

# Reality Check Workshop Adaptation on the ground in Istanbul



Istanbul-Turkey

April 2018





# Istanbul

Total Area  
5.345 Km<sup>2</sup>



Urban Area  
%26,12



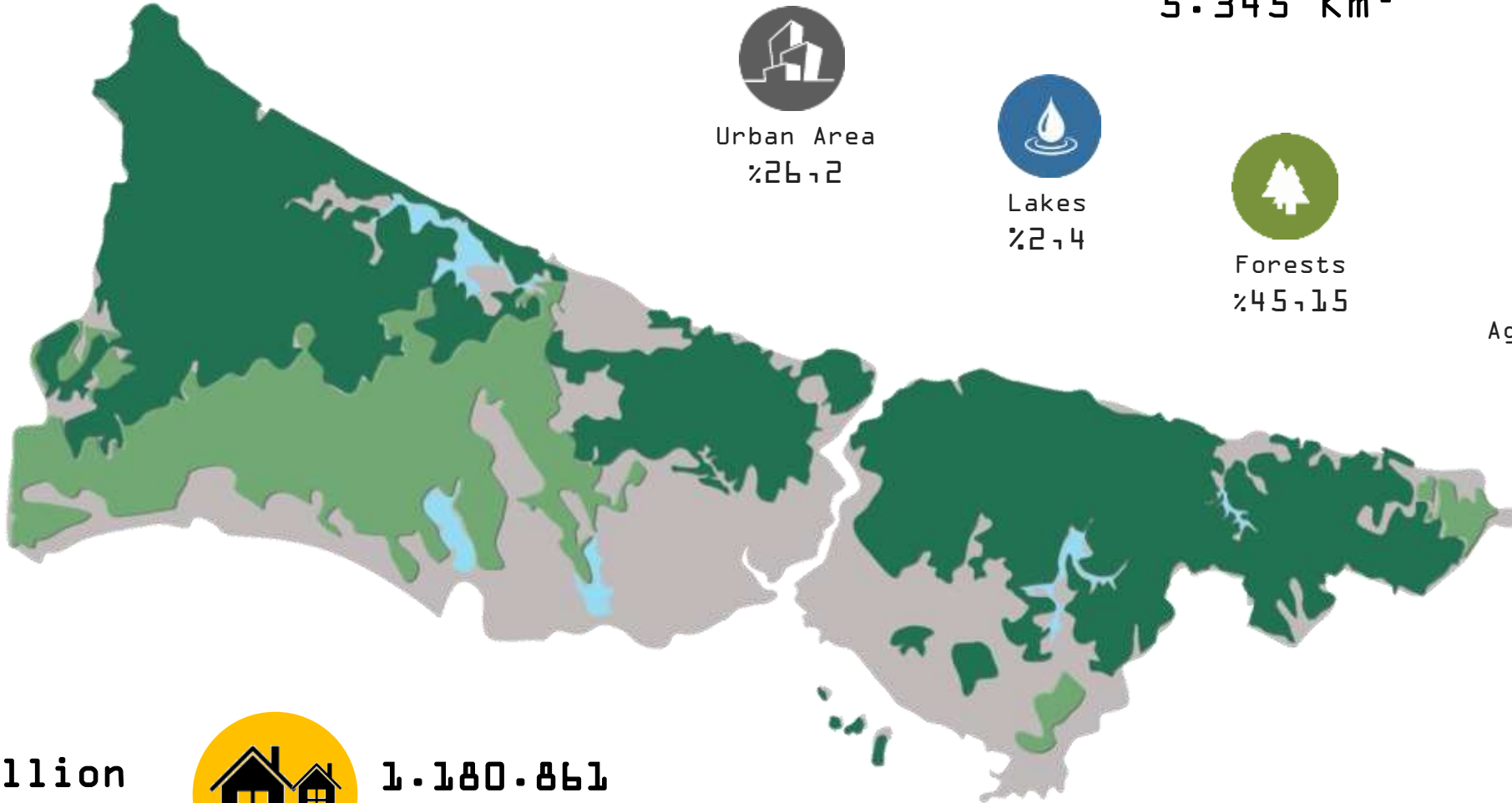
Lakes  
%2,4



Forests  
%45,15



Agricultural Area  
%26,25



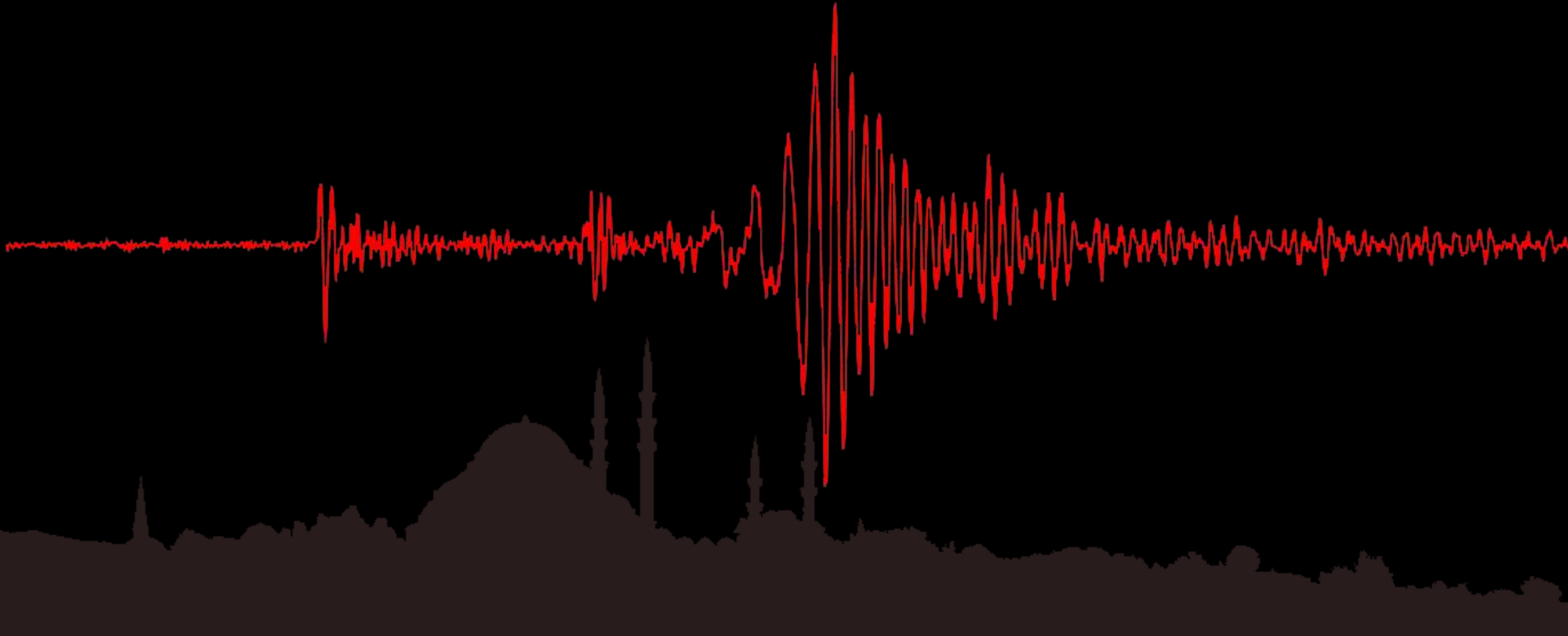
15 Million  
Population



1.180.861  
Buildings

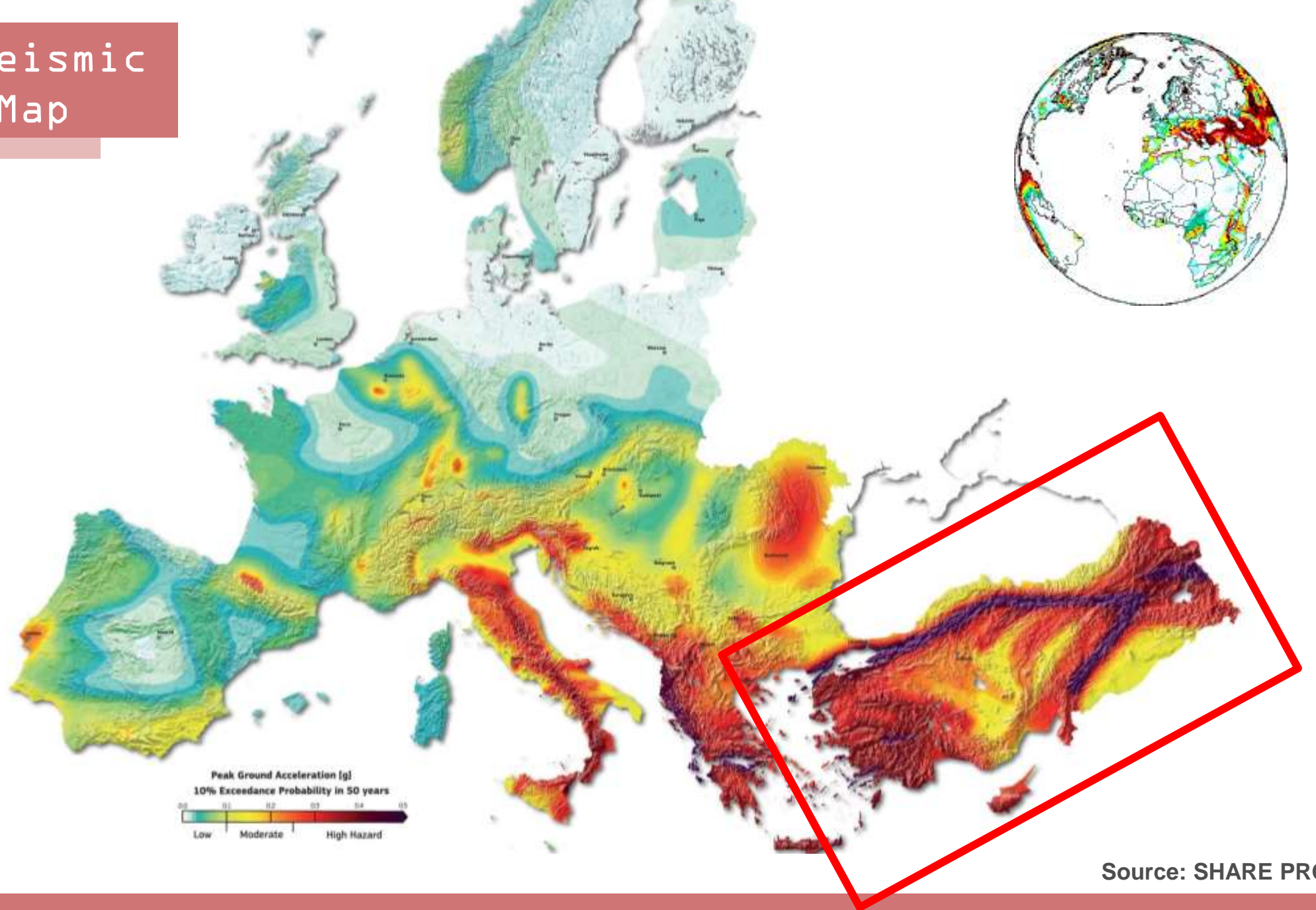
CURRENT STATE

# Istanbul and Earthquake



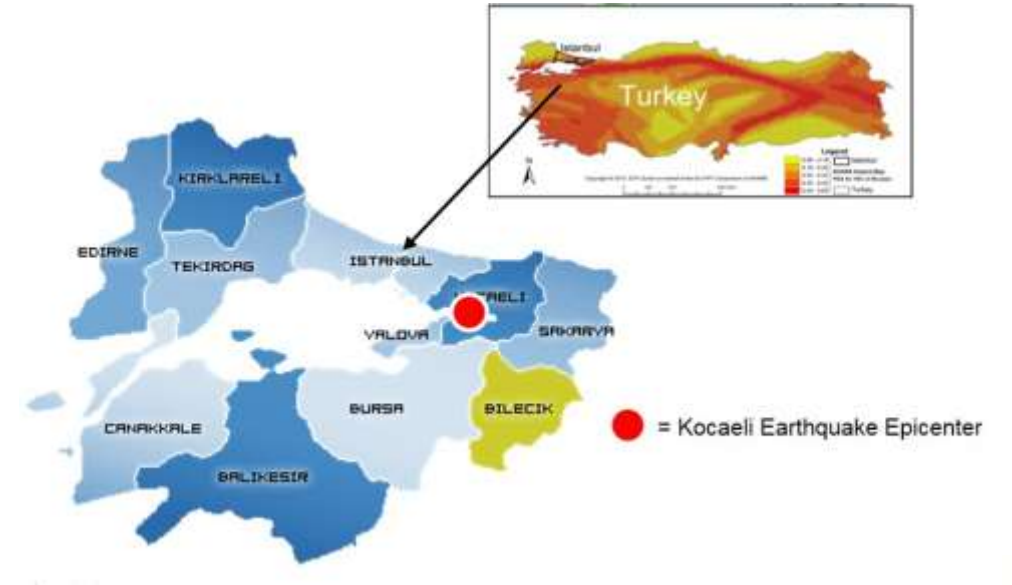
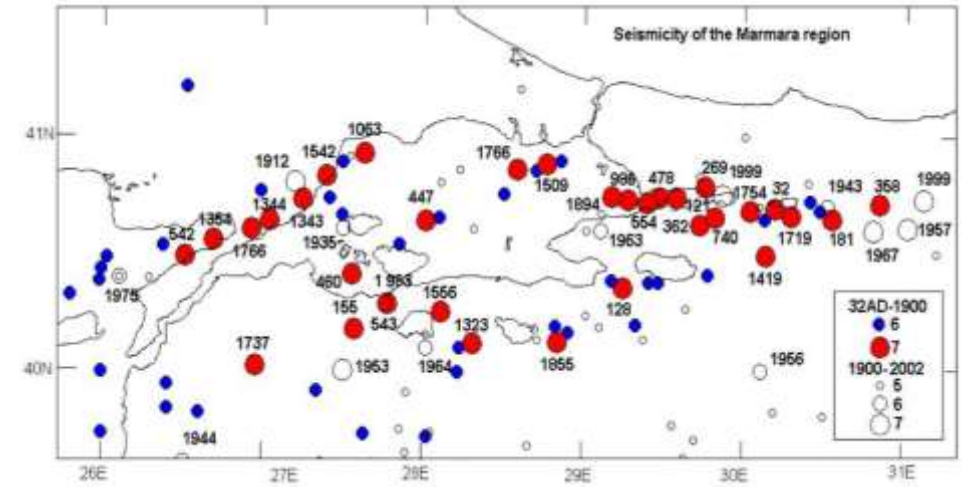
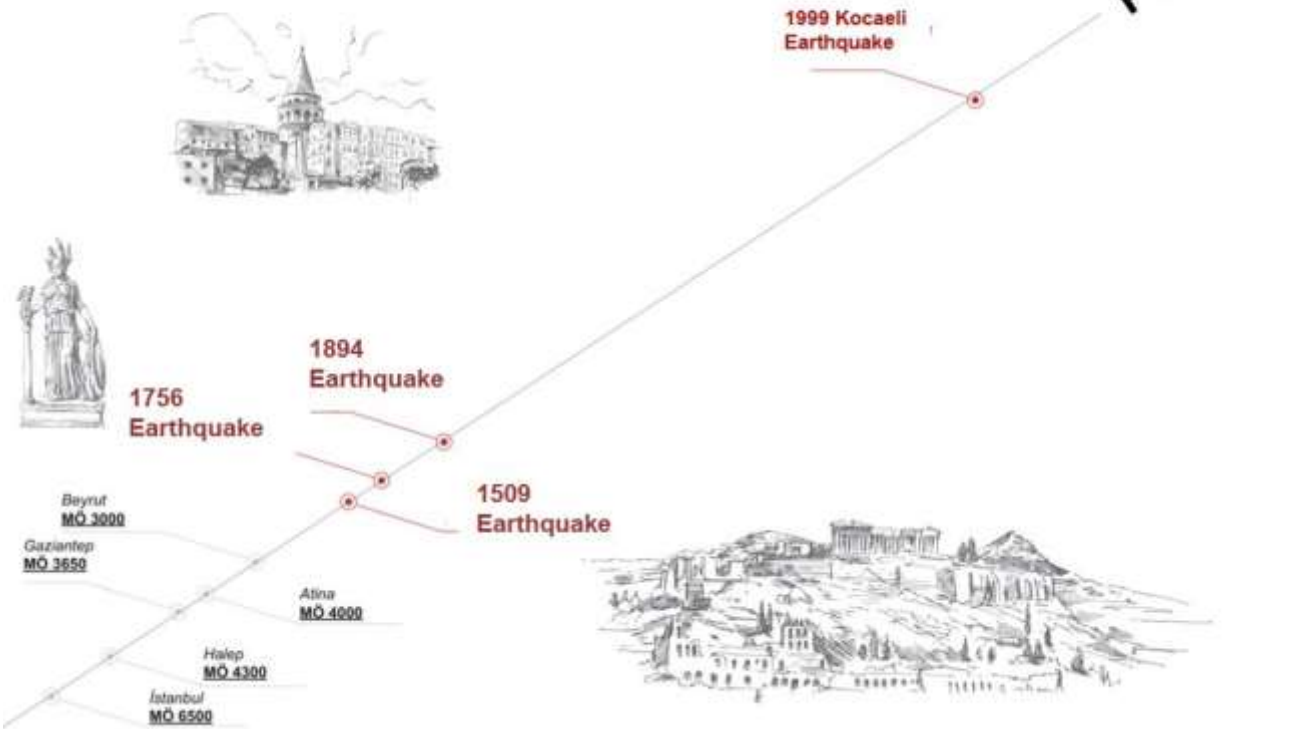
Süleyman KARALI / Betül ERGUN KONUKCU Ph.D.

# European Seismic Hazard Map





# Historical Process



# Historical Process

Milestone  
e

17/08/1999  
Kocaeli  
Earthquakes



2002

The Study on A Disaster Prevention / Mitigation Basic Plan in I

2003

Earthquake Master Plan for Istanbul (IMM)

2003 -

Urban Transformation Studies based on Earthquake  
(Fatih - Zeytinburnu - Küçükçekmece)

2008

2006 - 2009

Microzonation Projects (IMM)

2007 - 2008

HAZTURK (Loss - Damage Estimation Programme)

2009

Updating of Probable Earthquake Losses for Istanbul

2008 - 2014

Megacity Indicator System for Disaster Risk Management (MegaIST)

2015

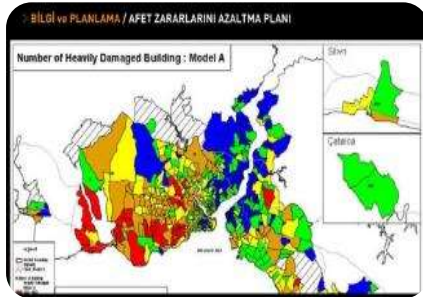
Istanbul Urban Transformation Strategic Plan

2016 - 2018

Istanbul Urban Transformation Master Plan



As a DIAGNOSIS



The Study on A  
Disaster  
Prevention /  
Mitigation Basic  
Plan in Istanbul  
(JICA)  
(2001-2002)

As a TREATMENT



## ISTANBUL EARTHQUAKE MASTER PLAN (2003)

The scope of Earthquake Master Plan for Istanbul comprised of works to be done in the following areas;

- a) Assessment of current situation
- b) Seismic assessment and retrofitting of existing buildings
- c) Urban planning issues
- d) Legal issues
- e) Financial issues
- f) Educational issues
- g) Social issues
- h) Risk and disaster management issues

and, aimed at planning of the activities in these fields, preparation of implementation programs, and identification of the responsibilities and responsible authorities for earthquake disaster mitigation works to be carried out in Istanbul.

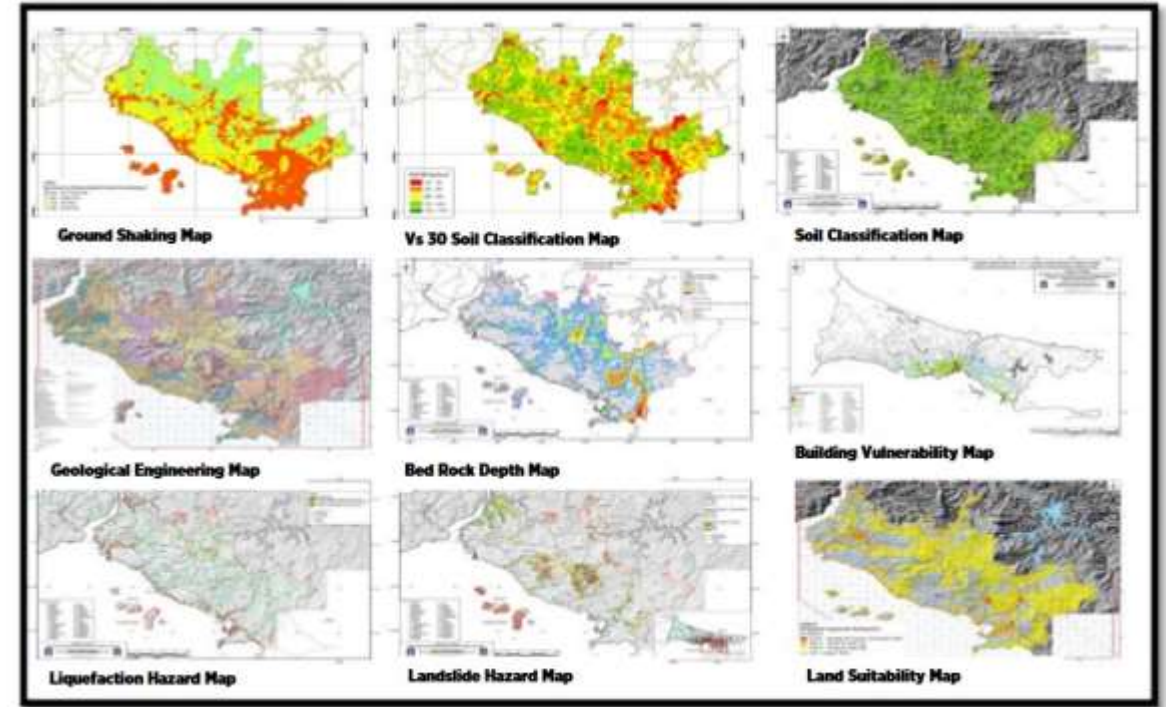
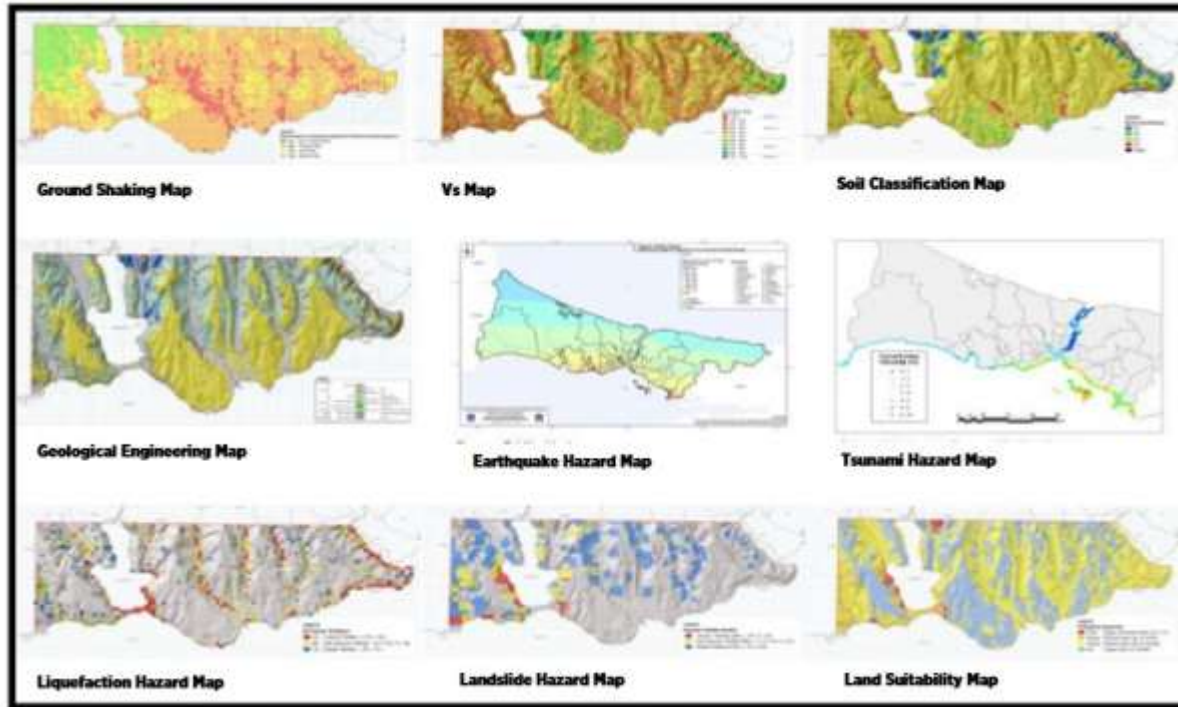


# Disaster Based Studies

## HAZARD MAPS

250m x 250m cell size  
European Side= 182 km<sup>2</sup>  
4364 mechanical drilling with 125.578,90 m

250m x 250m cell size  
Anatolian Side= 458,25 km<sup>2</sup>  
5029 mechanical drilling with 118.047m

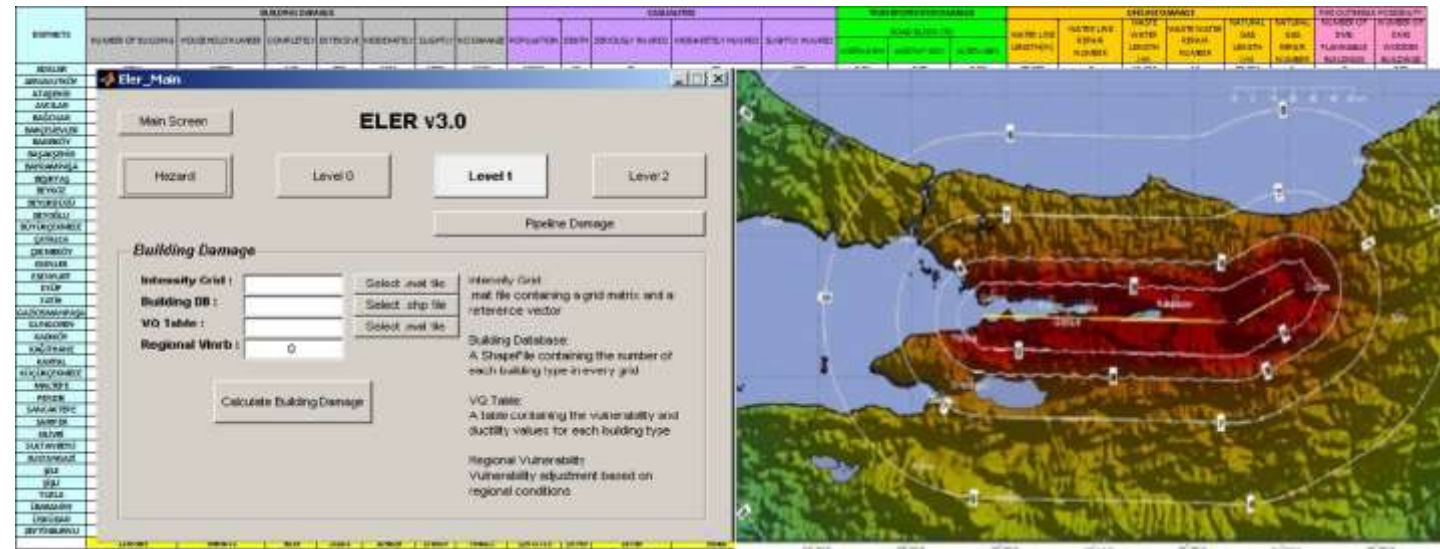


# Disaster Based Studies

Risk

Vulnerability

Hazard



- 3.500 to 5.000 buildings will have heavy damages
- 20.000 to 30.000 buildings will have heavy damage
- 90.000 to 110.000 buildings will have moderate damage
- Earthquake base economical loss due to building damage is around 26 billion TL
- Total economical loss is around 80-100 billion TL.
- Casualty estimation varies between 15.000 to 35.000.
- The number of units which may need urgent accommodation need is around 500.000.

Urban seismic risk  
index

**Physical Risks**

- Building Damage
- Casualties
- Lifeline Damage
- Road Blockage
- Fire Outbreak Possibility

**Social Vulnerability**

- Demographic Structure
- Disability and Special Treatment Needs
- Access to Health Service
- Education Status
- Economic Status
- Mobility
- Community Preparedness

Coping capacity  
index

**Coping Capacity**

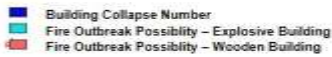
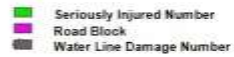
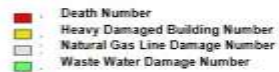
- Rescue and Recovery Capacity
- Sheltering Area Support Capacity
- Infrastructure Improvement Capacity
- Debris Removal Capacity

Performance  
based  
administrative  
monitoring  
process

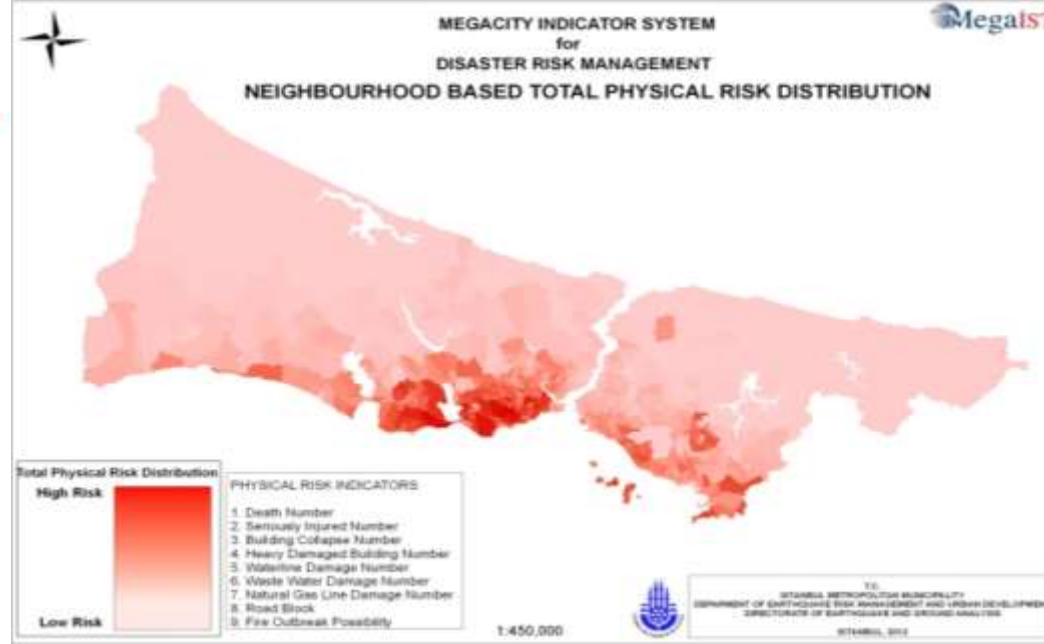


# MEGACITY Indicator System For Integrated Disaster Risk Management

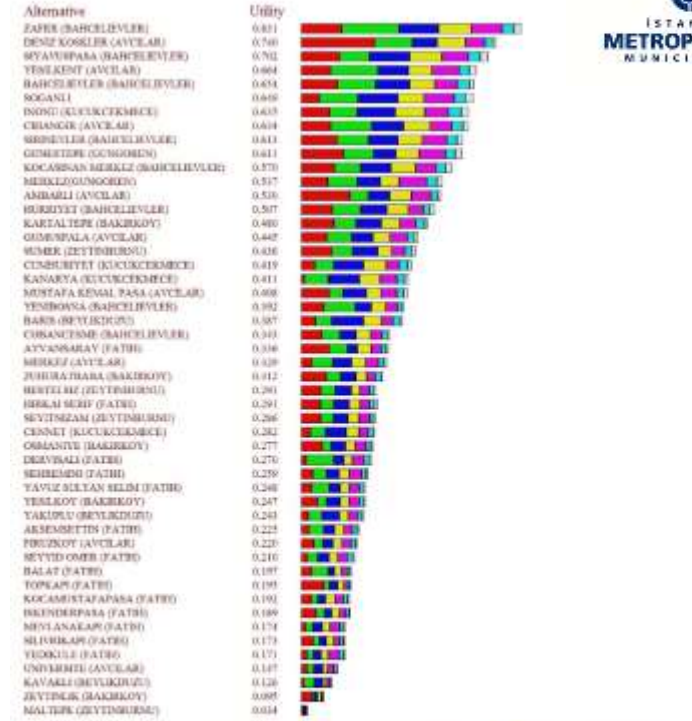
Ranking for Physical Risk Indicators Goal



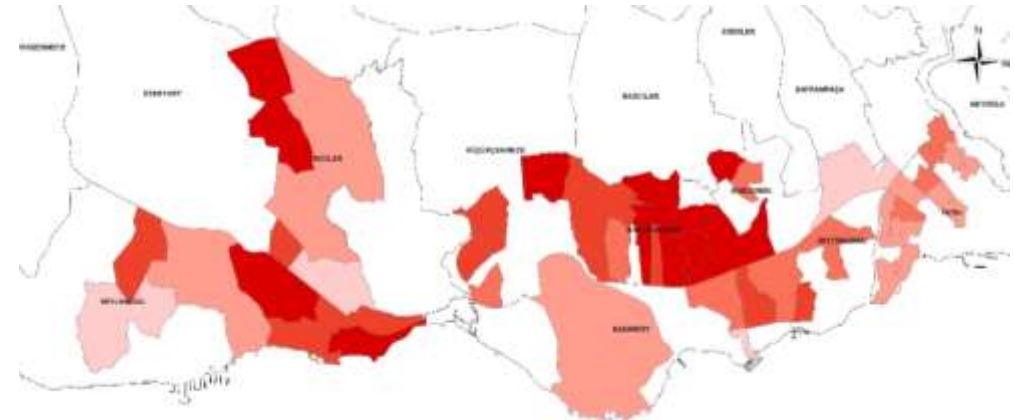
Preference Set = NEW PREF. SET

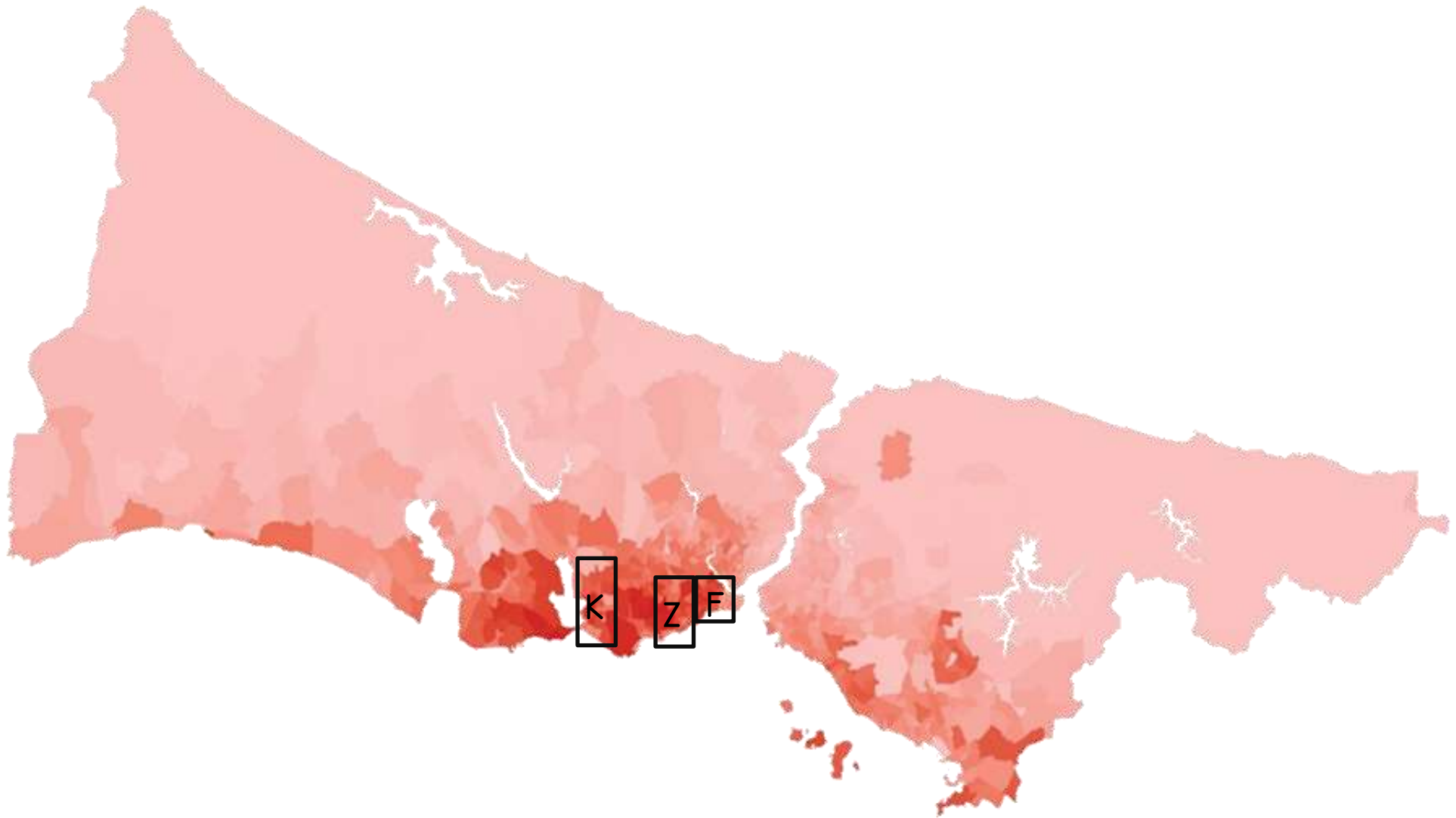


Ranking for SOCIAL VULNERABILITY Goal



Preference Set = NEW PREF. SET



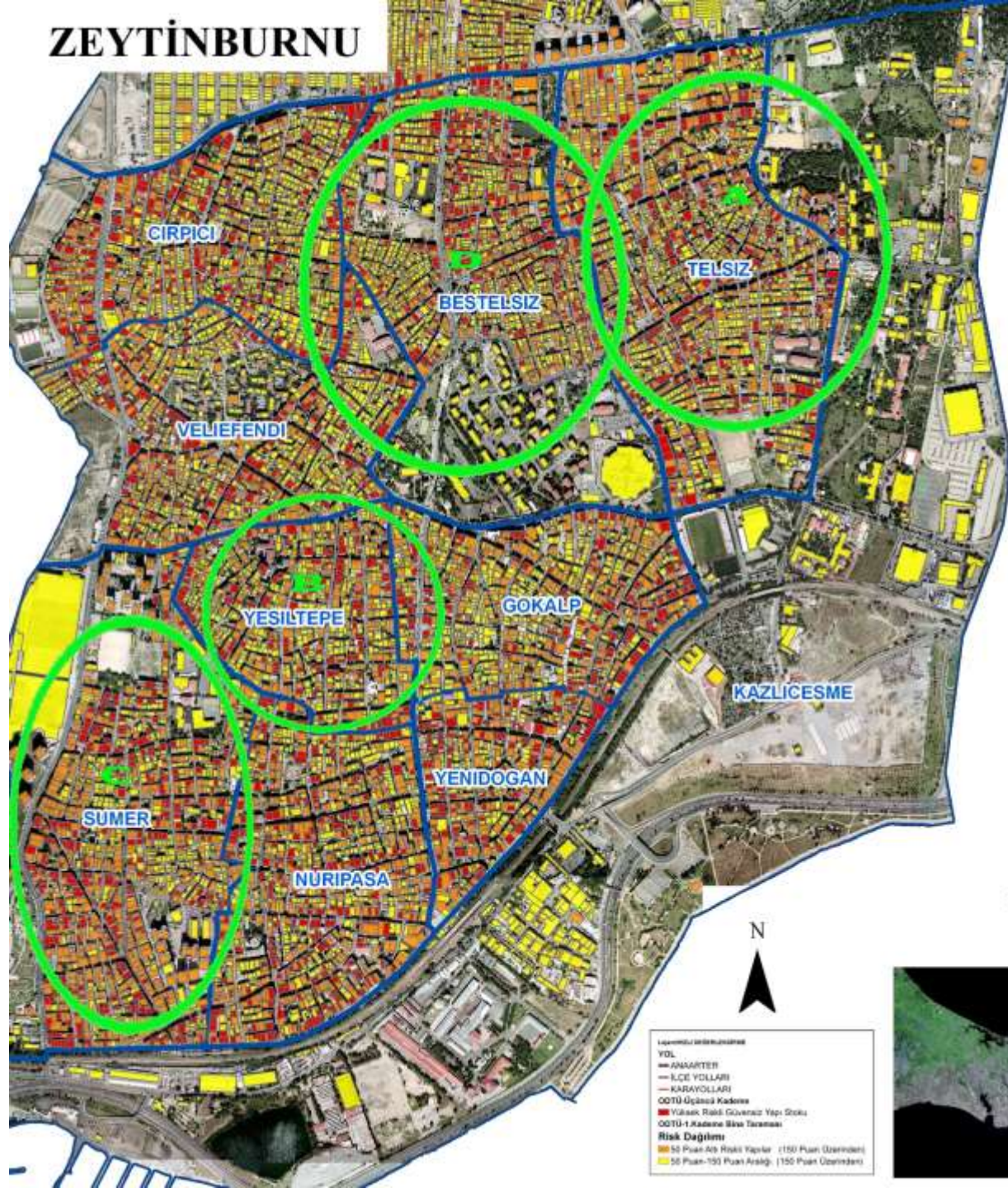


Earthquake Based Urban Transformation Studies

Gökhan YILMAZ / Didem ÇALIŞKAN



## ZEYTİNBURNU



Some Risky Districts due to the engineering studies



A) TELSİZ MAHALLESİ



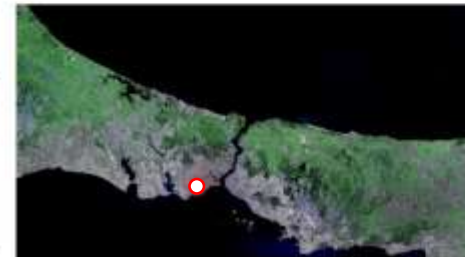
B) YEŞİLTEPE MAHALLESİ



C) SUMER MAHALLESİ



D) BEŞELSİZ MAHALLESİ

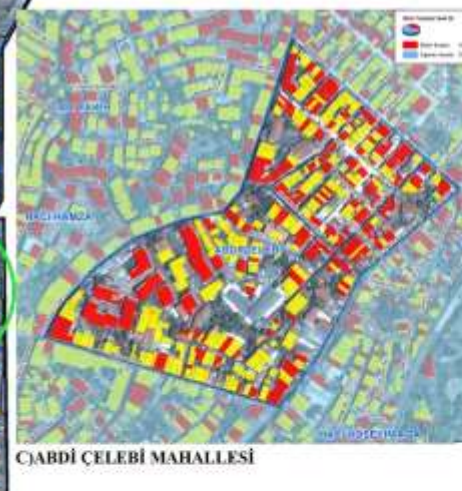
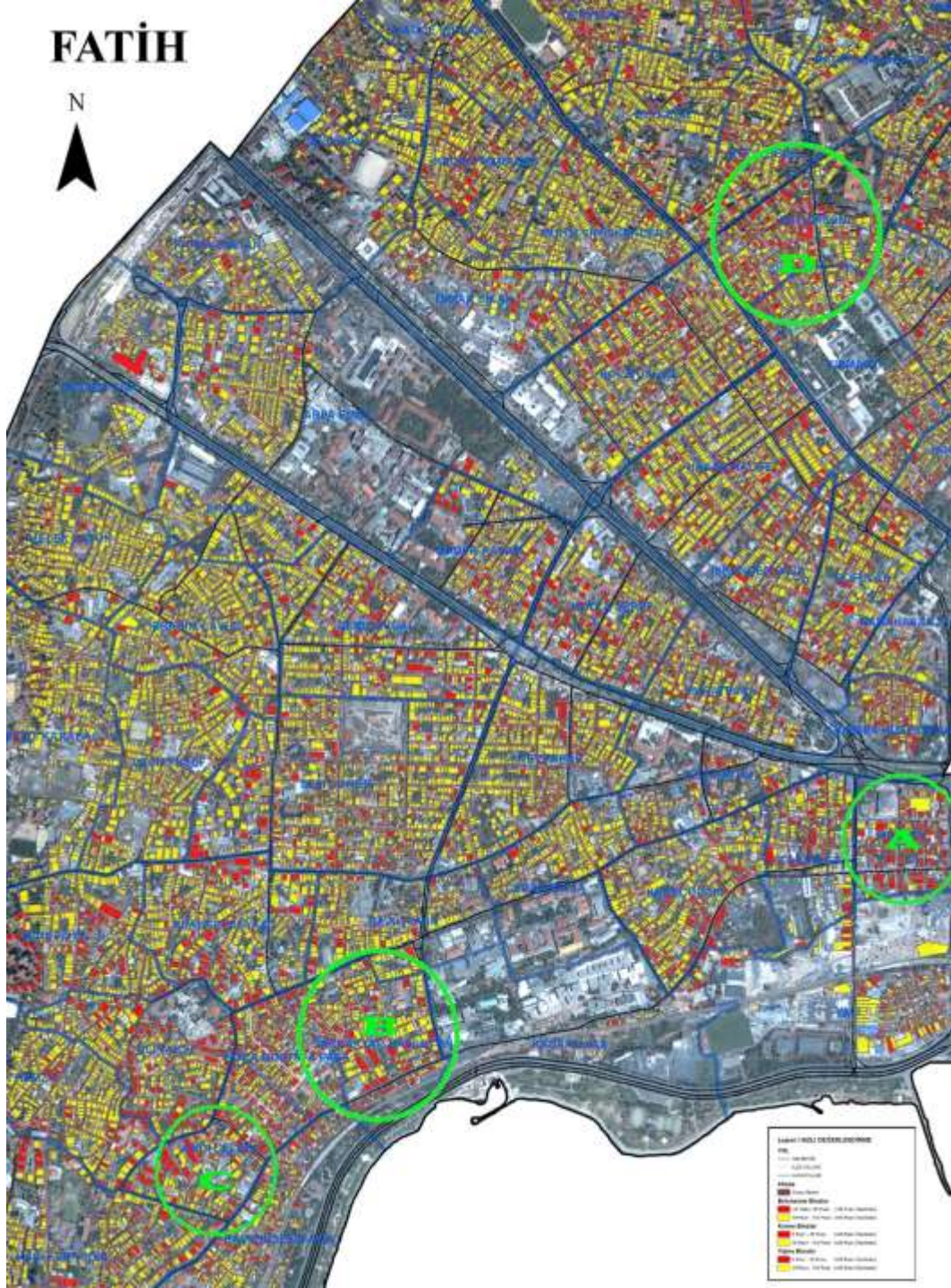




# EARTHQUAKE BASED STUDIES



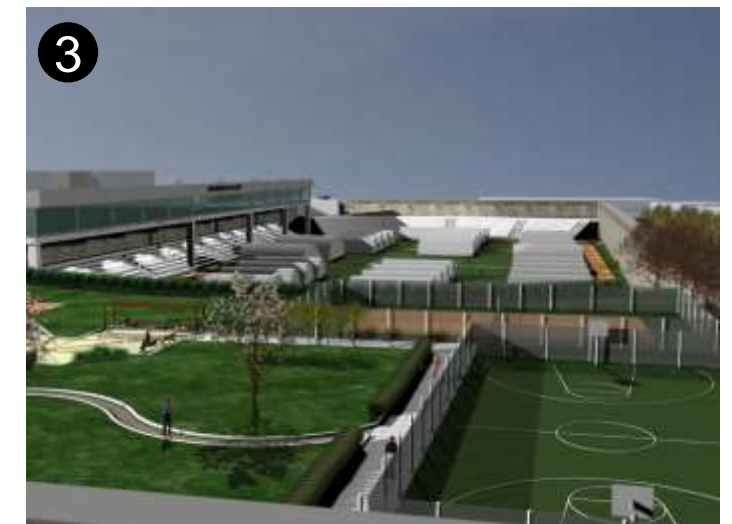
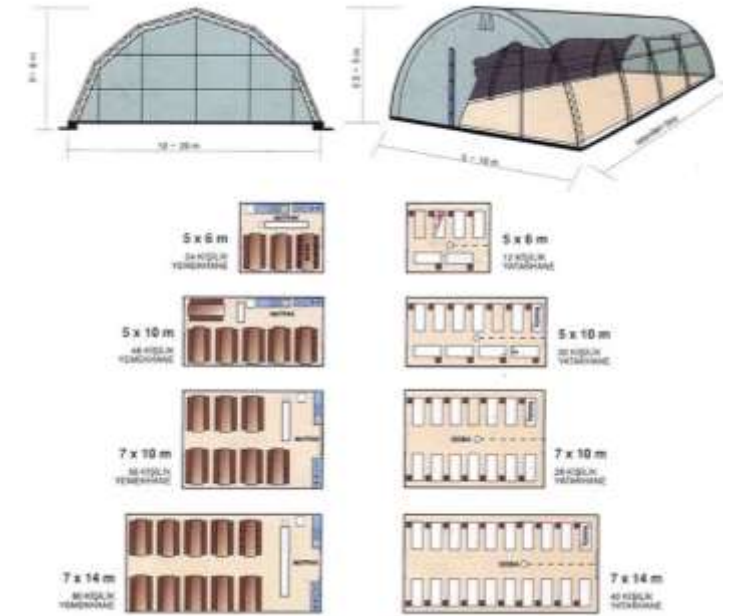




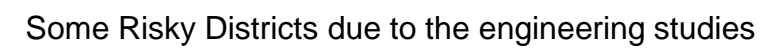
Some Risky Districts due to the engineering studies



# Latin 10 Project Areas











SahilPark  
VELIEFENDİ

600

Residential Units



The istanbul  
VELIEFENDİ

484

Residential Units





# **İSTANBUL KENTSEL DÖNÜŞÜM MASTER PLANI**

URBAN TRANSFORMATION  
MASTER PLAN

Istanbul Urban Transformation Master Plan Study (IKDMP)

Seniye Selcen ÖNÜR / Semih ADİL



# ISTANBUL URBAN TRANSFORMATION MASTER PLAN (IKDMP)

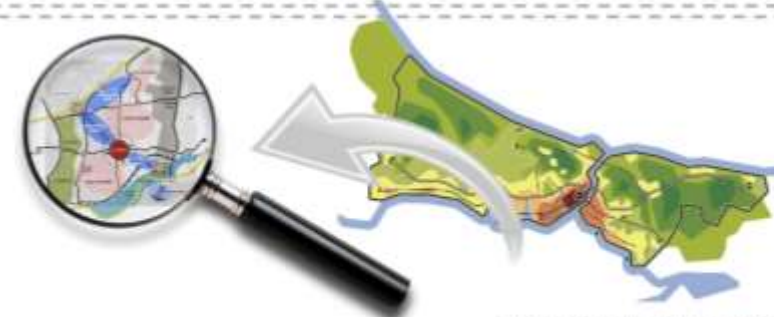


1



Economic Plan

2



City Scale Transformation Masterplan

3



Detailed Masterplans for Priority Areas



■ Istanbul Metropolitan Municipality will ensure urban transformation is delivered that is **sustainable, resilient** and contributes to **long term economic** and **population growth requirements** while maximising **the quality of life** for all residents.





# IKDMP

## Vision & Themes



The IKDMP will take a holistic approach to urban transformation ensuring that Istanbul in the future is...

## VISION

1

### SAFE

Citizens and businesses are safe and protected from natural hazards and future risks

2

### SUCCESSFUL

The quality of life and prosperity of all citizens is raised as the city grows

3

### ACCESSIBLE

Citizens are well connected to neighbourhoods, centres, city systems, services and infrastructure

## THEMES

- Urban Resilience
- Natural + Historic Environ
- Green Infrastructure
- Built Environment
- Social Structure
- Economy + Employment
- Centres + Community Facili
- Transport
- Utilities
- Holistic Delivery

# Multicriteria Analysis

1



Risk

Earthquake  
Landslide  
Flood  
Fire



Life Quality

Socio - Economics Composite Score  
Transportation

Social Infrastructure and Centres Accessibility Composite Score



Urban Form

Urban Fabric (Pattern)



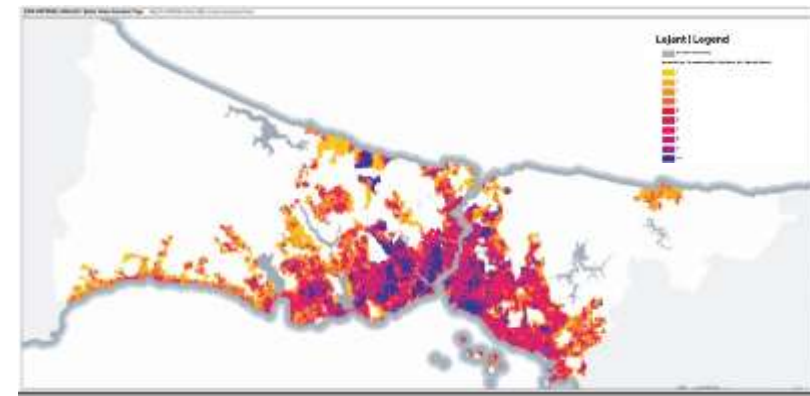
Environmental Conditions

Liquefaction Potential following EQ	Tsunami due to offshore Landslide
Tsunami due to Earthquake	Building Damage due to Landslide
Fire Following Earthquake	Road Blockage due to Landslide
Building Damage Earthquake	Road Blockage due to Flood
Road Blockage due to Earthquake	Fire Prone Buildings
Informal Housing	Proximity to Open Space
Incompatible Residential Use (Surrounded by Industrial Zone)	Proximity to Religion Facilities
Average Household Income (monthly)	Proximity to Educational Facilities
Percentage Employed of Total Population	Proximity to Health Facilities
Percentage of Population Received Higher Education	Local Centre Facility Bus stops, Tram, Metro, Pier
	Facility Catchment
Floor Area Ratio	
Population Density	
Typology	
Solid and Void (Figure -Ground)	
Water Quality	
Water Supply	
Watercourses	
Biodiversity	
Slope	

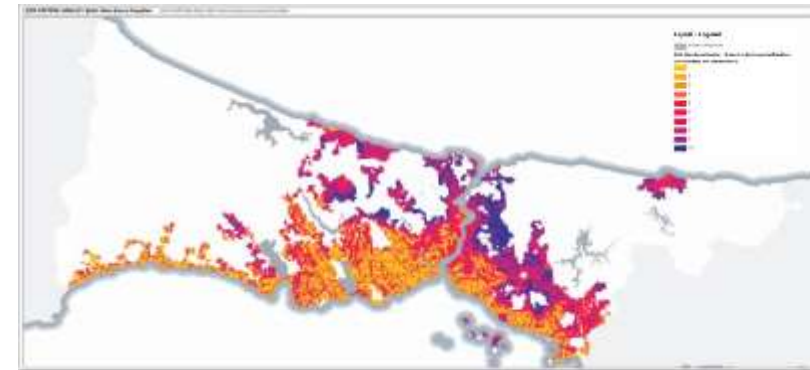


# Determination of Problem Areas for Urban Transformation

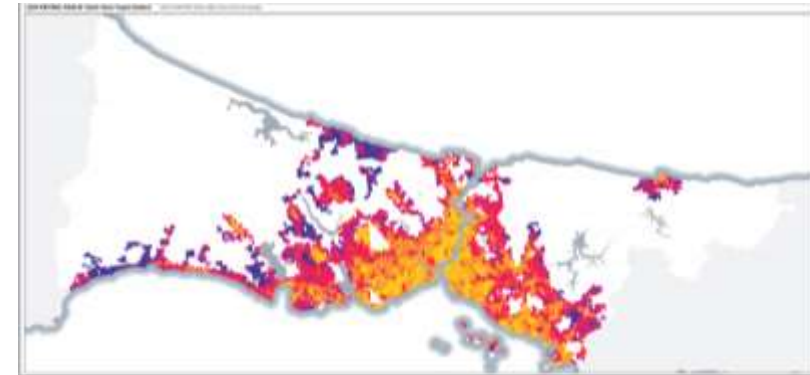
## RISK



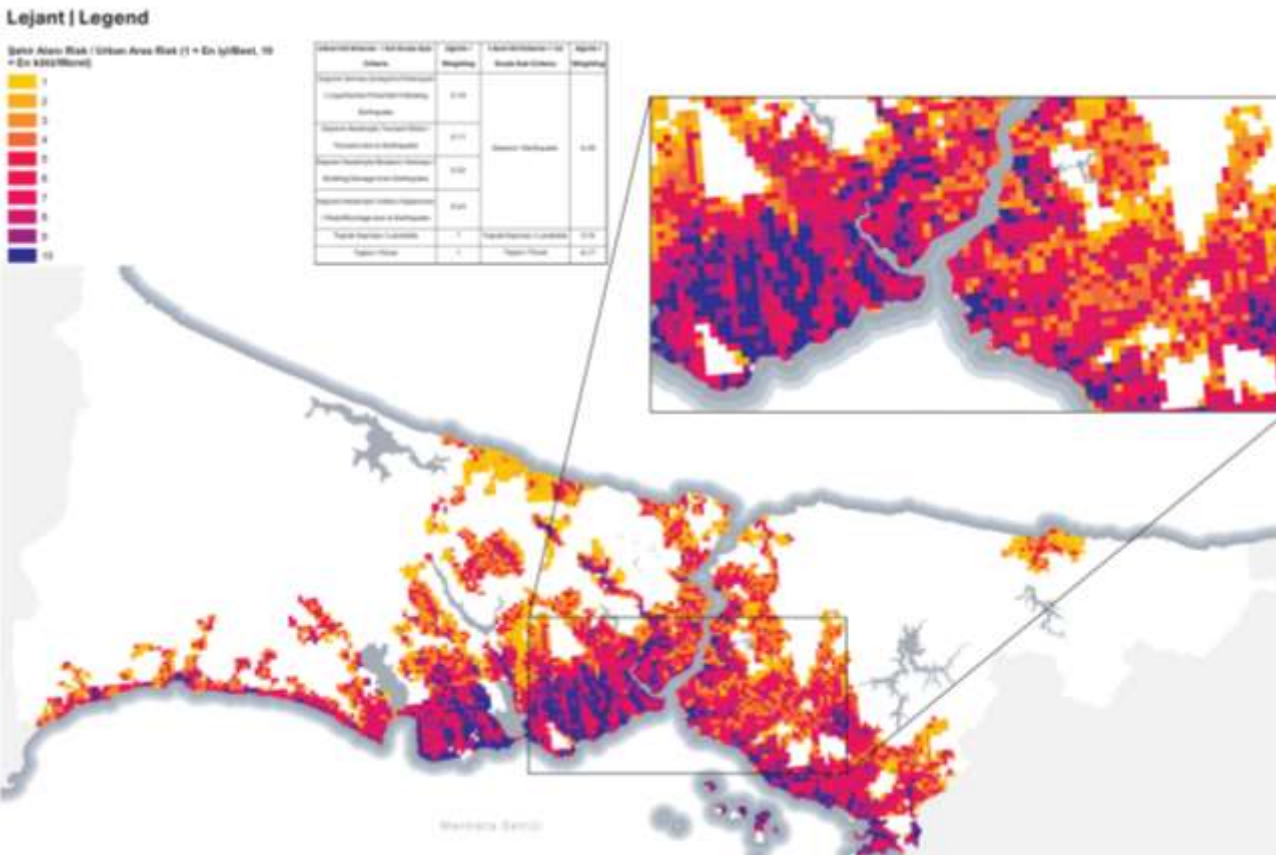
URBAN  
FORM



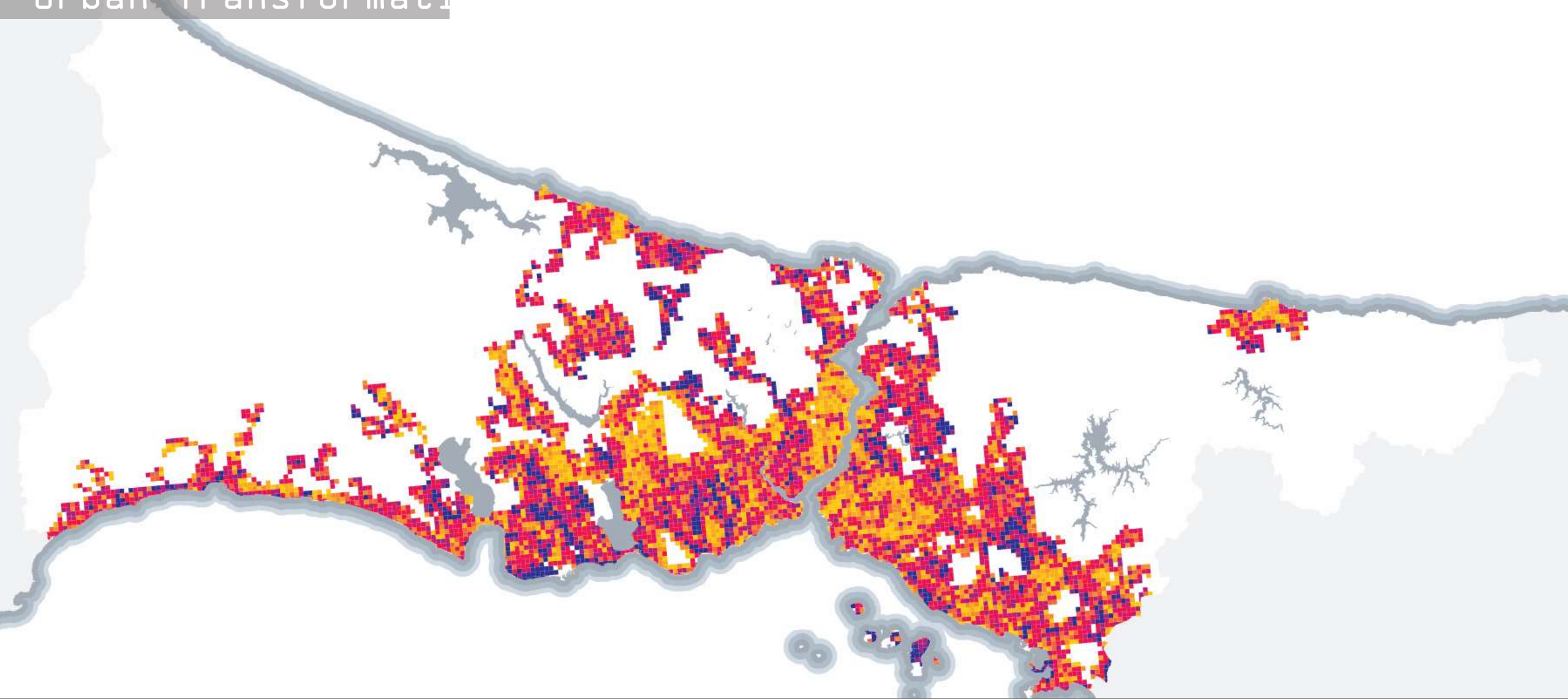
ENVIRONMENTAL  
CONDITION



LIFE  
QUALITY



# Determination of Problem Areas for Urban Transformation







2016: 14.943.319

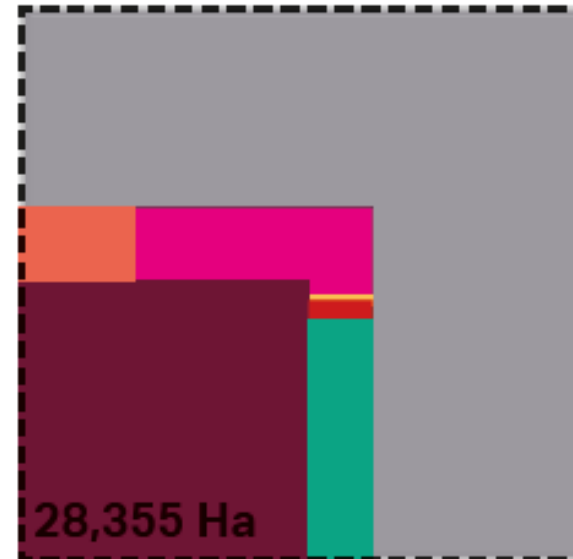
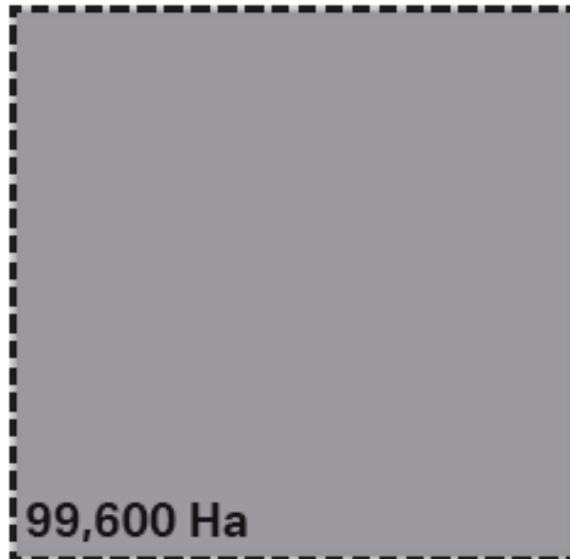
2036: 19.800.000



2016: 5.408.802

2036: 7.880.000

Net Developed Land (2016) Land required by 2036

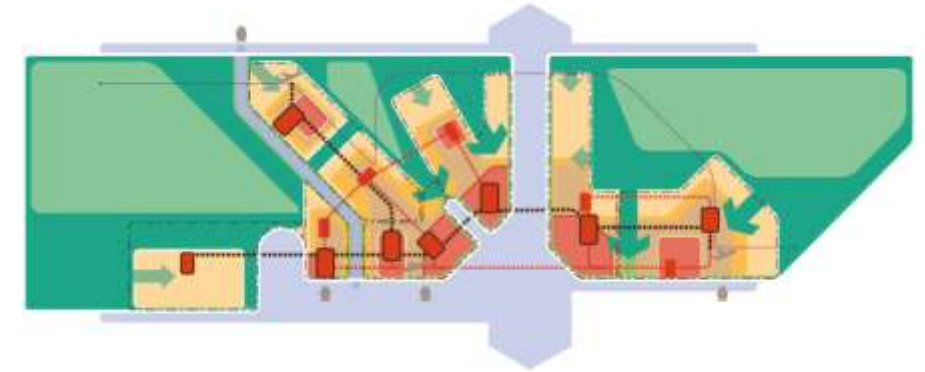
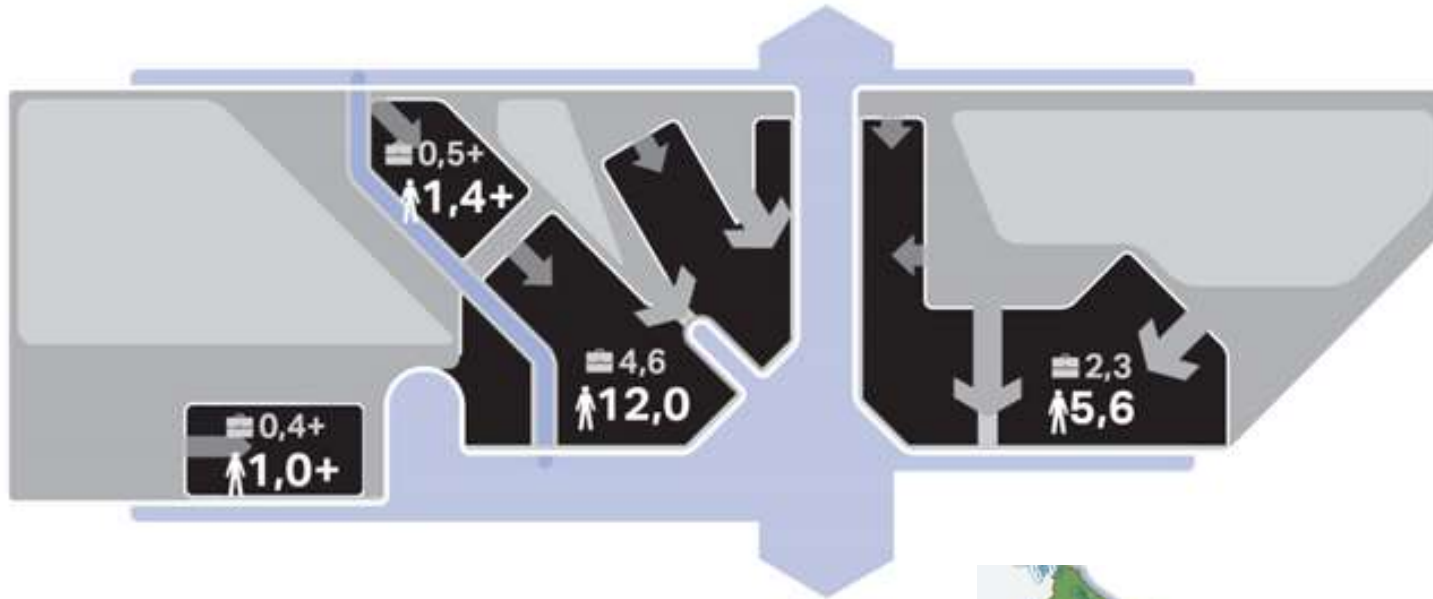


Legend:

- Urban Area
- Commercial
- Hotel
- Office
- Industry & Storage
- Residential
- Social Infrastructure

# IKDMP

## Spatial Strategy & Methodology



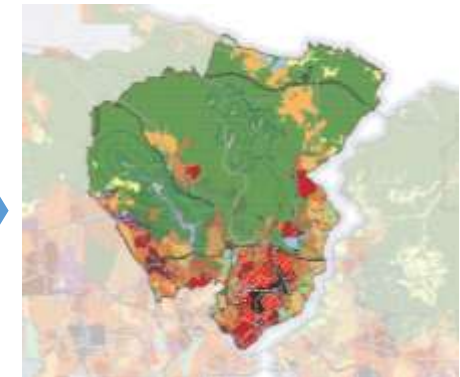
Planning  
Methodology

Projection for  
2036

- 19,8** POPULATION  
million people
- 150** GROSS DENSITY  
people/Ha
- 7.8** EMPLOYMENT  
million jobs
- 132,310** URBAN AREA  
hectares



1- 1/100.000 Scaled UrbanTransformation  
Structure Plan

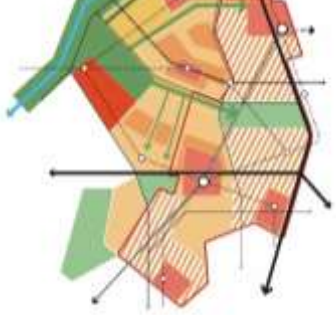


2- 1/25.000 Scaled  
Urban Transformation  
Town Plan

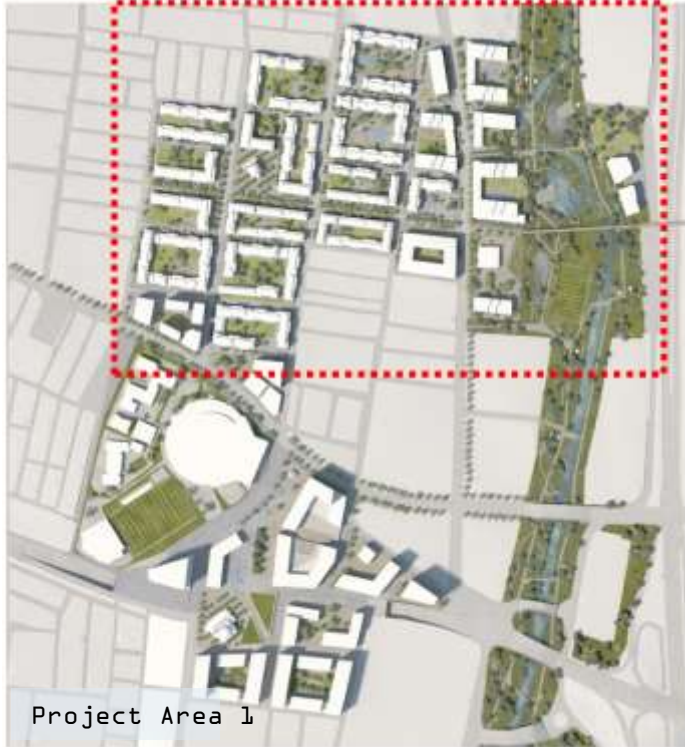


# IKDMP Methodology

3- 1/10.000 -  
1/5.000 Scaled  
Opportunity Area  
Schemes



4- 1/1000- 1/500  
Scaled Priority  
Area Urban  
Transformation  
Plans



Project Area 1



Project Area 2



Project Area 3



Project Area 4



Project Area 5



Project Area 6



Project Area 7



Implementation Studies by using the "Built & Transfer&Evacuate" model on state-owned areas

Ayşe GÖKBAYRAK / Mehmet Akif LEVENT



# BAYRAMPAŞA URBAN TRANSFORMATION PROJECT

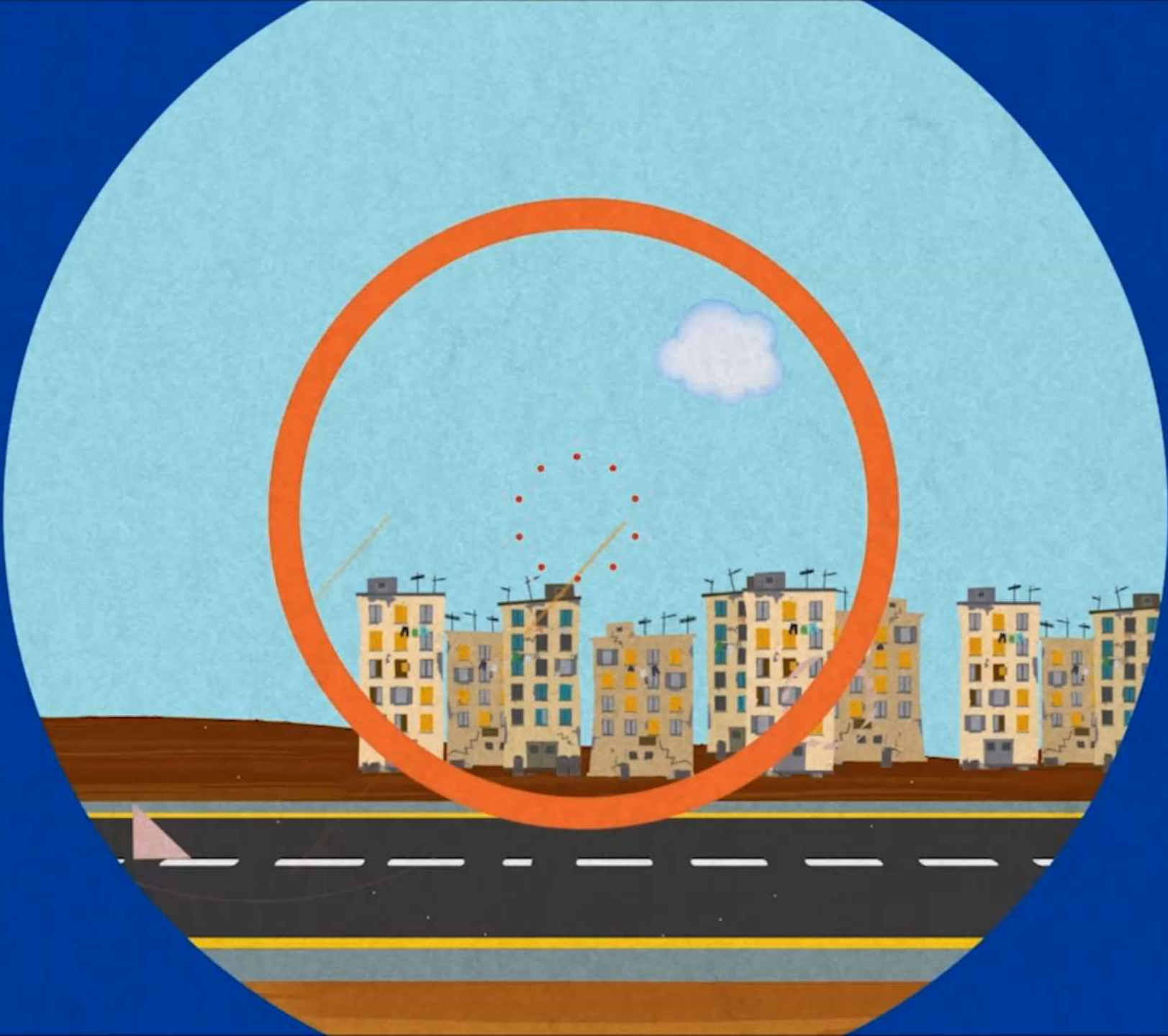


# Urban Transformation Model



Project Area	25 Hectares
Ownership	İBB
Construction Start Date	2016
Project End	2019
Independent Units	2.500
Transformation Model	Build/Transfer/ Evacuate
Residential+Commercial	%40
Reinforcement area	%60







# Stakeholders





# Social Studies





# Architectural & Sustainable Design



BAYRAMPAŞA FORMER PRISON AREA URBAN TRANSFORMATION PROJECT



# istanbul

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