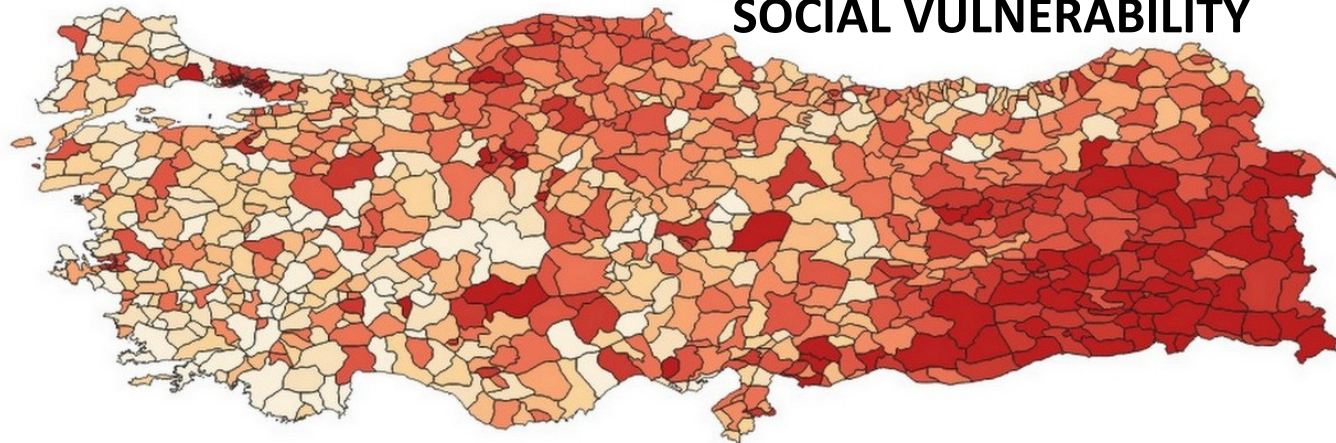
# Integrated Risk in Turkey

OpenQuake  
assessment:  
Social  
vulnerability  
shifts risk  
eastward

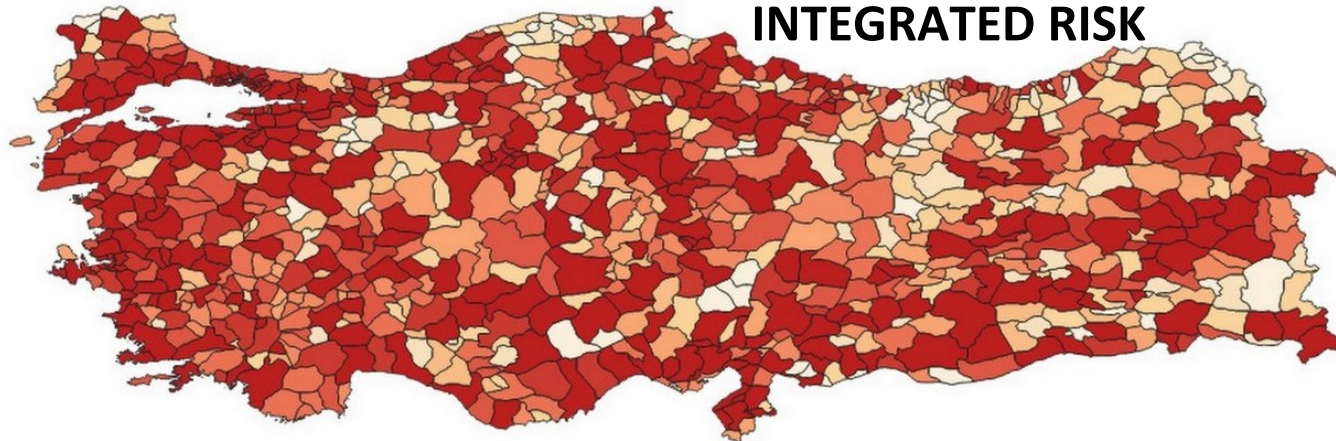
**PHYSICAL RISK**



**SOCIAL VULNERABILITY**



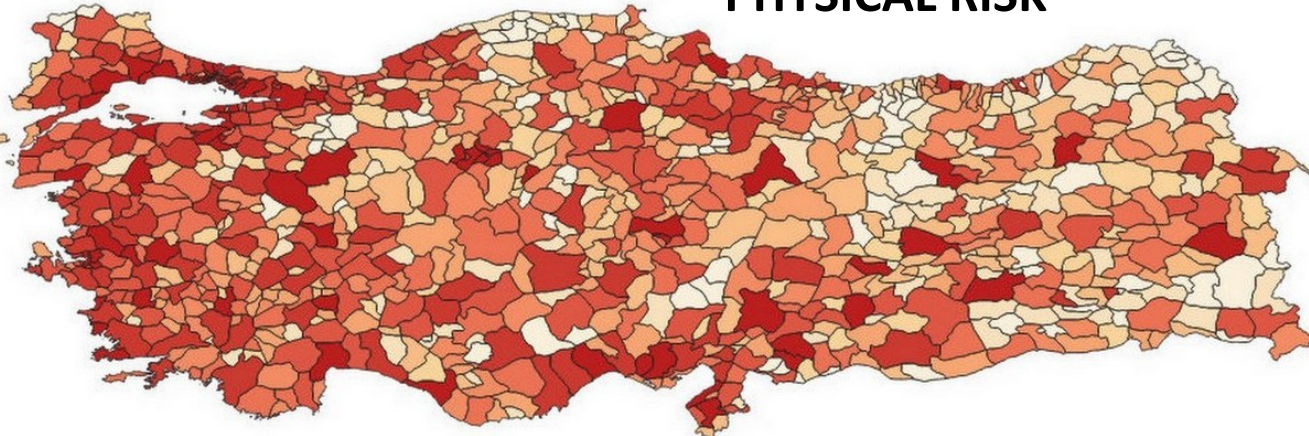
**INTEGRATED RISK**



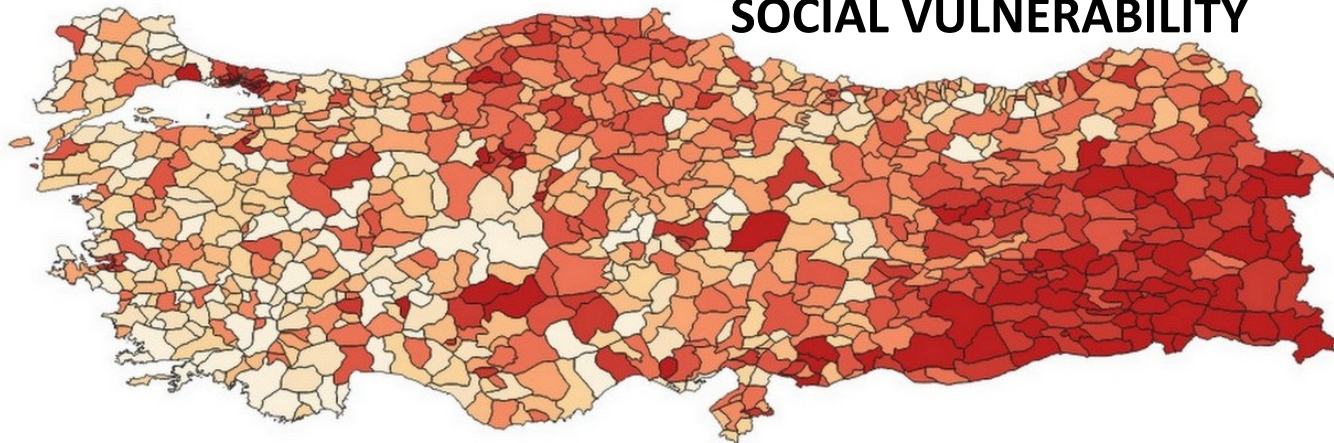
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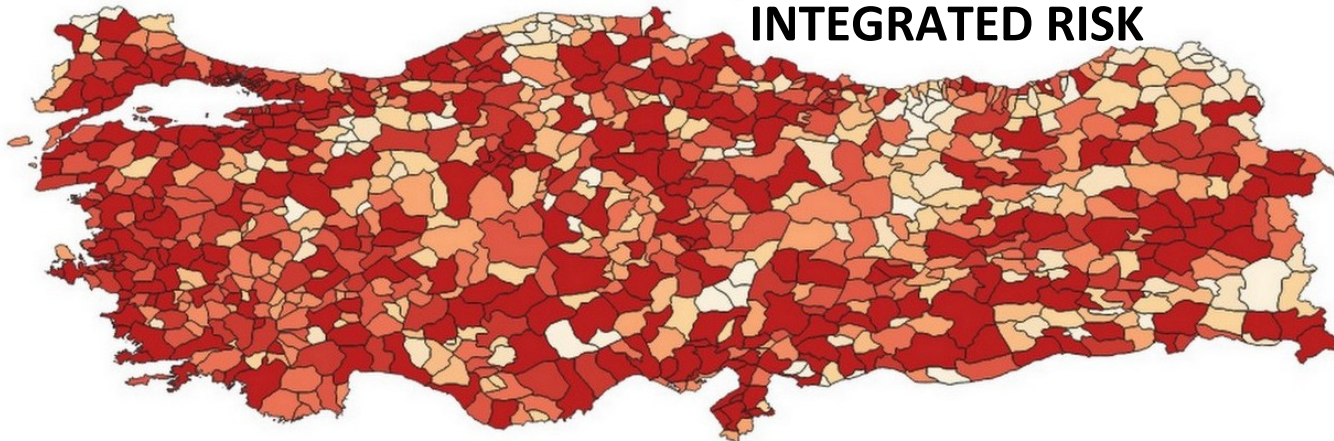
**PHYSICAL RISK**



**SOCIAL VULNERABILITY**



**INTEGRATED RISK**







OLD MONASTERY  
THANKA  
PAINTING  
ART SCHOOL

Hotel Apartments

रक्तकर्मिका  
रक्तकर्मिका  
Karna Warriors  
Nepal  
Nepal  
Nepal

नेपाल राष्ट्रिय  
राष्ट्रिय

B.K.N.

107 99



Hon. Herbert Bautista,  
Mayor of Quezon City



**Nov. 8, 2013  
supertyphoon  
Haiyan**

**Oct. 15, 2013  
M7.2**

# Beyond Physical Risk: *Panelists*

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**Dr. Susan Cutter**, University of South Carolina

**Dr. Louis Gritzo**, FM Global

**Loy Rego**, Mainstreaming Adaptation, Resilience and Sustainability into Development

**Honorable Herbert Bautista**, Mayor of Quezon City, The Philippines

**Dr. Amod Dixit**, Director of Nepal Society of Earthquake Technology

**Dr. Bijan Khazai**, Center for Disaster Management and Risk Reduction

**Dr. Christopher Burton**, GEM Foundation

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working together  
to assess risk

**GEM**  
GLOBAL EARTHQUAKE MODEL

**OO**  
OPENQUAKE