Research about sophistication of liquefaction determination method

[Point]

Based on the occurrence of widespread liquefaction and disaster associated with it as a result of earthquake in the south of Hyogo in 1995, liquefaction determination method was significantly reexamined in the design basis of specifications for highway bridges and others. However, many parts of such revision are provisional, and it is required to rationalize the liquefaction determination method. Therefore, in this research, data of liquefaction examples and non-liquefaction examples in the past earthquakes were collected, and the correlation between in-situ test results as well as force other than earthquake and the actual liquefaction examples was studied, for the purpose of sophisticating liquefaction determination method, in order to study the impact of particle size property and earthquake motion property on liquefaction resistance.

As a result, ground data of liquefaction and non-liquefaction sites in the past earthquakes were collected, and liquefaction examples database was created. By analyzing this database, correlation between dynamic shear intensity ratio and parameter related to fine fraction content rate as well as earthquake motion property was revealed, and new assessment method regarding the impact of these on liquefaction resistance was suggested.

Keywords: damage example, liquefaction, earthquake, fine fraction content rate