To forecast the consequences of earthquakes, it is important to assess risk by understanding what historically has happened in the region in terms of earthquake location, frequency, magnitude, and intensity of ground shaking.

Geographic Information Systems (GIS) are used to relate information spatially. This framework is ideal for performing geographic calculations to ask “what if” situations for making informed decisions.

Hazards US (HAZUS) is a standardized methodology for performing loss estimations, using GIS to model the built environment against the backdrop of possible natural disasters. HAZUS was developed by FEMA in partnership with the National Institute of Building Sciences.

Once the earthquake hazard is studied, it is also important to know what is vulnerable – this includes people, buildings, contents, utilities, and potential business.

With a detailed inventory of information on geology, population, and building inventory, the HAZUS methodology may then be used to estimate the scale and extent of damage and disruption that may result from potential earthquakes.

Using informed estimates, it is possible to mitigate the risks and reduce potential losses from earthquakes by creating awareness, retrofitting existing buildings and infrastructure systems, better regulating future construction, better preparing response before an earthquake, and speeding response after one. Some implementation strategies have already been initiated and are discussed in this report.