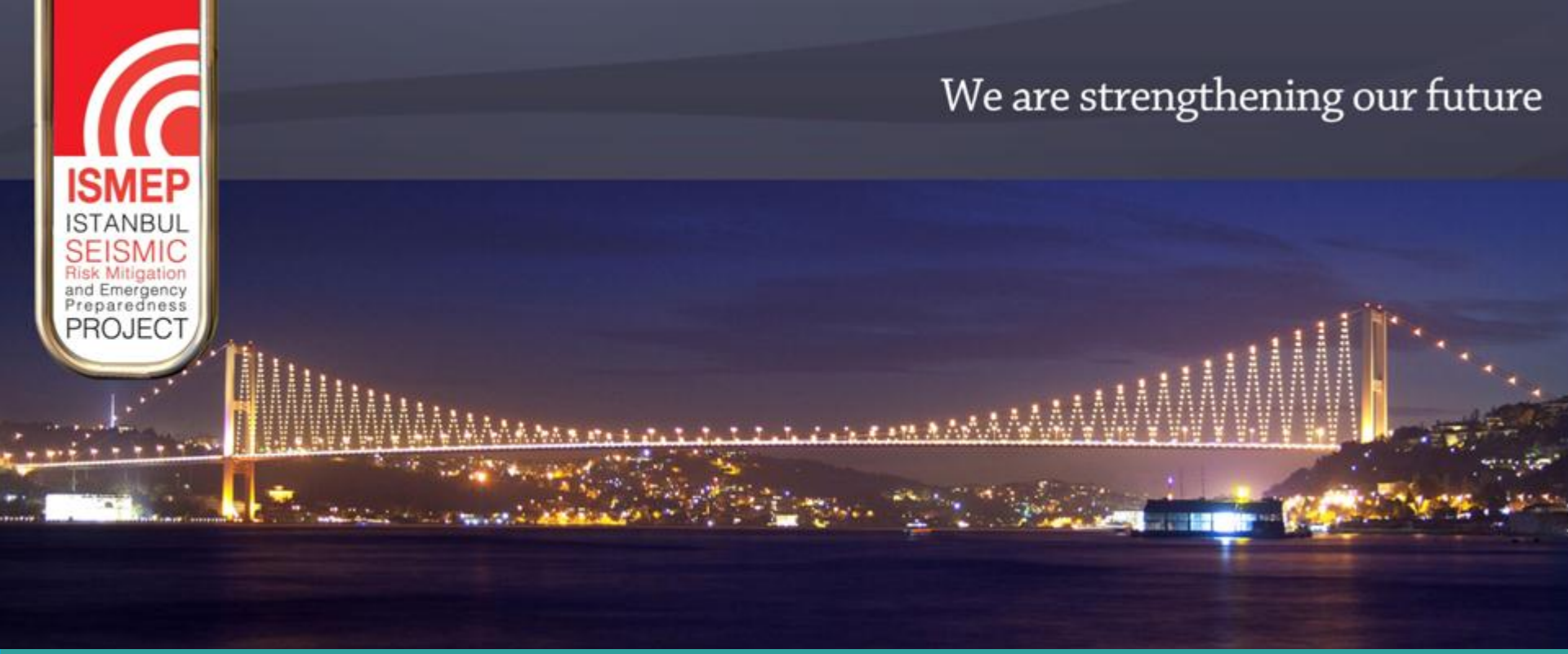


Seismic Risks Session for Central Asia
May 12, 2014
Almaty - Kazakhstan

Istanbul Seismic Risk Mitigation and Emergency Preparedness Project
Fikret AZILI, Deputy Director of ISMEP

T.C. İstanbul Valiliği

İSTANBUL PROJE KOORDİNASYON BİRİMİ
IPKB

TURKEY and Natural Disasters

TURKEY is prone to mainly three types of natural disasters:

- **Earthquakes;**
  - 70% of the population living in seismically active areas.
  - 66% of the country is located on active fault zones.
  - 75% of damaged buildings and %64 of total disaster losses in the last century are due to earthquakes.

- **Floods;**
  - Mostly in coastal plains and exacerbated by deforestation, erosion and ignorant development.
  - 15% of total disaster losses are due to floods.

- **Landslides;**
  - 25% of country area is exposed to landslide hazard.
  - 11% of total population is located in landslide areas.
  - 16 % of total disaster losses are due to landslides.

Summary Data on Disasters Caused by Natural Hazards (1980 -2010) and Number of Human Casualties

Disaster	Nb. of events	Percentage	Total deaths	Total affected
Earthquake	73	1,53	20.636	15.913.252
Epidemic	No data			
Landslide	811	16,97	233	91.081
Flood	172	3,59	75	69.788
Forest Fire	1.623	33,75	19	Over 20 hectares
Rockfall	247	5,16	18	26.747
Fire	275	5,75	79	364
Avalanche	209	4,37	195	18.560
Meteorological Disaster	1.378	28,84	6	
Total	**4.778**	**100,00**	**21,261**	**16.119.792**

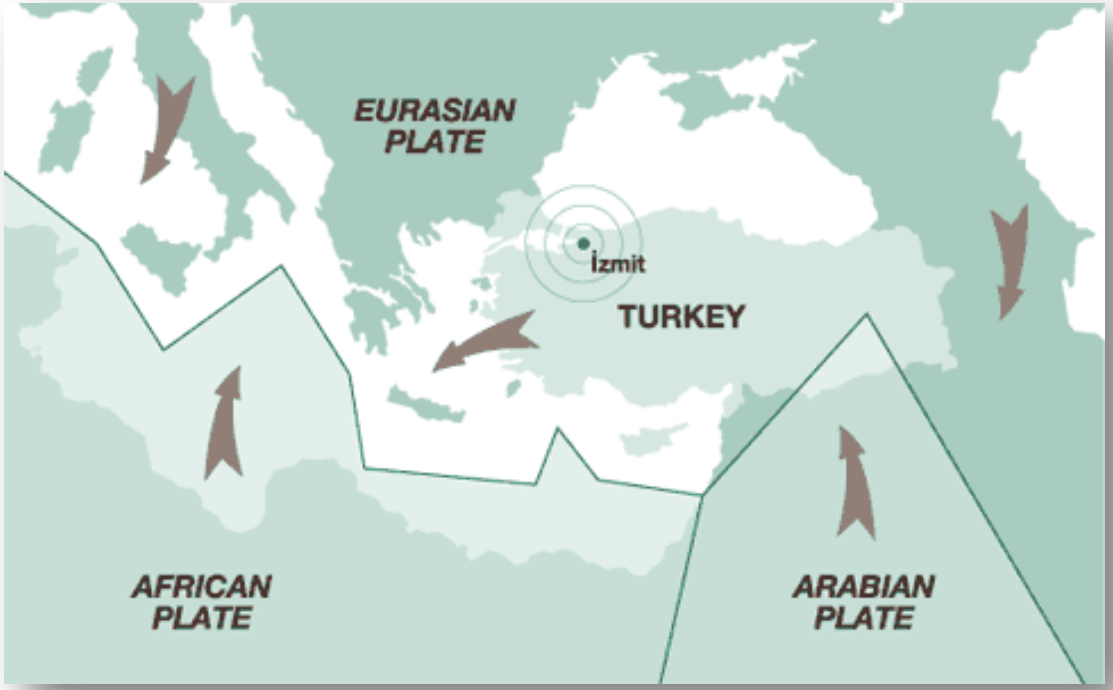
1999 Marmara Earthquake, 7.4 Richter

17480 lives lost

113.000 housing units and business premises were completely destroyed, 264.000 damaged to varying degrees

Up to 675.000 people were forced to leave their homes

10-15 billion US$ direct cost



Lessons learned from Marmara Earthquake

Communication

- Communication failed
- Telephone lines were out of order in first 48 hours
- Mobiles did not function

Losses / Problems

- Public buildings and infrastructure seriously damaged
- Sub-standard buildings and infrastructure
- Hazard ignorant development
- Lack of code enforcement
- Improper inspection during construction
- Corrupted permitting and licensing

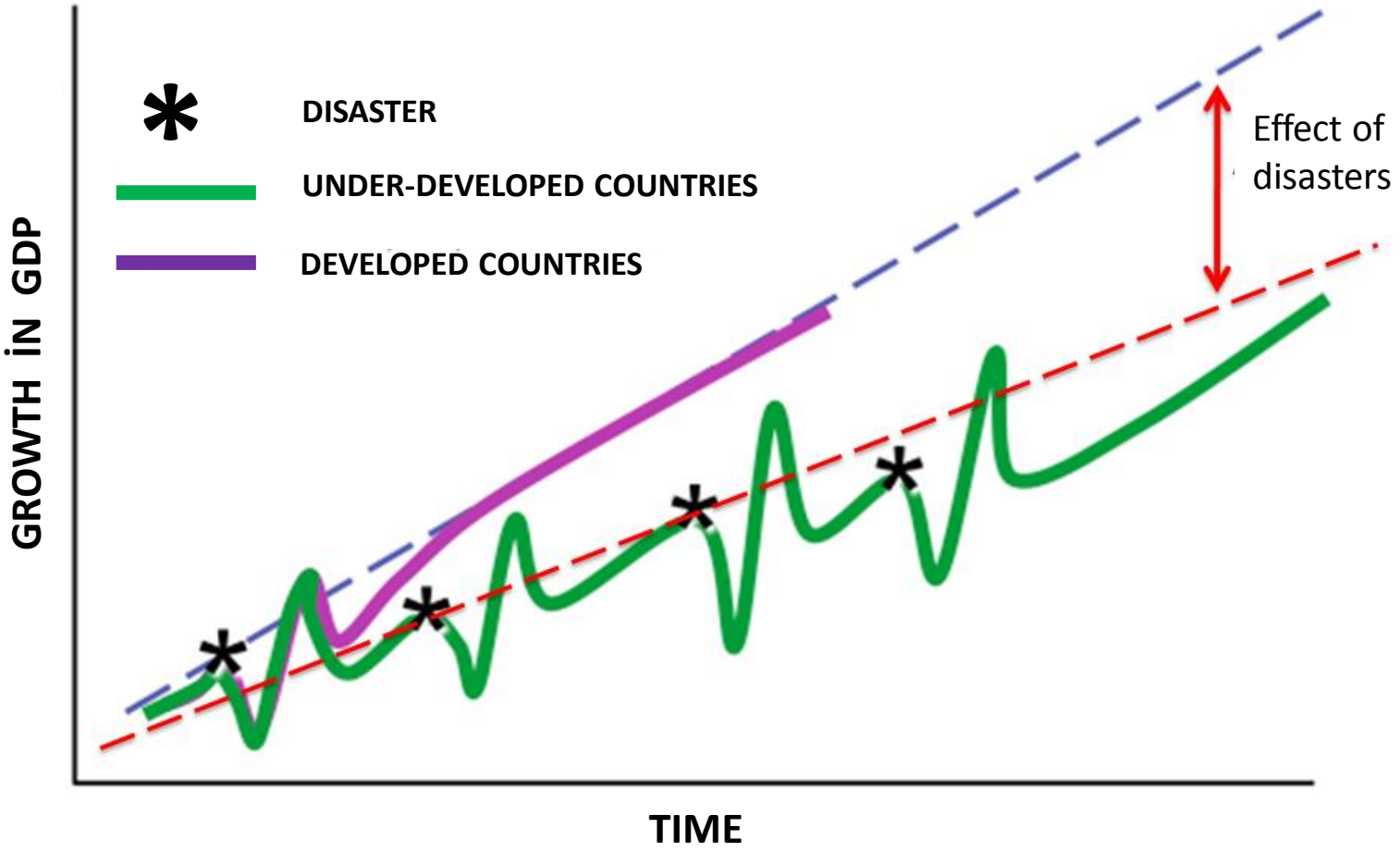
First Aid & Rescue

- Lack of organization and coordination in search & rescue activities
- Caotic situation
- Bureaucracy inhibiting efficiency and effectiveness
- Insufficient logistical support
- Voluntary efforts were not trained and organised

Serious Resource Gap

- 10-15 billion $ as direct cost
- %5-7 of Turkey's GNP

Disaster management is a problem of sustainable development, not just that search and rescue ...



Paradigm Shift in TURKEY;

In the past

- Fate
- Reactive
- Recovery
- Wait and see
- Ex-post
- Crisis management
- Ad-hoc efforts
- Development at risk

New Strategic Approach

- Choice
- Proactive
- Mitigation
- Anticipate and prevent
- Ex-ante
- Risk management
- Comprehensive approach
- Sustainable development

Istanbul

More than 40% of Turkish GNP is generated in the region.

13-14 million people, 20% of Turkey's population, live in İstanbul.

Istanbul

- Comparable seismic risk degree with San Francisco, Los Angeles and Tokyo cities
  - Probability of occurence of a large earthquake in next 30 years is greater than %62
  - Probability of occurence of a large earthquake in next 10 years is greater than %20

- Impacts after a probable 7.5 Richter scale earthquake in Istanbul;
  - Approximately 70.000 dead people,120.000 heavily injured people, 400.000 lightly injured people
  - Direct economic loss ~50 billion US $

2003, Jica/İBB Study, Istanbul Earthquake Master Plan

Istanbul Seismic Risk Mitigation and Emergency Preparedness Project: ISMEP

Country / Region	:	Turkey / Istanbul
Project Duration	:	2006 +
Implementation	:	Istanbul Governorship Istanbul Project Coordination Unit (IPCU)
Finance	:	World Bank European Investment Bank Council of Europe Development Bank Islamic Development Bank
Loan Amount	:	EURO 1.5 Billion (WB-EIB-CEB-IDB)

ISMEP Project Phases

Phase I
2002-2005

- **ISMEP Project Preperations**
  - Ownership
  - Prioritization
  - Budget allocation
  - Comprehensive approach
  - Risk reduction strategy

Phase II
2006

- **Project Organization**
  - Local Administration
  - Establishment of IPCU
  - Development of project team
  - Steering Comittee

Phase III
2006 +

- **Implementation**
  - Socially acceptable and human oriented
  - Technical feasibility and harmony with international standarts
  - Appropriate financial and economic solutions
  - Working with multistakeholders

Phase IV

- **EXPERIENCE AND KNOWLEDGE SHARING**
- Establishment of a centre of excellence in İSTANBUL

Project Preparation

- **Project Charter – Project Appraisal Document (PAD)**
  - Coordination of the Prime Ministry Project Implementation Unit
  - Team of experts (10 Person)
  - Meetings more than 100
  - Approx. 400 authority / expert from central and local government.

Project Preparation

- **Prioritization**
  - **Criteria for Prioritization**
    - Technical features of buildings
    - Accessibility during disaster
    - Distance to the fault line
    - Strategic location
    - Capacity
    - …

- **Dividing public buildings into sectors; such as education, health, dormitories and social service buildings and administrative buildings (2.473 buildings)**

Project Preparation

- **Ownership**
  - Istanbul Governorship
    - Istanbul Project Coordination Unit
- **Budget Allocation**
  - The first loan in the amount of 310 Million Euro between Treasury and the World Bank, was signed in 2005.
- **Comprehensive Approach in DRR**
  - ISMEP Project has three components

Establishment

- **Establishment of IPCU**
  - IPCU was established within Istanbul Governorship in February, 2006.
- **Development of Project Team**
  - Team members are experienced in project management and disaster related projects
  - Experienced staff transferred to IPCU from Prime Ministry PIU
- **Steering Committee**
  - President of the comittee is İstanbul Governor
  - The members of the comittee are from central and local governments

- Steering Committee viewed the progress of the project. Important decisions were discussed, collective mind is produced.

Management Structure

Phase III Implementation

A. Strengthening Emergency Management Capacity

- Emergency Communication Systems
- Emergency Management Information System
- Strengthening the Institutional Capacity of DED
- Upgrading the Emergency Response Capacity
- Public Awareness and Training

B. Seismic Risk Mitigation for Priority Public Buildings

- Retrofitting/Reconstruction
- Preservation of Cultural Heritage
- National Disaster Studies

C. Enforcement of Building Codes

- Public Awareness
- Development of Regulatory Framework
- Voluntary Accreditation and Training of Engineers
- Streamlining of Building Permits Issuance Procedures

ISMEP Components

İSMEP at a glance

İSMEP is one of the best practices in risk reduction project in the world.

Thousands of project package under 3 component

1.156 rebuilt or reconstructed public buildings

Energy saving smart schools (%30-40 savings)

LEED Gold

4. 660.183 m^2 construction area

1. 500. 000 students/teachers in the retrofitted/reconstructed schools

5.500. 000 people reached by the campaigns

650.000 trained people within the scope of ISMEP

What Does the Schools Have?

- Rain water harvesting system
- Faucets on photocells
- Condensing boiler
- Air-conditioning Plants
- Exterior Thermal Sheathing and Insulation
- Hydrophores with frequency converters for water pumps
- Circulation pumps with frequency converters
- Solenoid valves/faucets
- Thermostatic radiator valves/faucets
- Variable Refrigerant Flow (VFR) air conditioning system (VRF)
- Computerized building automation system
- Energy efficient electrical work and connections

ENERGY EFFICIENT SMART SCHOOL

Purpose of the Project

The Energy Efficient Smart School project develpoped with Black Sea Economic Corporation (**BSEC).**

The project aims to;

- build an **energy efficient infrastructure model** that uses renewable energy,
- raise **awareness** in energy generation using renewable energy resources,
- promote **energy efficiency** and create a culture of energy efficiency

The first public primary school that has ever used solar energy to generate electricity

The first Solar Tree at an educational institution in Turkey

Solar Panels

with 10 kW of installed capacity

Solar Tree

with 1 kW of installed capacity

Smart Meter

TV screen
Web site

How much energy have we produced?

Sun Tree: 1.800 kW
Roof: 14.237 kW
Total: 16.037 kW = 1,860 €
Per Month: 802 kW – 95 €

10.702 kg CO_2 Emission

(May 2012- December 2013)
Prevented CO2 emission is almost 10.700 Kg.
which means 2.000 pinetrees

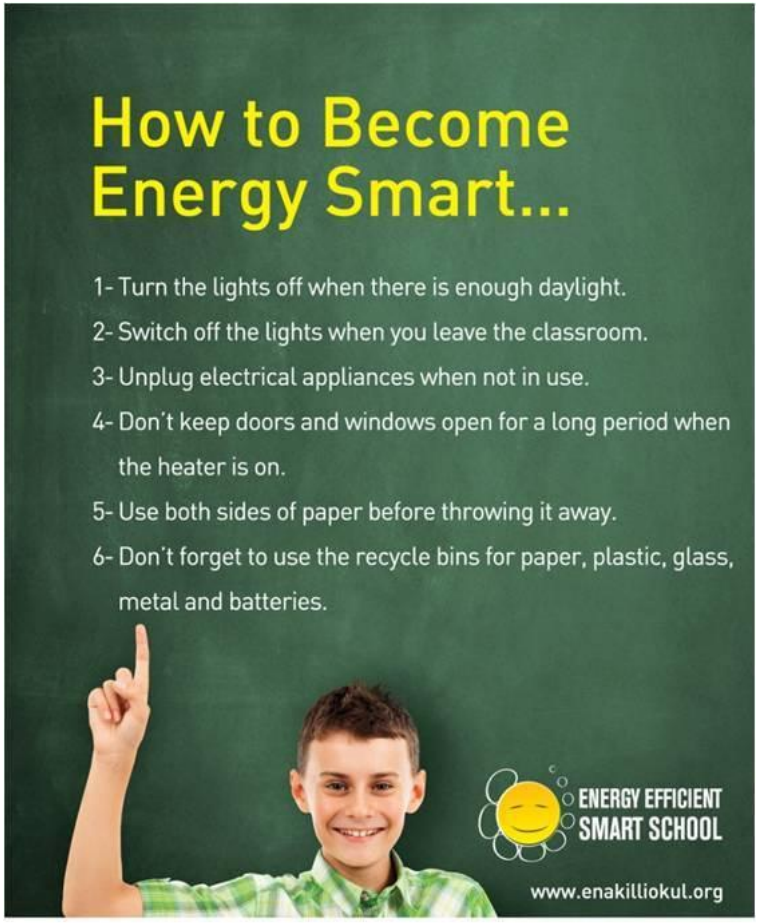
TRAININGS

We implemented two types of trainings about

How to Became Energy Smart at school.

1. Kids Version **2.** Adult Version

- We've reached **1,297 students** by trainings
- We've trained **20 voluntary** teachers



Phase IV: Knowledge and Experience Sharing

- **A centre of excellence in DRR**

- **Proposed Functions Of The Center**

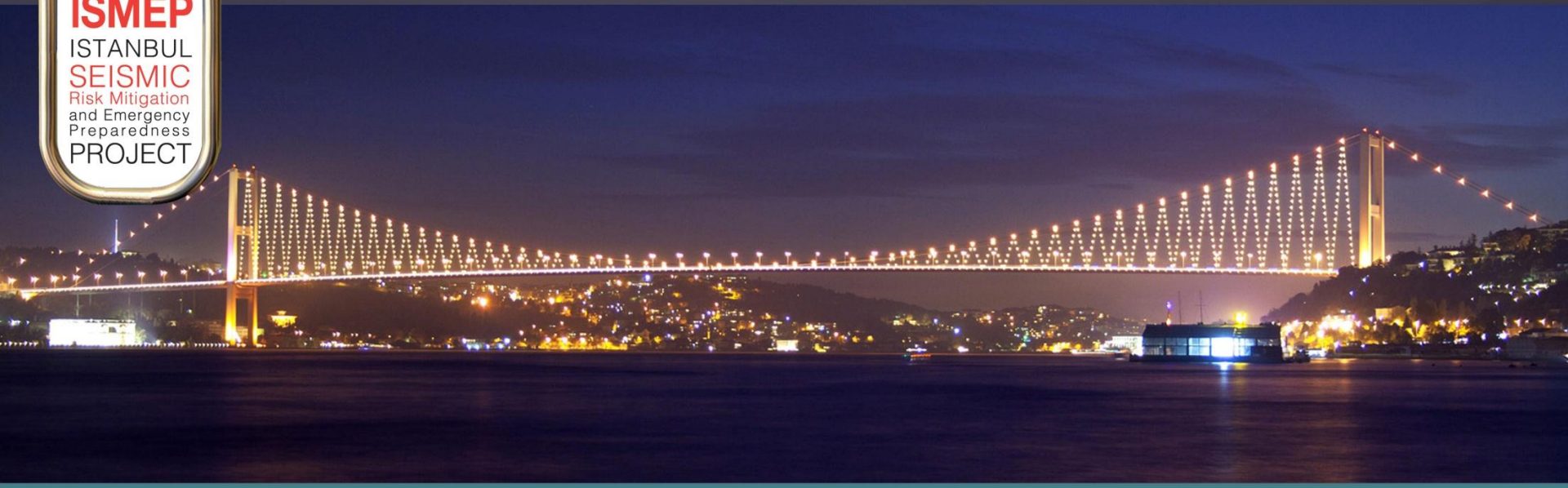
  - Providing leadership and operational trainings on earthquake risk reduction and preparedness in areas such as;
  - Retrofitting techniques on schools and hospitals
  - Disaster management response
  - Public awareness
  - Emergency management and communications systems
  - Building code enforcement
  - Volunteer systems
  - etc.

- Sharing our own experiences as well as other good experiences from other countries

- Providing theoretical and practical training including site visits in Turkey and outside Turkey

ISMEP
ISTANBUL
SEISMIC
Risk Mitigation
and Emergency
Preparedness
PROJECT

We are strengthening our future



Challenges and Opportunities in Building a Resilient City

THANK YOU

T.C. İstanbul Valiliği

İSTANBUL PROJE KOORDİNASYON BİRİMİ
IPKB

Deputy Director of ISMEP