

İSTANBUL SEISMIC RISK MITIGATION and EMERGENCY PREPAREDNESS PROJECT (İSMEP)



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DEPUTY DIRECTOR



May 2023

TURKEY and
NATURAL DISASTERS



Gölcük Earthquake (1999)



Kahramanmaraş Earthquake (2023)



Tüpraş Fire (1999)



İskenderun Port Fire (2023)



EARTHQUAKES

TURKEY and
NATURAL DISASTERS



Istanbul Flood



Adiyaman Flood



Istanbul Flood



Kahramanmaraş Flood



FLOODS

TURKEY and
NATURAL DISASTERS



LANDSLIDES

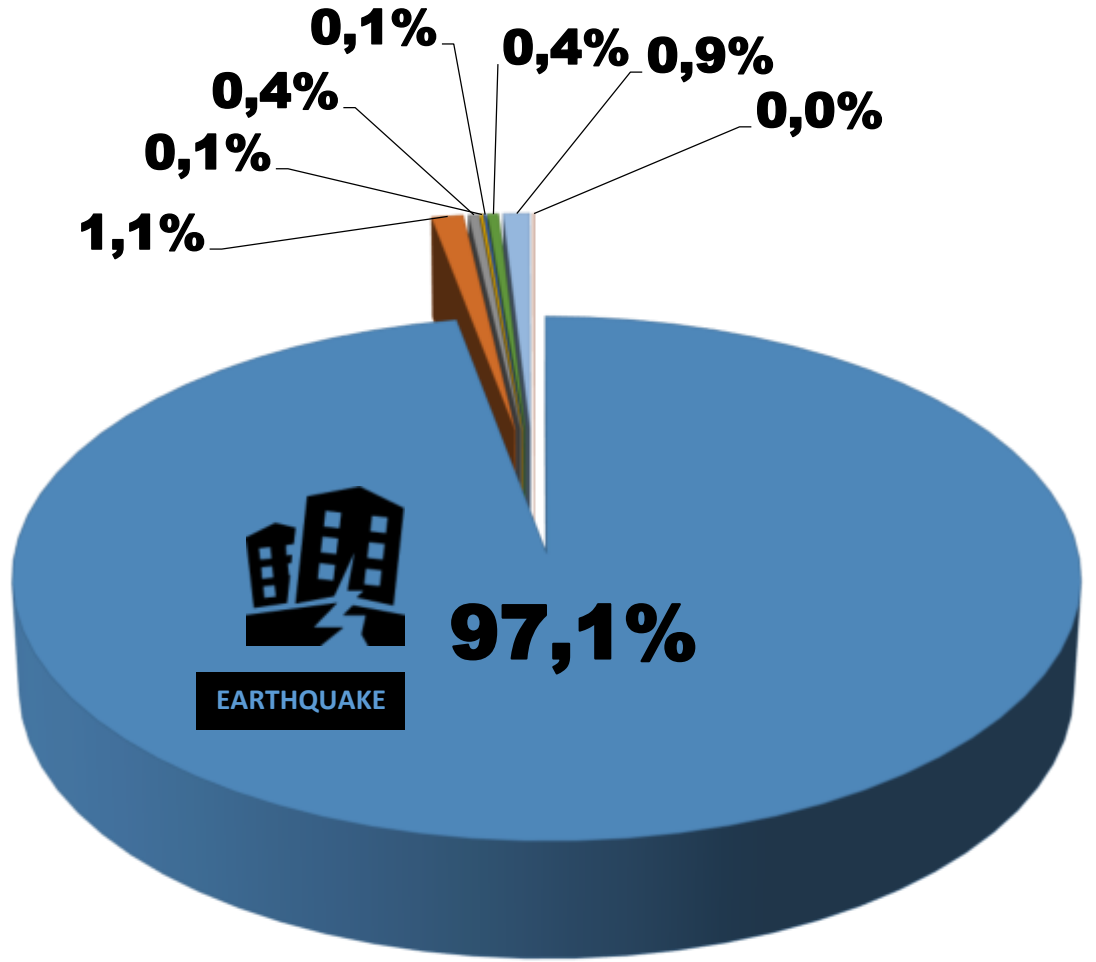
TURKEY and
NATURAL DISASTERS



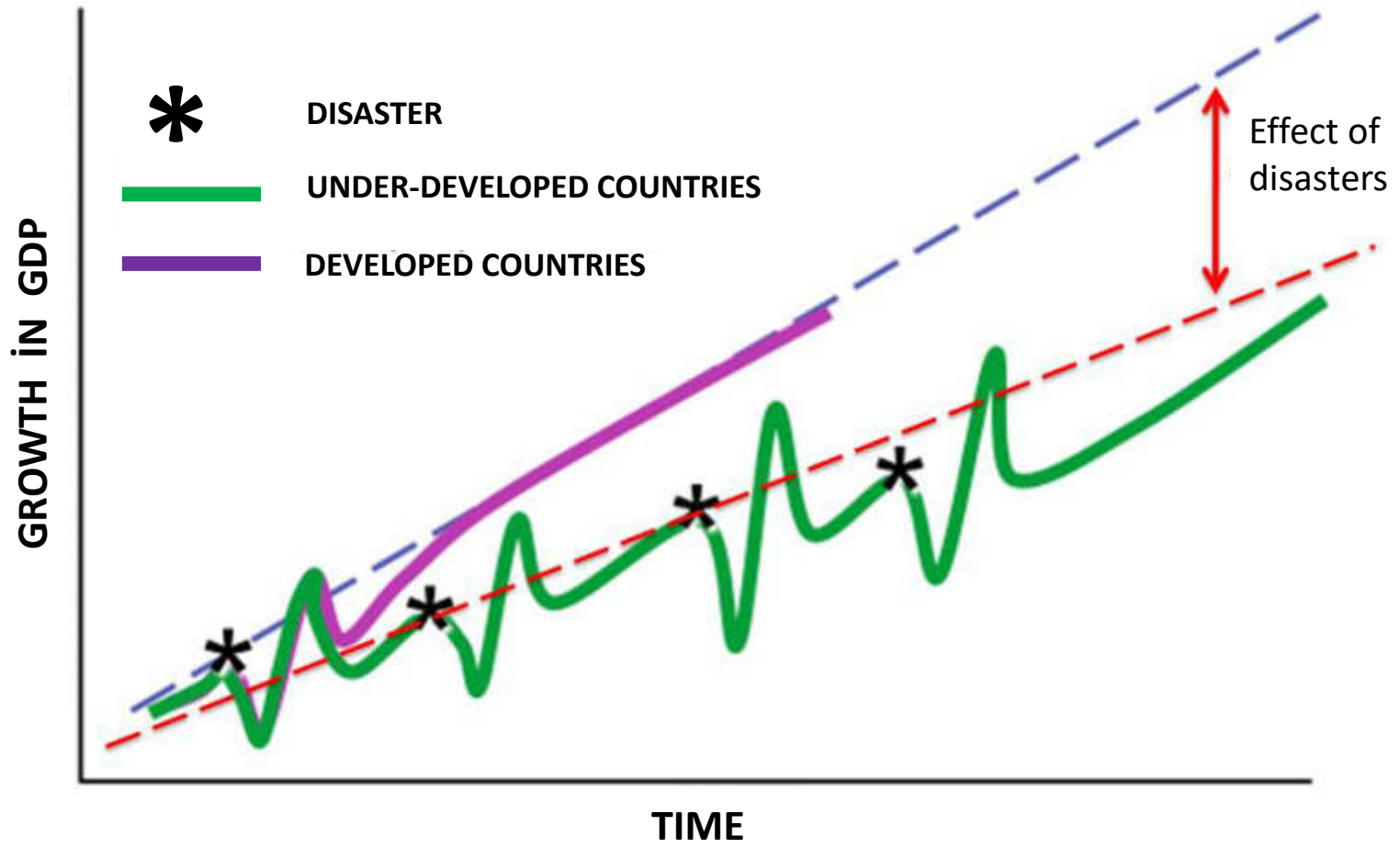
FOREST FIRES



- Earthquake
- Landslide
- Flood
- Forest Fire
- Rockfall
- Fire



TOTAL CASUALTIES



Effect of Natural Disasters on Sustainable Development

1999 Marmara Earthquake

18.000
Lives lost

113.000 completely
destroyed, 264.000
damaged houses
and work places

675.000
homeless people
after earthquake

10-15 billion USD
direct economic
loss



Effect of Natural Disasters on Sustainable Development

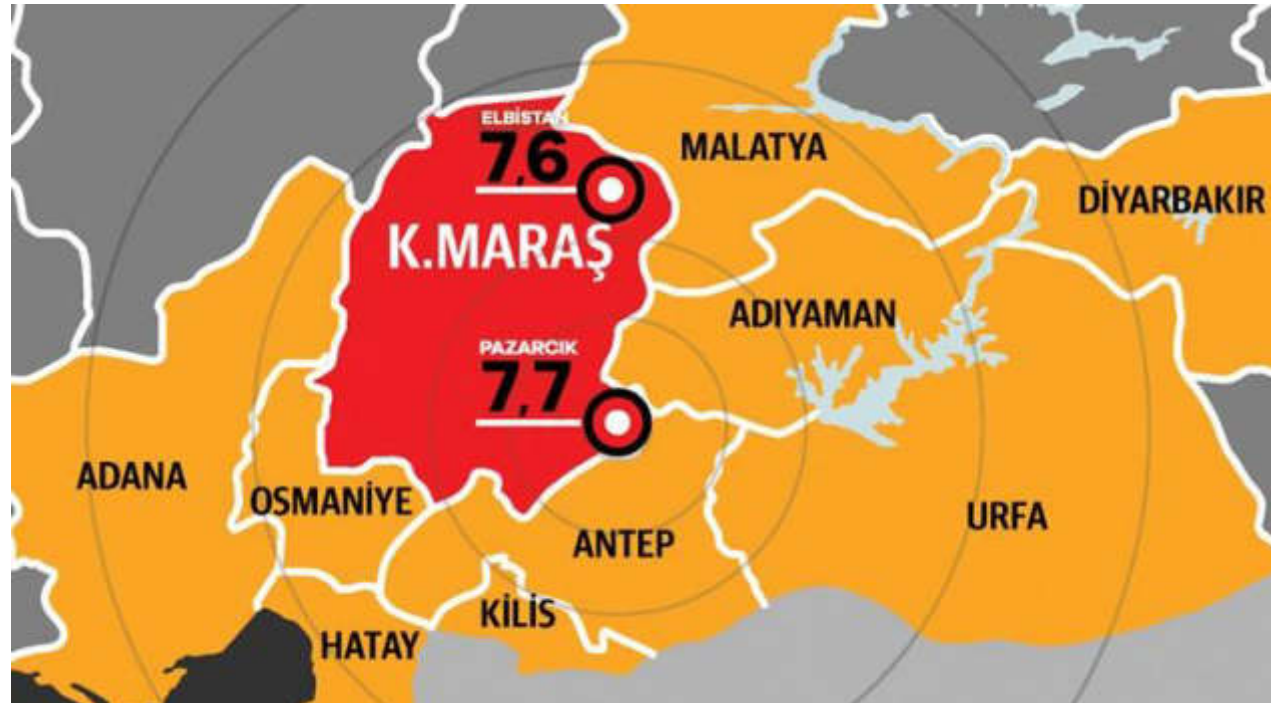
2023 Maraş Earthquake

50 – 51
thousand
lives lost

227 thousand
building destroyed
or collapsed

16.5 Million People
were
directly/indirectly
effected, 4 Million
homeless people

80-100 billion USD
economic loss



Effect of Natural Disasters on Sustainable Development



In the Past

Fate



Choice

Reactive



Proactive

Recovery



Mitigation

Wait and see



Anticipate and prevent

Ex-post



Ex-ante

Crisis management



Risk management

Ad-hoc efforts



Comprehensive approach

Development at risk



Sustainable development

New Strategic Approach

Prevent – Reduce Risk

First Step İSTANBUL

- **The biggest city of Turkey** with the population of 15 million,
- **The most crowded city of Turkey** 2.840 per./km²
- **The center of Turkey** for Tourism, Trade and Industry,
- **The leading city of Turkey** with a **%31 share** to GDP
- **One of the most earthquake-prone city** in the World,
- **Economic loss between 90 – 120 Billion US\$** in case of a probable big earthquake 7.5Mw in İstanbul



İSTANBUL



IPCU

Country / Region	: Turkey / Istanbul
Project Duration	: 2006 - 2025
Implementation	: Istanbul Governorship Istanbul Project Coordination Unit (IPCU)
Finance	: World Bank European Investment Bank Council of Europe Development Bank Islamic Development Bank German Development Bank (KfW) Asian Infrastructure Investment Bank Eco Trade and Development Bank
Loan Amount	: EURO 2.42 Billion



T.C. İSTANBUL VALİLİĞİ



is

**an expertise unit that
established under İstanbul Governorship,
out of general budget,
funded by International Funding Institutions,
implements earthquake preparedness activities in
coordination with related agencies.**



PROCUREMENT AND TENDERING METHODS

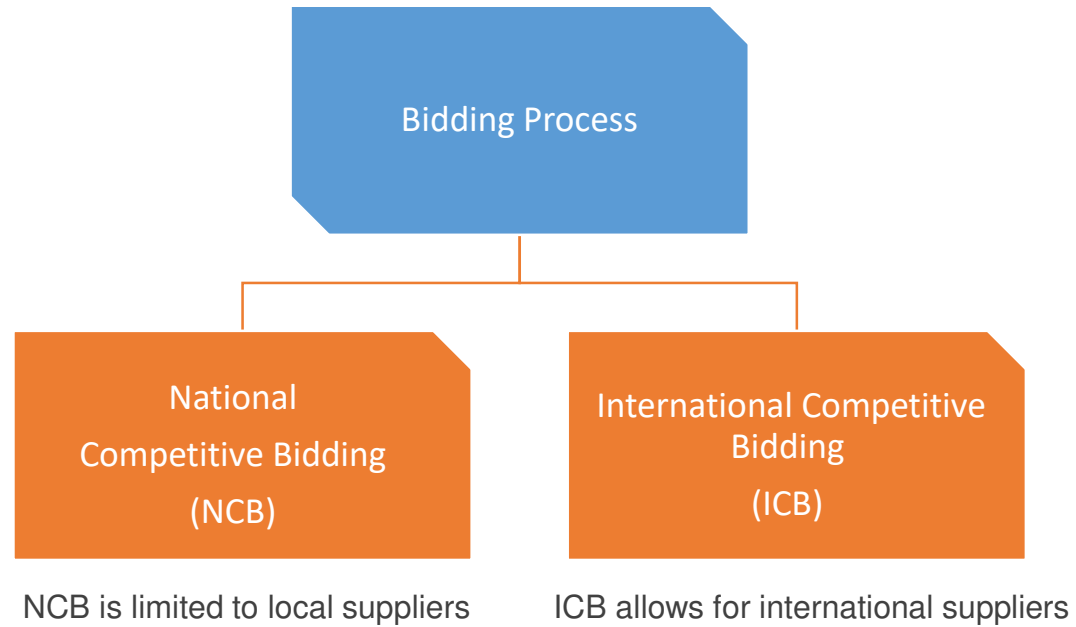
The procurement of contracts in the scope of loans was carried out according to the international finance institutions' guidelines for procurement of goods & works & services and related procurement methods defined in guidelines.

The general classification of tendering under the IPCU is given below:

1. Goods
2. Works
3. Consultancy



BIDDING PROCESS at IPCU



- ✓ FIDIC 87 and 99 harmonized Red Book are preferred to use at ICB Contracts
- ✓ International Finance Institutions' Contract versions are preferred to use at NCB Contracts.



A
Enhancing the
Emergency
Preparedness
Capacity

B
Seismic Risk
Mitigation
for Priority Public
Buildings

C
Enforcement of
Building Codes



INSTITUTIONS

IPCU



Implemented Projects



Enhancing the Emergency Preparedness Capacity

EMERGENCY
COMMUNICATION
NETWORK



EMERGENCY
RESPONSE
VEHICLES &
EQUIPMENT



COMMAND CONTROL
and COORDINATION
CENTERS



SEARCH &
RESQUE
CERTIFICATION
(INSARAG)

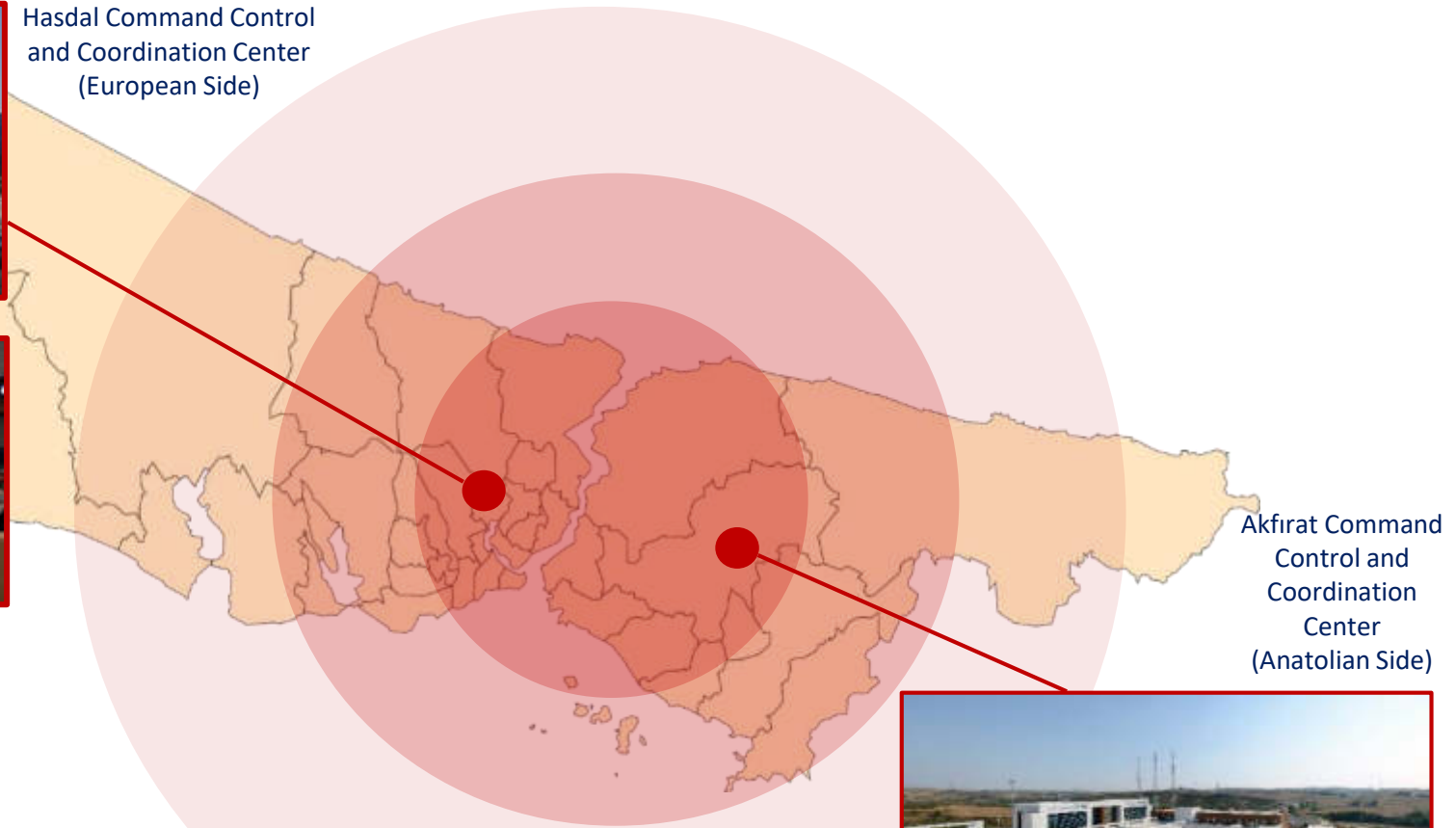


Enhancing Emergency Preparedness

- emergency communication network extended
- institutional capacity of Istanbul AFAD enhanced
- emergency response capacity of the first responding agencies upgraded



Hasdal Command Control and Coordination Center (European Side)



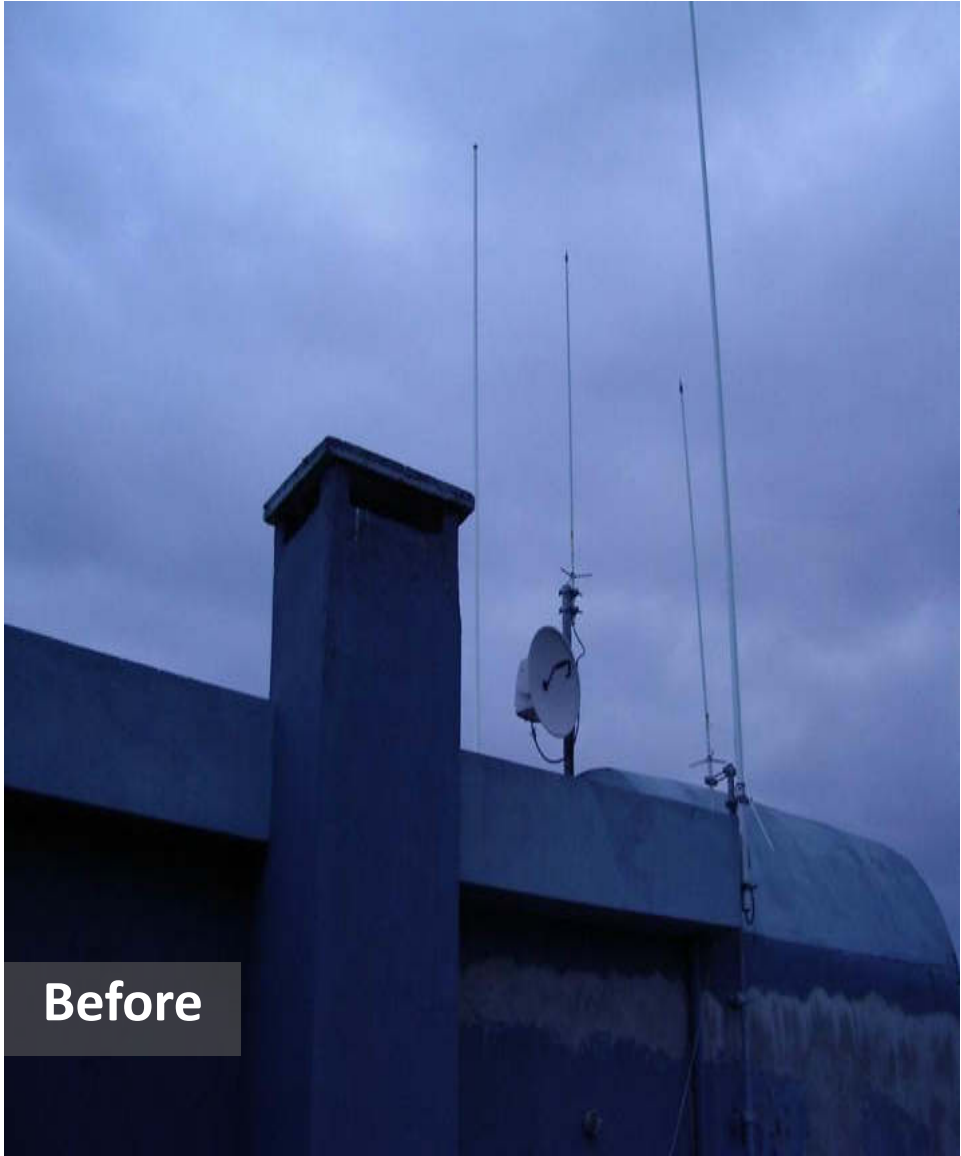
Akfirat Command Control and Coordination Center (Anatolian Side)



Uninterrupted communication and coordination during and after the earthquake/disaster.

Emergency Communication Network

EMERGENCY
MANAGEMENT



Increasing Emergency Response Capacity

Vehicles and equipments were procured in line with the needs of the first responding institutions.

Vehicles and equipments were procured in line with the needs of the first responding institutions.

100

Insulated Type Containers
UMKE

100

Seismic sensors integrated into Kandilli Observatory Earthquake Monitoring System

50

Mobile Lighting Towers
UMKE

10

4x4 Off-road Equipped Search and Rescue Vehicle
UMKE & AFAD

5

Communication vehicles specially prepared for disasters
UMKE & AFAD

4

4x4 Health Rescue Vehicles
UMKE & AFAD

660

'Houses of Mevlana' purchased for Turkish Red Crescent (TURKISH RED CRESCENT MARMARA REGION DISASTER MANAGEMENT DIRECTORATE)

CBRN First Responder Vehicle
AFAD

2

Survey Vehicles
AFAD

2

4x4 Off-road Emergency Operation Vehicles
UMKE & AFAD

Materials purchased for disaster preparation in Istanbul are used in many operations in Turkey (Van Earthquake, Edirne Flooding, Istanbul Basin Express Flooding) and abroad (Northern Iraq, Iran, Libya, Japan, Albania, Nepal, Pakistan, Afghanistan, Somalia)

2

Diving Team Vehicles
POLICE, GENDARME & AFAD

2

Diesel Forklifts
UMKE

3

Land Type Health Rescue Vehicles
UMKE & AFAD

2

Battery Forklifts
UMKE

2

Frigofric Trailer
UMKE

2

Sliding Canvas Trailers
UMKE

12

Operation and Survey Vehicles
AFAD

Decontamination Vehicle to use after a possible chemical, biological, radioactive and nuclear contamination
AFAD

Blood Transfusion Vehicle
UMKE

Rescue Vehicle with a K9 Dog
AFAD

Rescue Equipments
UMKE & AFAD

Medical Equipments
UMKE

Water purifier: 10 ton per day
UMKE

Emergency Operation Vehicle
AFAD

Emergency radio live broadcast vehicle
AFAD

AKB Training Facility

Cold storage

With these exercises, Turkish National Medical Rescue (UMKE) and Istanbul AFAD Search and Rescue Department started to serve in accordance with international standards and received the United Nations' INSARAG certificate. Thus, it became the "first" and "only" team in our country, which is considered to have international standards for "heavy search and rescue".

Improving Institutional Capacity of Istanbul AFAD

2 Command Control and
Coordination Centers

Emergency Rescue Vehicles

EMERGENCY
MANAGEMENT



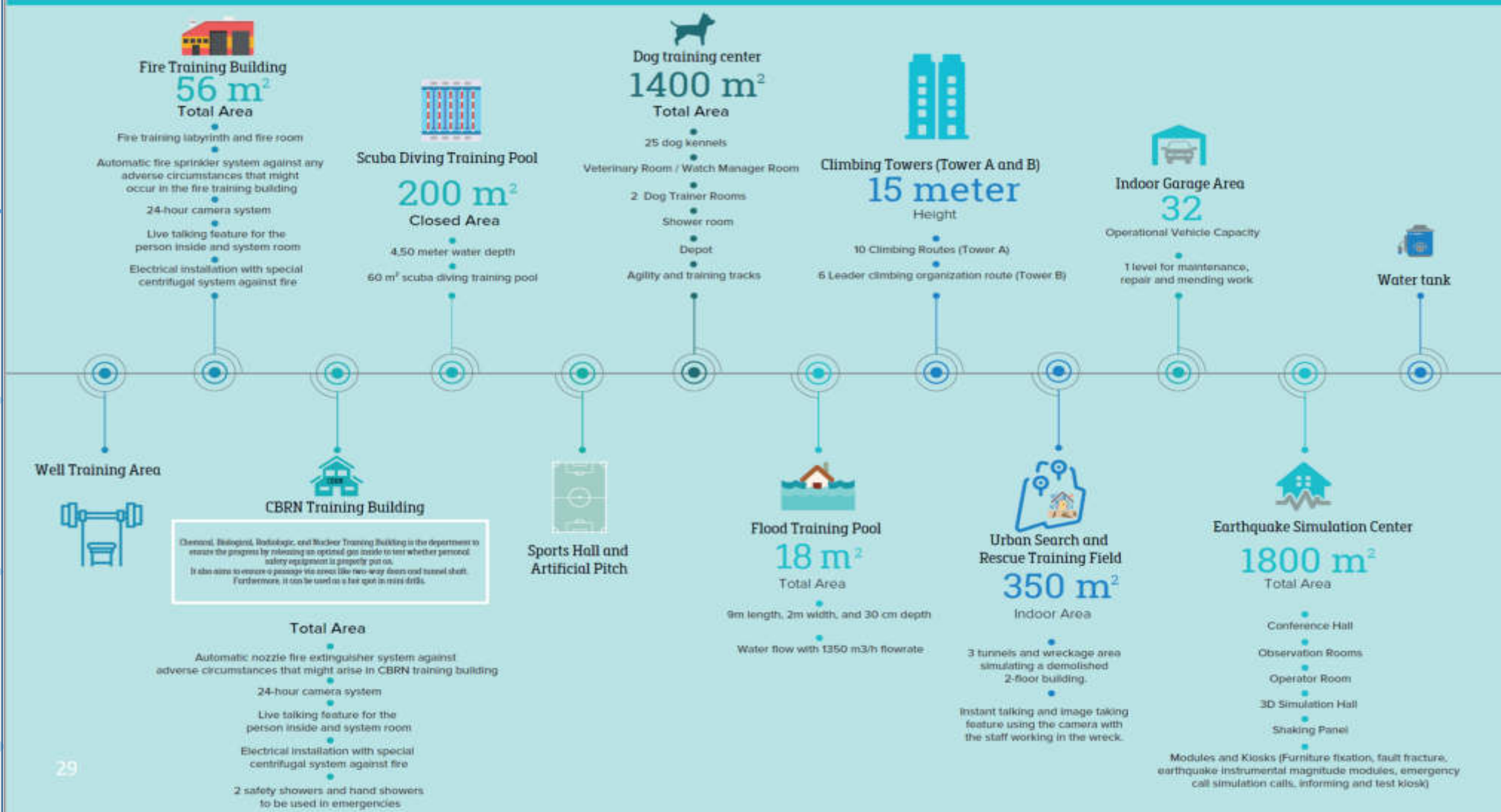
DISASTER TRAINING CENTER

Istanbul AFAD Disaster Training Center

7.700 m²

Total Area

Professional search and rescue teams, experts, adults, and students receive hands-on training to be prepared against disasters in Istanbul AFAD Disaster Training Center built under İSMEP.



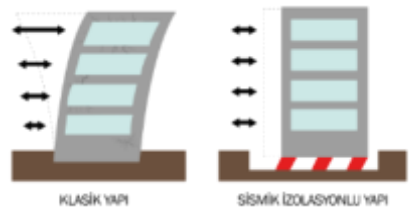
DISASTER TRAINING
CENTER





COMPONENT

Seismic Risk Mitigation for Priority Public Buildings





Feasibility Activities

Building Type	Campus	Building
Schools	1364	1923
Hospitals	33	324
Polyclinics	106	106
Administrative Buildings	97	131
Dormitories	16	47
Social Service Buildings	15	33
Total	1631	2564

EDUCATION

Safer schools for a better future

1.136 school buildings

(769 Retrofitting+367 Reconstruction)

5.4 million m² construction areas

1.7 million students and teachers



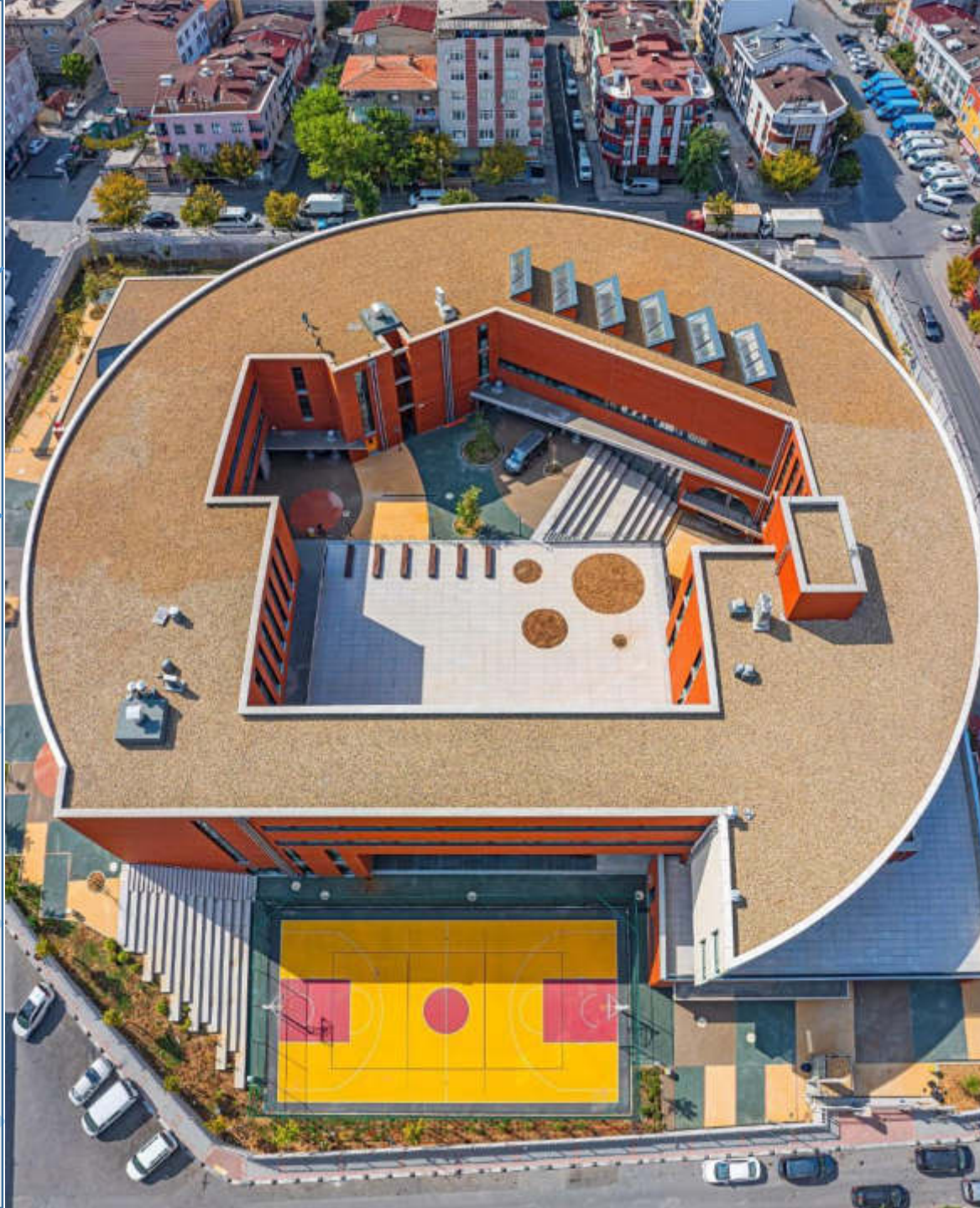
EDUCATION

SCHOOLS



Optimized Land Use

SCHOOLS



Optimized Land Use

SCHOOLS



Optimized Land Use

SCHOOLS



Proje ve Kontrol Müşavirliği - Eptisa Dolşar Uygur
Fotoğraf - Cemal Emden

More social Areas

SCHOOLS



Exposed Concrete Concept with less maintenance expense

SCHOOLS



36%
Heating
Efficiency

Tahsin Banguoğlu Elementary School, Küçükçekmece

SCHOOLS

29%
Electrical
Efficiency



Zuhul Primary School, Kağıthane

SCHOOLS



34%
Total
Energy
Efficiency

Istanbul Atatürk High School of Science, Kadıköy

SCHOOLS



25%
Water
Consumptn
Efficiency

Ali Yalkın Secondary School, Beşiktaş

SCHOOLS



200%
Total
Closed
Area
increasing

Beylerbeyi Primary School, Üsküdar

SCHOOLS



200%
Total
Classroom
Number
increasing

**Reşat Tardu Secondary School,
Zeytinburnu**

SCHOOLS



33%
Carbon
Emmision
Decreasing

İbrahim Koçaslan Secondary School

SCHOOLS



Mareşal Fevzi Çakmak Primary School, Küçükçekmece

ENERGY EFFICIENCY ANALYSIS OF RETROFITTED OR RECONSTRUCTED SCHOOL PROJECTS

ENERGY EFFICIENCY



%36

HEATING EFFICIENCY
(DECREASE IN GAS
CONSUMPTION)



%25

DECREASE IN WATER
CONSUMPTION



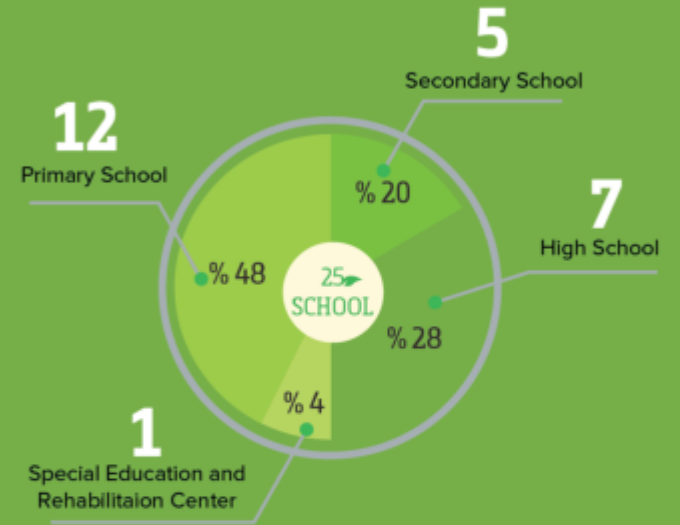
%33

DECREASE IN CARBON
FOOTPRINT



%34

DECREASE IN TOTAL
ELECTRICITY
CONSUMPTION



%45

INCREASE IN TOTAL
TOTAL CLOSED AREA



%24

INCREASE IN TOTAL
NUMBER OF
CLASSROOM



%17

INCREASE IN TOTAL
STUDENT CAPACITY

SCHOOLS



HEALTH

STRENGTHENED HOSPITALS for SERVICE CONTINUITY

17 Hospitals
61 Polyclinics

12 Hospitals
59 Polyclinics

516.000 m²
Constructio
n Areas

2.591 Bed
Capacity

RETROFITTING

5 Hospitals
2 Polyclinics

1.000.000 m²
Construction
Areas

4.517 Bed
Capacity

RECONSTRUCTION

HOSPITALS

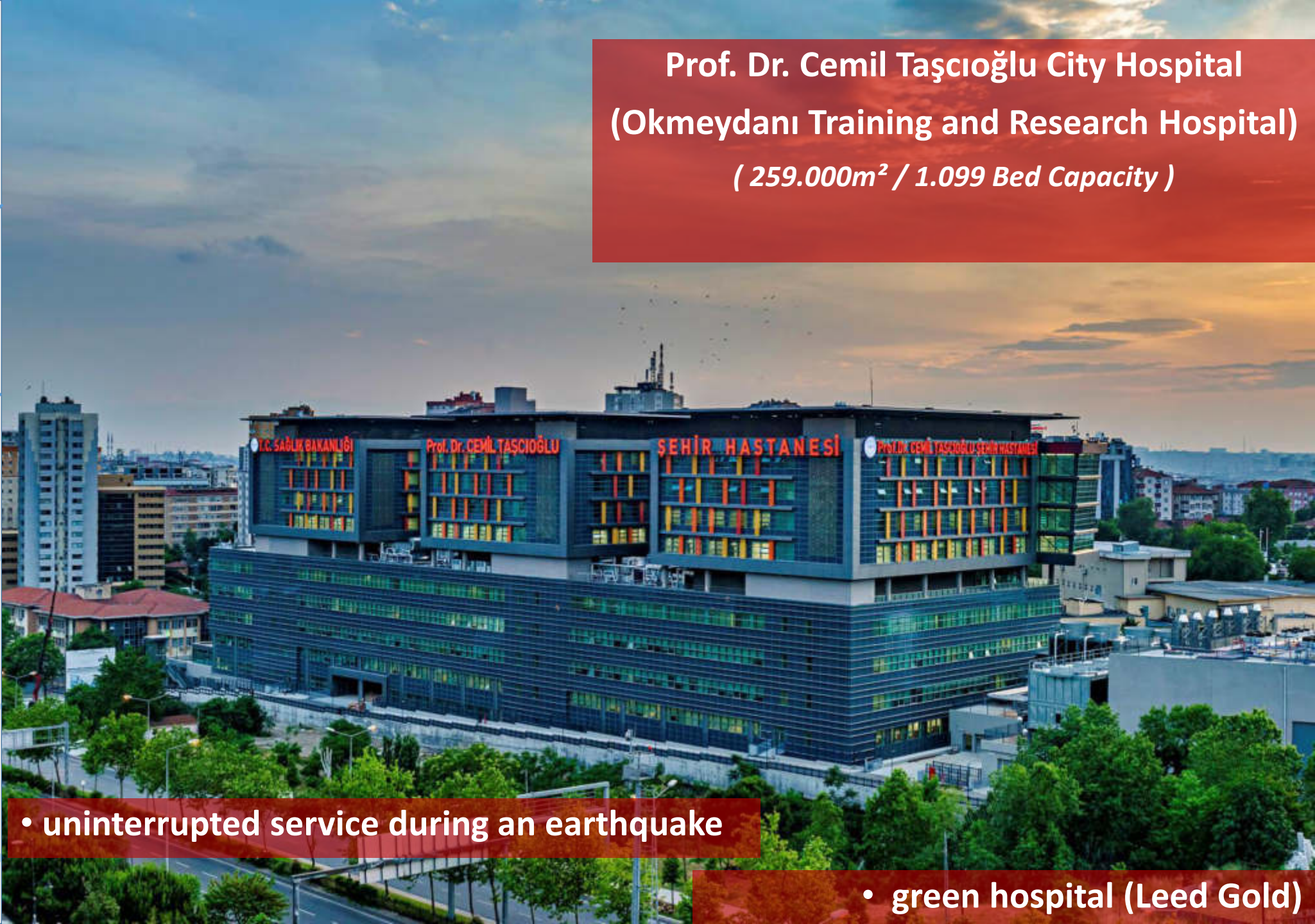
Ümraniye Pediatric Hospital
(100.000m² / 477 Bed Capacity)



Ümraniye Pediatric Hospital

HOSPITALS

Prof. Dr. Cemil Taşcıoğlu City Hospital
(Okmeydanı Training and Research Hospital)
(259.000m² / 1.099 Bed Capacity)



- uninterrupted service during an earthquake

- green hospital (Leed Gold)

HOSPITALS



Prof. Dr. Cemil Taşcıođlu City Hospital

Prof. Dr. Cemil Taşcıođlu City Hospital



HOSPITALS

HOSPITALS

Seismic Isolators provide uninterrupted service during and after the earthquake

Prof. Dr. Cemil Taşcıođlu City Hospital



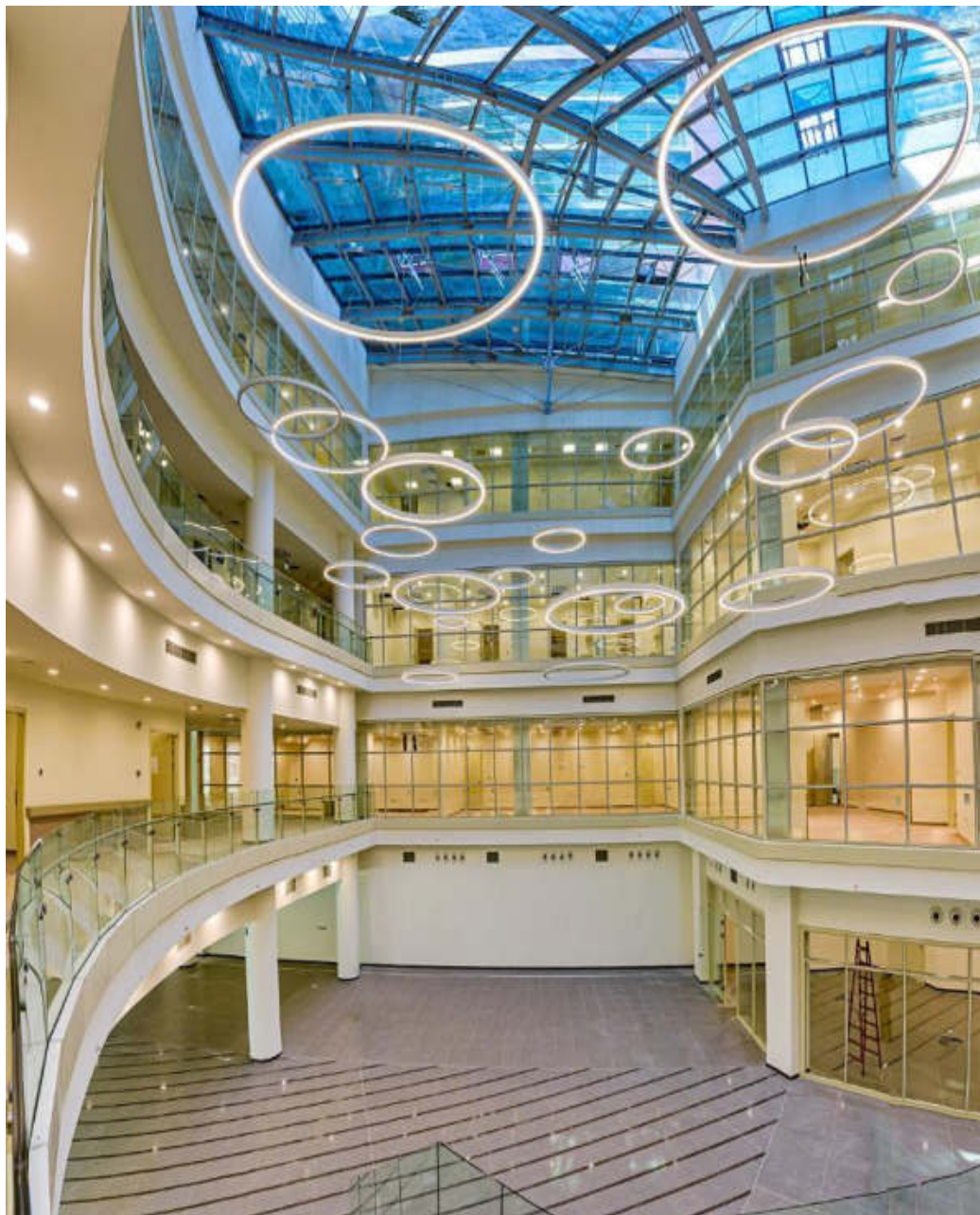
HOSPITALS

Prof. Dr. Süleyman Yalçın City Hospital
(Göztepe Training and Research Hospital)
(259.000m² / 1.188 Bed Capacity)

- uninterrupted service during an earthquake

- green hospital (Leed Gold)

HOSPITALS



Prof. Dr. Süleyman Yalçın City Hospital



Prof. Dr. Süleyman Yalçın City Hospital



HOSPITALS

HOSPITALS

Kartal Dr. Lütfi Kırdar City Hospital
(303.000m² / 1.105 Bed Capacity)

- uninterrupted service during an earthquake

- green hospital (Leed Gold)



HOSPITALS



Kartal Dr. Lütfi Kırdar City Hospital

HOSPITALS



Kartal Dr. Lütfi Kırdar City Hospital

HOSPITALS



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Kartal Dr. Lütfi Kırdar City Hospital

HOSPITALS



Kartal Dr. Lütfi Kırdar City Hospital

HOSPITALS



Kartal Dr. Lütfi Kırdar City Hospital

HOSPITALS

Prof.Dr. Asaf Ataseven Hospital (Marmara Başbüyük Training and Research Hospital) (113.000m² / 750 Bed Capacity)



- uninterrupted service during an earthquake

HOSPITALS



Prof.Dr. Asaf Ataseven Hospital

HOSPITALS

THIS CERTIFIES THAT
Kartal Hastanesi
HAS ACHIEVED AN
EDGE CERTIFICATE
CERTIFICATE NUMBER
GP1-TUR-17072510009748

Exemplifying achievement in the following areas:

32%
Energy Savings

21%
Water Savings

26%
Less Embodied
Energy in Materials

1433.03 tCO₂/year
Operational CO₂ Emissions
2.010.54 tCO₂/year
Operational CO₂ Savings



DEVELOPED BY
Istanbul Governorship, Istanbul Project Coordination

CERTIFIED BY
thinkstep-SGS

Thomas Saunders, EDGE Program Director
DATE OF ISSUE: 01-APR-2019



WORLD BANK GROUP

THE WORLD BANK IFC International Finance Corporation



KARTAL DR. LÜTFİ KIRDAR ŞEHİR HASTANESİ

Istanbul, Turkey

HAS FULFILLED THE REQUIREMENTS OF THE LEED GREEN BUILDING RATING SYSTEM CERTIFICATION ESTABLISHED BY THE U.S. GREEN BUILDING COUNCIL AND VERIFIED BY GREEN BUSINESS CERTIFICATION INC.

LEED 2009
HEALTHCARE

GOLD

June 2020

MAHESH RAMANUJAM, PRESIDENT & CEO, U.S. GREEN BUILDING COUNCIL,
PRESIDENT & CEO, GREEN BUSINESS CERTIFICATION INC.

Kartal Dr.Lütfi Kırdar City Hospital

**PUBLIC
BUILDINGS**

57 Administrative Buildings

38 Dormitories

23 Social Service Buildings



Zeytinburnu Government Office

**ADMINISTRATIVE
BUILDINGS**



Pendik Government Office

DORMITORIES

Atatürk Dormitory

(110.500m² / 3.555 Students)



CULTURAL HERITAGE

INSTITUTIONS

- Prime Ministry General Directorate of Foundations
- Ministry of Culture and Tourism / Istanbul Directorate of Monuments and Surveying

IMPLEMENTATIONS

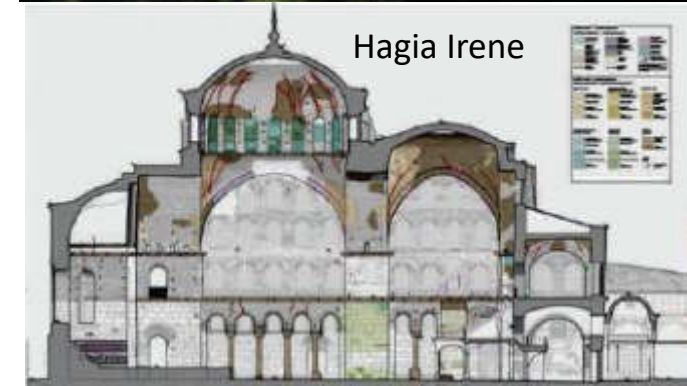
- Inventorization and Multi-Hazard and Earthquake Performance of the Cultural Heritage Buildings in İstanbul (26 complexes, 176 building)
- Retrofitting, Restoration and Restitution Projects for Three Historical Buildings
- Earthquake Risk Management Guideline for Historical Buildings



Mecidiye Kiosk



Archeology Museum

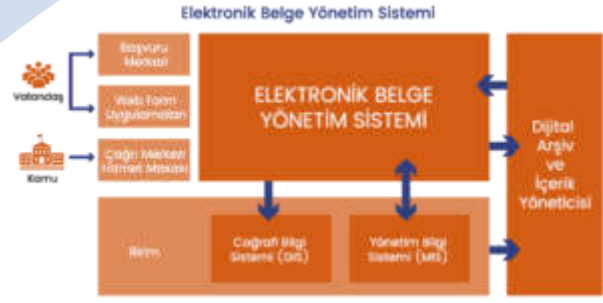
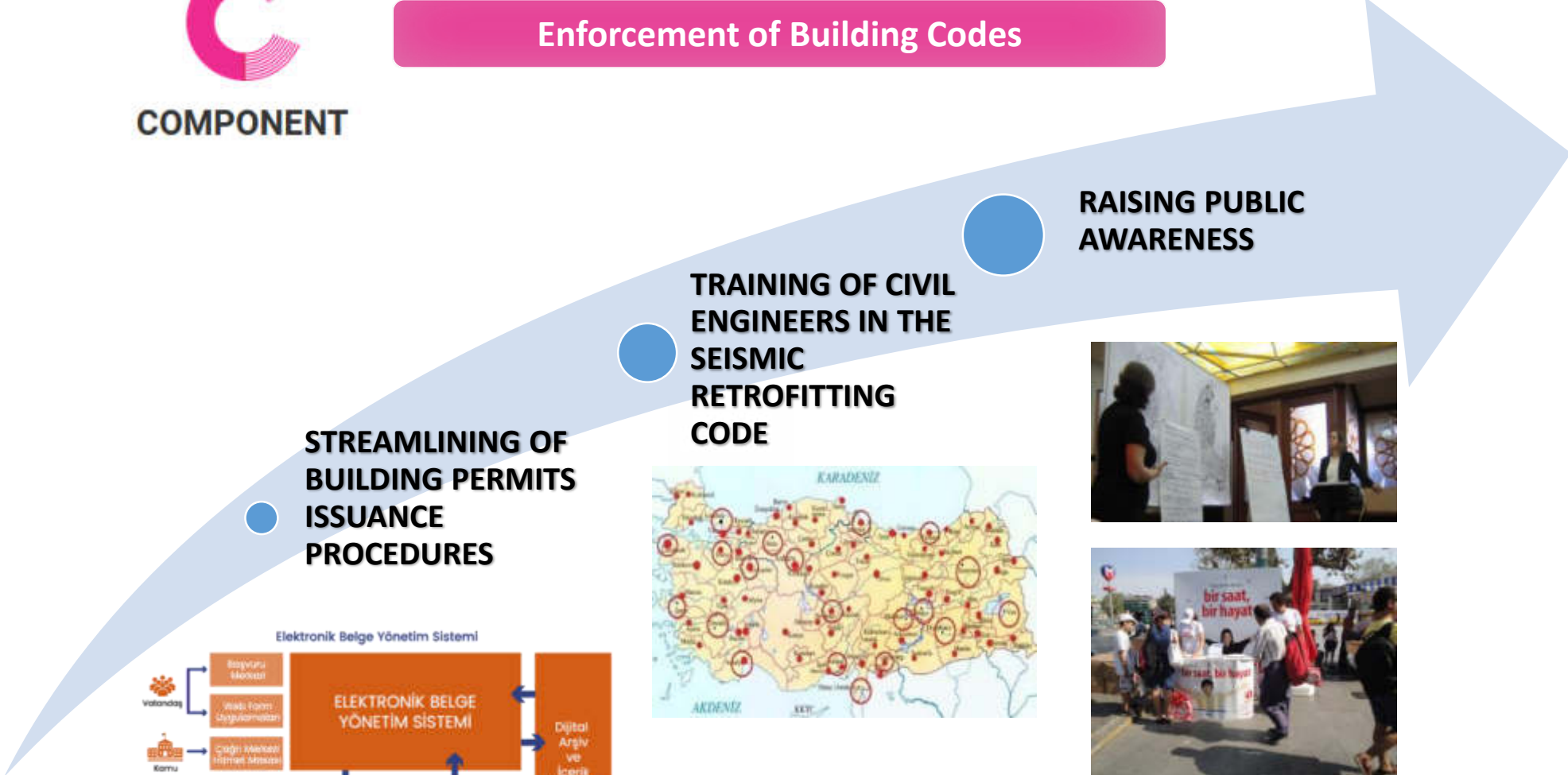


Hagia Irene



COMPONENT

Enforcement of Building Codes



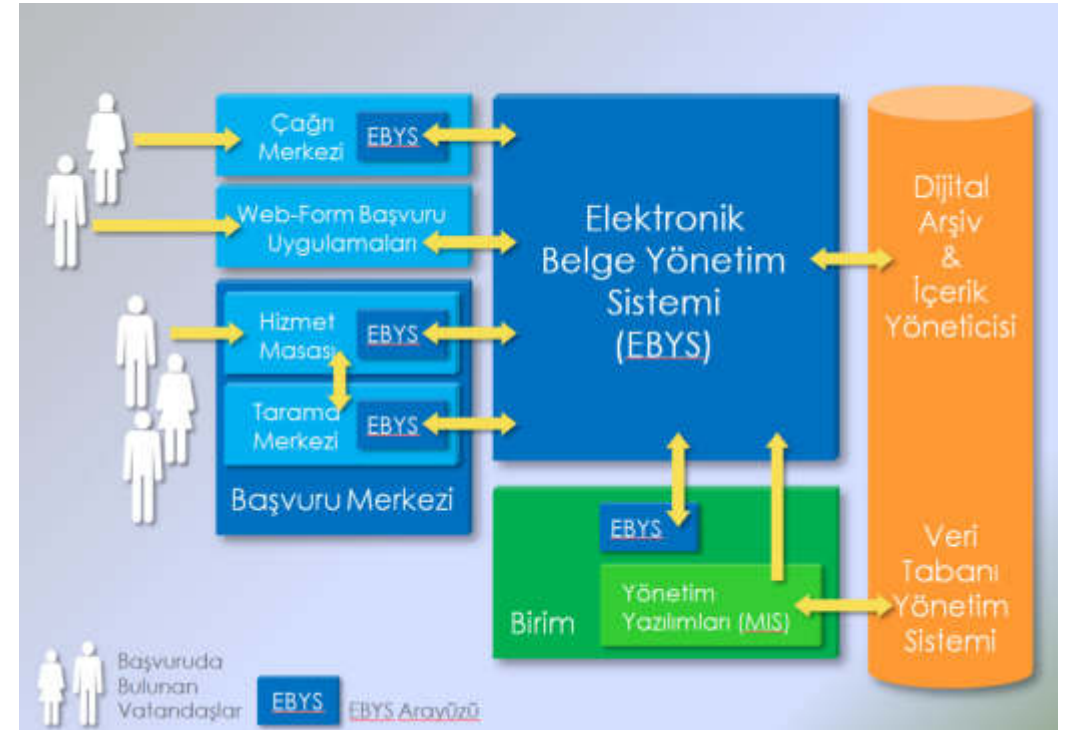
STREAMLINING BUILDING PERMIT ISSUANCE PROCEDURES

INSTITUTIONS

- Bağcılar Municipality
- Pendik Municipality

IMPLEMENTATIONS

- Streamlining and monitoring of building and occupation permit issuance procedures
- Strengthening IT Infrastructure and developing digital archive system
- Trainings
- Building electronic document system



BUILDING CODE ENFORCEMENT

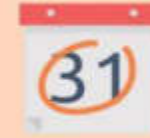


704

Number of personnel who had 'Safe City Safe Life' training in Bağcılar and Pendik municipalities



A digital construction archive was created.



5 Years

The project lasted 5 years.



An electronic infrastructure was created for the website that can be used to apply for building permits and follow the processes.



Thanks to the strengthening of the IT infrastructure, they were the first municipalities to receive ISO 27001 certification in Turkey.



All documents used by the municipalities in their daily services were edited and digitized.

Pilot Project for Effective Implementation of Construction and Building

This project was carried out in Bağcılar and Pendik Municipalities to improve the building license and inspection processes.



A call center was established to actively monitor the status of any claims, complaints or applications coming from the citizens. People's satisfaction with business processes increased by 50%.



The construction license period has dropped from 90 days to 10 days.



An Electronic Document Management System was established to track, register and report the construction and licensing processes.



3.800.000

Total number of scanned and indexed documents

**PUBLIC
AWARENESS**



Individual and Public Awareness Activities



- Retrofitting & Reconstruction Works

1.7 million students and teachers

- Safe Life 1 High School & University
- E-learning Training

222.000



Reached 3,1 million people

285.000

- Social Guidance Activities

278.000

- Safe Life 1
- Safe Life 2
- Local Disaster Volunteers



377.000

- Public Awareness Campaigns

325.000

- Safe Life Kids Training
- Rocking Chair Theatre



ECONOMIC RATIONALE OF EARTHQUAKE PREPAREDNESS

CALCULATED BENEFITS



Enhanced Institutional and Technical Capacities of DRM Agencies

Component
A

Resilient and Efficient Buildings Through Retrofitting / Reconstruction

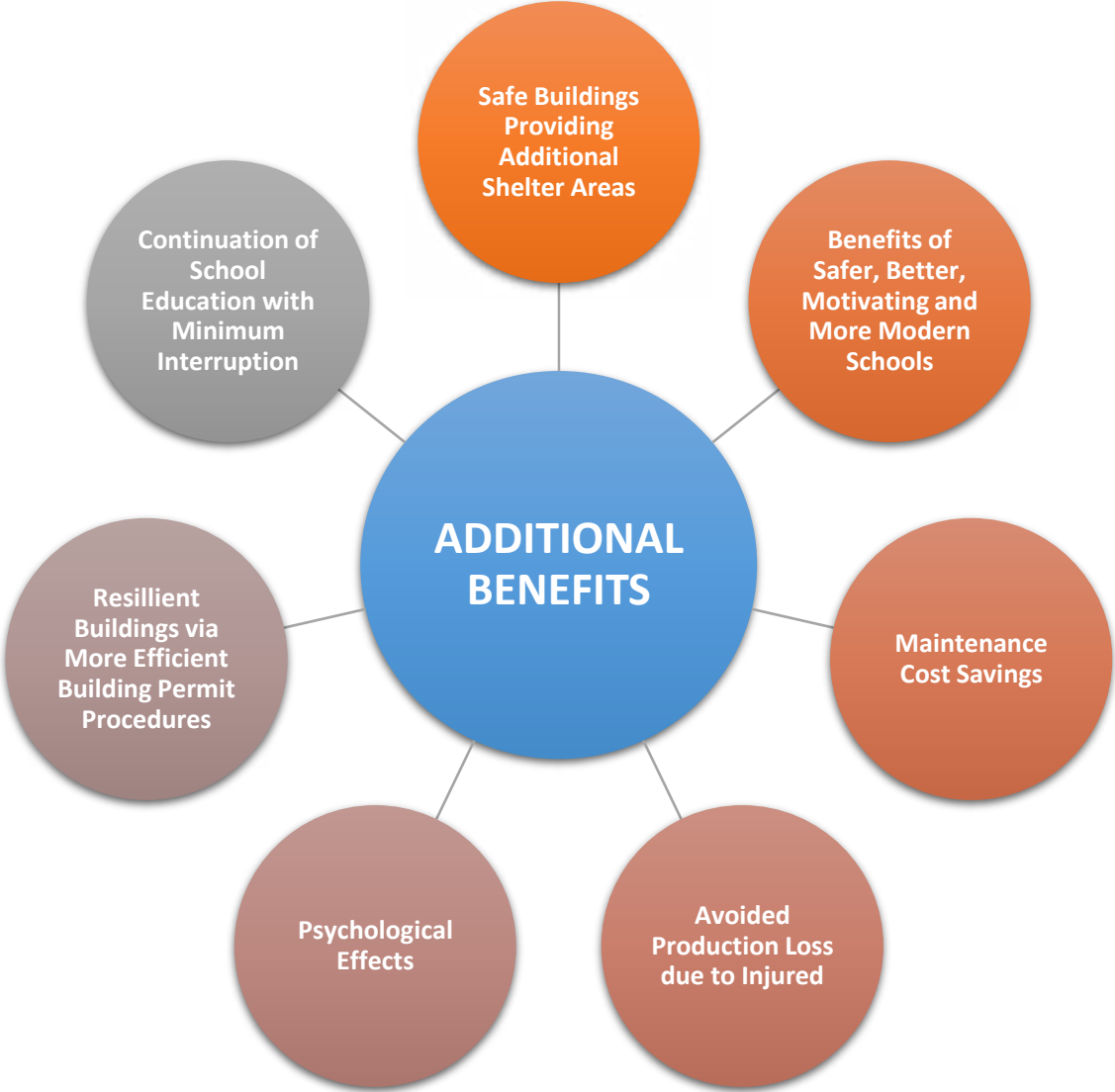
Component
B

- ENERGY SAVINGS
-
- CONTRIBUTION TO GDP
-
- CONTENTS SAVED
-
- VALUE OF STATISTICAL LIFE
-
- INJURIES AVOIDED
-
- PRODUCTION LOSS AVOIDED

Component
C

Efficiency Gains in Building Permits

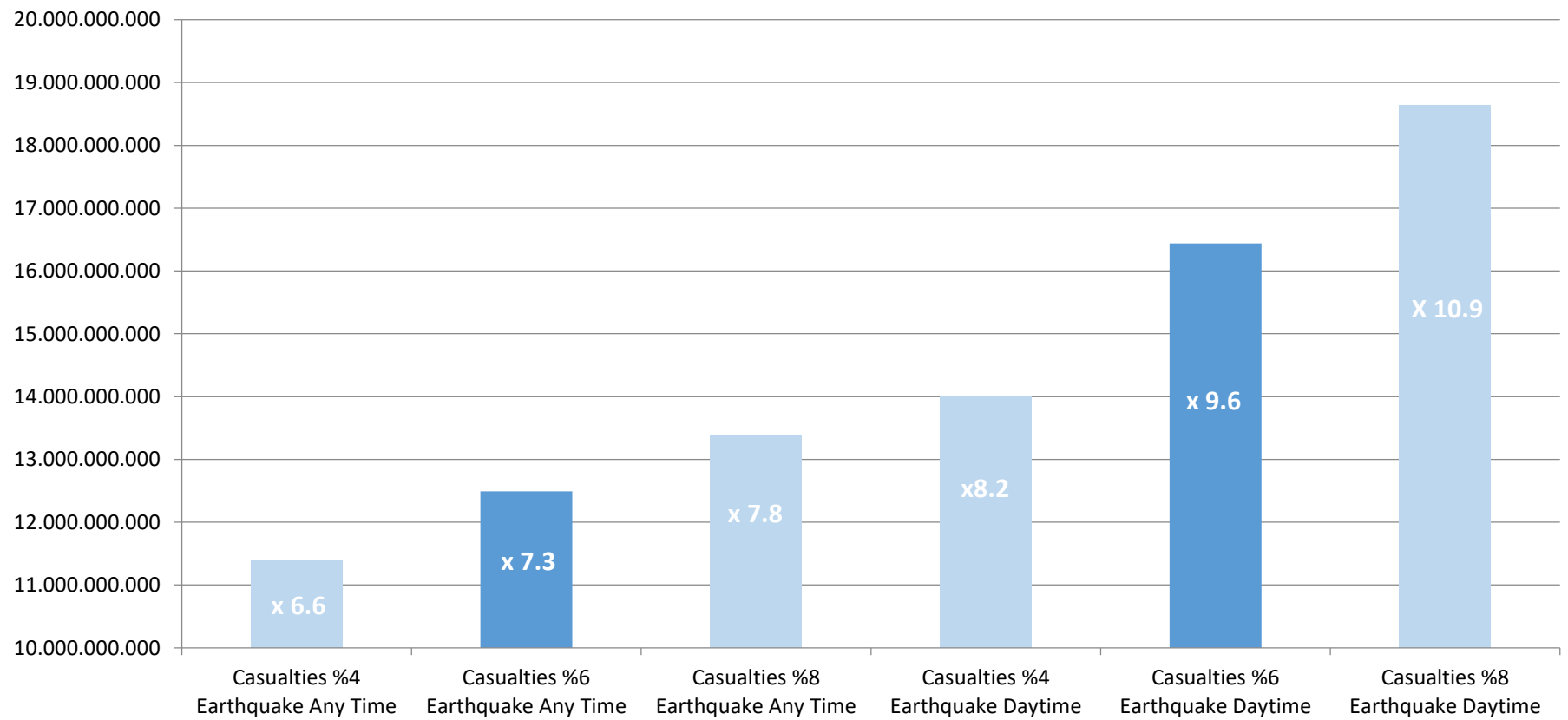
UNMEASURED – ADDITIONAL BENEFITS





TOTAL PREPAREDNESS IMPACT THROUGH ISMEP (BASE SCENARIO)		
Component	Preparedness Expenses(Euros)	Economic Impact (Euros)
TOTAL	1.714.328.620	12.491.038.026

Total Economic Impact in Euros



INTERNATIONAL REPRESENTATIONS



53 COUNTRIES – 111 CONFERENCES

WE ARE
STRENGTHENING
OUR FUTURE



THANK YOU

 <https://www.facebook.com/ipkgovtr>

 <https://twitter.com/ipkgovtr>

 <https://www.linkedin.com/company/ipkb>

 <https://www.youtube.com/channel/UC3tdfIZ3LiqX46e1j8Ar7AQ>