Fragility & Vulnerability

The following slides feature questions and answers regarding fragility and vulnerability discussed during the launch of GEM's global products, which took place on the International Day for Disaster Risk Reduction in 2023.

GEM GLOBAL EARTHQUAKE MODEL working together to assess risk

OQ OPENQUAKE calculate share explore

I have done my bachelor's research work on seismic risk assessment using OpenQuake Engine but I don't have fragility and vulnerability data for our specific building class. Is there any way I can get my required data?

You can find out more about the fragility and vulnerability models in the documentation (https://docs.openquake.org/vulnerability/index.html) and can access the models here: https://github.com/gem/global_vulnerability_model

I would like to ask if you have like a form for the assessment of damages after an earthquake. I mean the damages in building structures.

GEM has not developed a damage assessment form. There are various forms available around the world, such as the AEDES form used in Italy.

Are your damage functions suitable for individual buildings or aggregate zones? The two can be quite different …

See video for live answer

Please kindly advise if there are different typologies for URM buildings or they are classified as one building class.

There are a few different URM typologies (I believe 5) based on the type of brick and mortar (and of course, the number of storeys)

For the available fragility curves, is there access to the corresponding mean and βo values for each curve (in addition to the discrete period vs value terms)?

We are not openly distributing fragility curves, only vulnerability curves. However, the parameters of the fragility models are provided in the documentation: https://docs.openquake.org/vulnerability/fragility/. All vulnerability curves are presented in discrete form, but for each value, there is a related COV.