

Case study of Earthquake museums landslide in Tehran (Iran)(English Poster)

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Abstract:

Case study of Earthquake museums landslide was one of Tehran Disaster Mitigation and Management Organization (TDMMO) project. TDMMO affiliated to Tehran Municipality is the responsible and coordinative body in disaster management system in Tehran. With respect to geographical and geological factors, Iran is among the first 10 disaster-prone countries of the world which has been suffered from extremely high human and property losses of natural disasters such as flood, earthquake, Landslide, drought and so on. Tehran is capital and largest metropolitan city of Iran and TDMMO base on its responsibility is planning for mitigation of natural disasters' effects and according to the objectives of the Organization; has been started study of the earthquakes risk and survey of active faults in Tehran and also for increase of public awareness, to knowing about preparedness against natural disasters specially earthquakes and to make the situation of occurrence of an earthquake more tangible through training in line with mitigation, risk reduction and increase of public participation in emergency response decide to build an earthquake museum. The location of museum structure was located down side of a big Landslide. In this article the result of landslide study is reported.

1- Introduction

Tehran and its suburbs are located on major seismic faults so ignoring the risk of earthquakes and landslide in Tehran and in case of occurrence earthquake, this city will face with dire consequences. The Central Alborz seismic belt (seismic belt of the

Alpine – Himalayan) is located in the north of Tehran and also deep sediment and Quaternary sediments that covered northern slopes of Tehran, so the occurrence of large slides during the earthquake was not unexpected. So high potential of sliding threat north part of Tehran city, Because of that, for any structure in that area, landslide survey study is necessary. Hence when our Organization decided to build an earthquake museum, requested of our group (Hazard geological group) as geologists, to confirm the site location. For hazard estimating of this study, we gather geology information, soil mechanics tests, and micro-tremor data.

2- Objective of Earthquake museum

The objective for implementation of this project is to pave grounds for increase of public awareness, to institutionalize culture of preparedness against natural disasters specially earthquakes and to make the situation of occurrence of an earthquake more tangible through training in line with mitigation, risk reduction and increase of public participation in emergency response. Steps taken for implementation of project:

- Carrying out preliminary studies,
- Studies for selection of appropriate location for construction of museum,
- Follow up allocation of selected places,
- Proposing draft plan: Proposed draft plan for Tehran Earthquake Museum.

3- Landslide and Fault rupture Hazard

When we started to survey, base on GIS data layers (That were produced before in TDMMO), we

understood that a huge active landslide was located on top side of that field (fig.1.(a)), and that site was located in main fault zone (fig.1.(d)). So the location of museum was threat by two big hazards, Rupture displacement and Landslide.

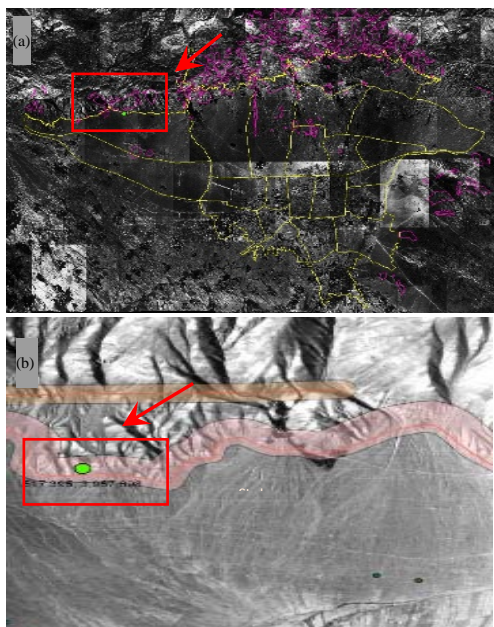


Fig.1. (a) Site location of museum on Tehran map; (b) Site location of museum on fault Zoning

4- Estimating of hazard in study area:

For estimating of hazard in study area, we gather geology information, soil mechanics test parameters, and Electrical Resistance data. We saw plenty of faults trace in the study area also there were a lots cracks on top side of field. Difference height of museum location with the top side mountaintop is about 600 meters.

5- Estimate age and deep of landslide

By our investigation, the age of landslide was estimated between 1000000 till 700000, and depth of landslide was about 80 m. Estimated depth matched with electrical resistance chart. Because the site of earthquake museum is located in active fault zone and down side of landslide and base on obtain results, we suggested for the structure of the museum, any necessary civil protection operations should be

consider. Also for avoiding of fault rupture hazard, all recommends that mentioned in Formulating specific regulations for building construction in fault (that prepare by TDMMO) should be consider.

6- Acknowledgements

We would like to thank A. Sadeghi (Head of TDMMO) and F. Saleh (Mitigation and risk reduction deputy) due to their support of this project.

7 Conclusions

The findings obtained from these field investigation are as following:

- (1) The age of landslide was estimated between 1000000 till 700000.
- (2) The depth of landslide was about 80 m.
- (3) For the structure of the museum, we suggested any necessary civil protection operations and all recommends that mentioned in Formulating Specific Regulations for building construction in fault (TDMMO), should be consider.

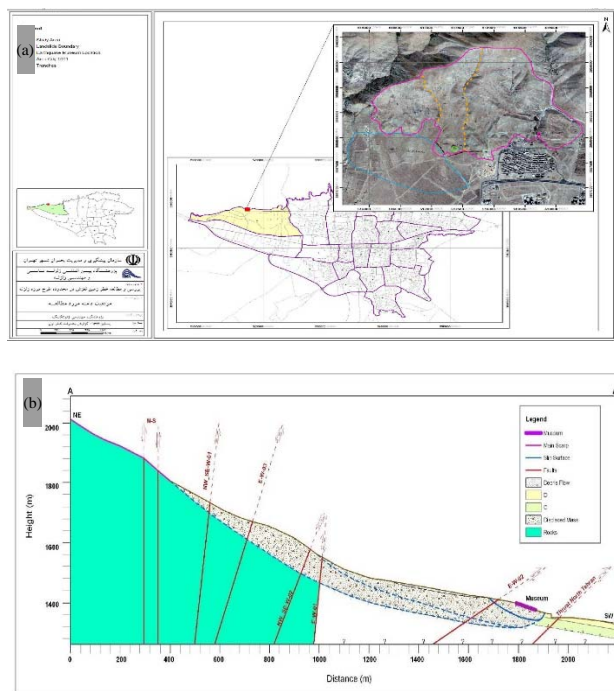


Fig.2. (a) Location of landslide on Tehran map and Tehran area photo, (b) Cross section on landslide and study area.