構造計画研究所
KOZO KEIKAKU ENGINEERING Inc.

DISASTER **RISK ASSESSMENT** CONSULTING SERVICES FOR BCP (Business Continuity Planning)

Are you prepared for the next big earthquake?

Contents

Are you aware of how contents would behave?

Buildings

Is your building really tolerable of quakes?

Liquefaction

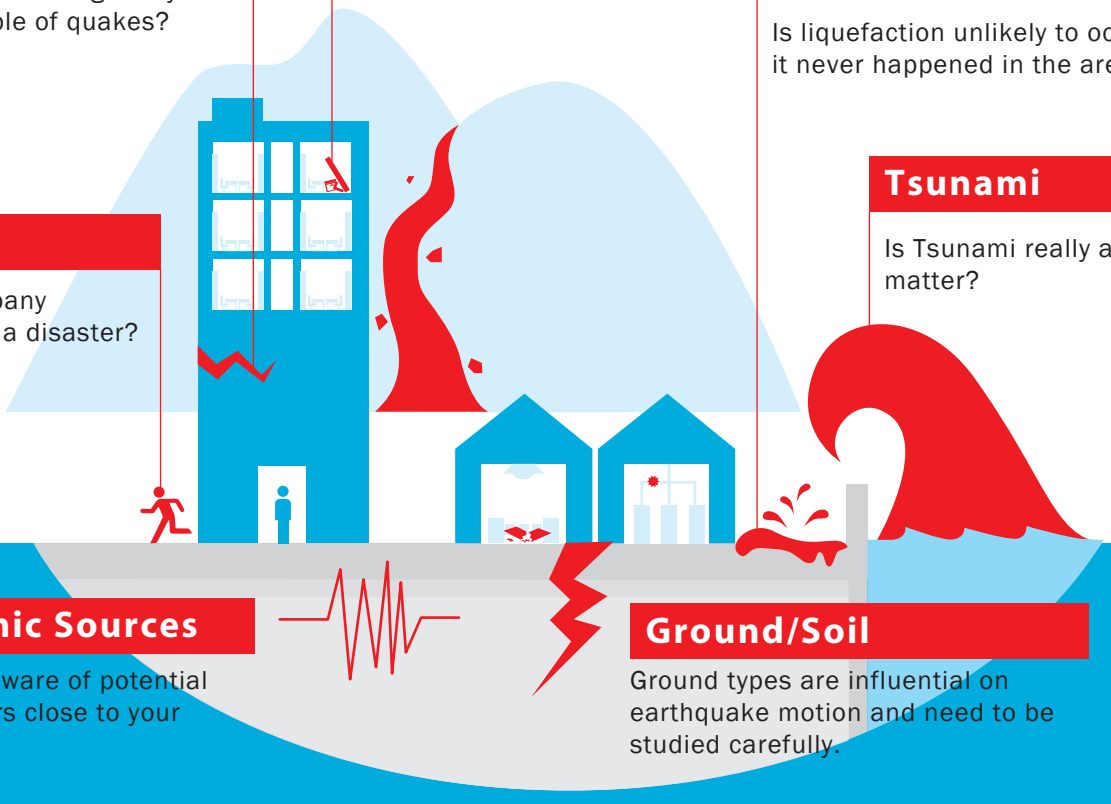
Is liquefaction unlikely to occur if it never happened in the area?

Tsunami

Is Tsunami really a governmental matter?

People

Can your company continue after a disaster?



Seismic Sources

Are you aware of potential epicenters close to your office?

Ground/Soil

Ground types are influential on earthquake motion and need to be studied carefully.

Kozo Keikaku Engineering has the answers.

For more than 50 years, Kozo Keikaku Engineering Inc. has been in business and accumulated significant achievements in earthquake engineering such as structural design and analysis, disaster simulation, seismic diagnosis and assessment as well as in research activities.

Leveraging our rich experiences and state-of-the-art expertise in SEISMIC, GEOTECHNIQUE, and STRUCTURAL ENGINEERING, our skillful engineers and consultants will help you to be prepared for disasters and to make the optimum decision for robust business.

Consulting menu

LEVEL 0 : Screening

Assessment based on information released by governments and research organizations

Reference Materials

Building data
[Location/ date of completion / structure/ size / usage]

Design documents
(or a seismic diagnosis report)
[Plan/Elevation/Sectional Plan, Outline of Structural Design]

Benefits
- Preliminary survey for the Standard/Full Assessment
- Serves as educational materials and/or as a useful reference for BCP project

Site	Facilities	Surroundings
● Review ground/soil conditions ● Review influential seismic sources ● Specify 2-3 earthquake scenarios	● Review structural characteristics of the building ● Assess damage state of the building	● Create distribution maps of assessment results with; • Seismic intensity • Liquefaction susceptibility • Fire-spreading likelihood
Option		
■ Specify scenarios for; • Tsunami/flood • Typhoon • Lightning	■ On-site survey to grasp the building condition	■ Assess recovery capability of; • Lifeline utilities • Railways

LEVEL 1 : Standard Assessment

Assess individual characteristics of the target site/building

Reference Materials

Design documents
(or a seismic diagnosis report)
[Plan/Elevation/Sectional Plan, Outline of Structural Design]

Ground/soil investigation report

＊On-site survey is required if the reference documents are not available.

Benefits
- Assess risks for BCP at a fundamental level
- Useful reference to analyze cost-benefit performance of potential countermeasures

Site	Facilities	Surroundings
● Assess amplification factors of surface ground ● Detailed survey on influential seismic sources ● Specify 3-5 earthquake scenarios ● Estimate expected seismic ground motion intensities	● Assess seismic capacity and natural period of the building ● Estimate expected response of horizontal acceleration and displacement of each floor ● Assess damage state and recovery capacity of the building	
Option		
■ Tsunami run-up simulation with a simplified terrain model ■ Estimate potential of liquefaction	■ On-site survey to identify specific risks ■ Estimate damage state of principal equipment/contents ■ Estimate expected life-cycle costs by earthquakes	■ Create distribution maps of assessment results with; • Seismic intensity • Liquefaction susceptibility • Fire-spreading likelihood

LEVEL 2 : Full Assessment

Assess individual characteristics of the target site/building by dynamic response analysis

Reference Materials

Design documents
(or a seismic diagnosis report)

Ground/soil investigation report

Benefits
- Serves as a third-party evaluation report based on reliable simulations and analyses

Site	Facilities	Surroundings
● Detailed assessment on amplification factors of surface ground ● Detailed survey on influential seismic sources (Same as LEVEL 1) ● Specify 3-5 earthquake scenarios ● Simulate seismic waves from the earthquake scenarios	● Detailed assessment on seismic capacity of the building by modeling structural members ● Simulate response of each floor by seismic waves under the scenarios ● Assess damage state and recovery capacity of the building (Same as Level 1)	
Option		
■ Tsunami run-up simulation with a detailed terrain model ■ Simulate liquefaction behavior of soil under the scenarios ■ Flood simulation under localized torrential rain	■ Damage assessment of equipment/contents based on the actual installation ■ Interview survey ■ Simulate dynamic behavior under past earthquakes (e.g.1995 Hanshin-Awaji earthquake, etc.) ■ Assess damage state of the building/contents under vertical earthquake motion	■ Create distribution maps of assessment results with; • Seismic intensity • Liquefaction susceptibility • Fire-spreading likelihood

構造計画研究所
KOZO KEIKAKU ENGINEERING Inc.
www.kke.co.jp/en

Marketing Strategy & Overseas Dept.
mail i-marketing@kke.co.jp tel +81-3-5342-1006