



SITE SELECTION FOR ENGINEERING STRUCTURES AND EARTHQUAKE

Summary:

An earthquake is a natural event and it is quite easy and beneficial to convert it to wealth rather than disaster. A strong earthquake exerts its catastrophe on the buildings/structures found in the soil grounds. There is not even a single case study that creates catastrophe where structures/buildings are erected on/in the rocky ground whose extensive planar discontinuities are free of expansive clay minerals. Every strong earthquake has proven this reality.

The last earthquake with a magnitude of 7.7 hit Pazarcik/Kahramanmaras/Turkey on the 6th of February. The epicenter is at the fertile soil plain of the township Çigdemtepe (Crocushill)/Pazarcik which has been erected on the weak rock of clayey limestone. Despite that, casualty (the number of dead and injured) is zero in the township of Crocushill) whereas a very severe disaster has occurred in (a) Battalgazi and (b) Harran soil plains which are orderly 160 and 200 km away from the epicenter. The reasons behind this fact are “the seismic energy attenuates in strong rock over a thousand times more than that in thick ($t > 20$ m) soil mantle” and “wave velocity in rock is practically 30 times higher than that in saturated soil”. It should also be noted that there is no liquefaction in the rock.

If the locations of engineering structures are chosen other than irrigable agricultural areas, fertile soils and possible landslide areas, no problems will be encountered. It is not important where and when the earthquake will occur, but where it will collapse. These hazardous areas also overlap with agricultural areas.

Key words:

Earthquake, rock, soil, catastrophe, soil fertility, Kahramanmaras

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