

The role of geomorphologic limitation on physical development of Tabriz metropolitan In order to optimize the land use

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Extended abstract

1- Introduction

Early studies in geomorphology limitation in urban areas for the identifying of the physical development of city's such as a stable (very low risk), relatively stable (low risk) and unstable (high risk) and also very risky area has a major role in planning and urban management. In city planning, should circumstances change in any activity that is likely to trigger a mass movement is to be given, (Roostail and Jabbari, 1386, 85). According to Rajaei opinion (1373: 209), damage to buildings and structures are usually occurred are often not relevant to operations, engineering and architecture, but more than 90% of losses related to the replacement and location of buildings and structures is based on inaccurate site selection. Landslide in the Offsaran town, Neginpark and Valiasr in Tabriz in 1369 and 1370 caused the

destruction of more than 20 residential units and approximately 60 units were in danger of destruction, Abedini (1388: 42).

2- Methodology

Due to the nature of this research, this study was done as form as documental, field work (Survey), and laboratory. First, with using topographic maps (1:50000) and air photos (1:55000) to do field work was done morphometric slopes. Then

The survey, observation and field samples of their various headquarters in Tabriz for different characteristics of the soil formation was done to indicators liquefaction, plastic limit, with granulometry of soil formation and experiment. In addition to drawing this research maps Arc GIS software was used.

3 –Dissuasion

Now a day due to geomorphologic limitations of Tabriz city in physical developing has been trend to section development such as Sahand and Marzadaran towns. Recently Baghmysheh, Roshdeh, Valiasr, Golpark, Fahmideh

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and, etc, due to vicinity to the North fault of Tabriz (the fault length is 170 km) and its branches on the mountain slope with loose marl formation are developing.

Tabriz fault with the records of earthquakes and even 7.7 Richter, indicate the area is high risk. In the past much of the city site several times due to earthquakes according to fault activity extensively destroyed. Author's field laboratory results indicate a high percentage of clay 7 / 50%, silt 6 / 34 and the sign of plasticity (4. 40) in the West of the Tabriz neat the railway and Ajichyi River margins (Table 1). The existent of sand (%4. 41), clay (%15/32)

Liquefaction Limit relatively is high (6.36) and plastic index (30.3) on the Valiasr Hill slope areas in the south East region of Tabriz and in Yagchyan indicates a potential instability in the Earth's tectonic stresses. Field studies result showed that the old alluvial alluvium with some combination of large and medium stones with a lower fine-grained matrix in the North West Airport reliable platform for future sectoral development is suitable. Subsidences of some structures, walls crack, and so is evidence of instability Baghmisheh Parks, Valiasr, and Golpark, etc.

Table 1. Results Granolometry soil texture to determine the extent and locations sampled them.

| PI -Plasticity Index | Liquefaction Limit | Silt present | Clay present | Sand present | Sampling area |
|----------------------|--------------------|--------------|--------------|--------------|-------------------------------|
| 40.34 | 42.12 | 34.6 | 50.7 | 21 | West of Tabriz (AjiChyi bank) |
| 27.3 | 28.22 | 21.2 | 24.25 | 38 | Tabriz university area |
| 30.11 | 31.7 | 26.4 | 38.3 | 33.3 | Center of Tabriz |
| 30.3 | 36.6 | 28.32 | 32.15 | 41.4 | Valiasr in north east of city |
| 34.6 | 37.3 | 34.5 | 48.42 | 39.34 | Roshdeh in the north of city |

4 – Conclusion

Due to space restrictions in the physical development of Tabriz, topographic, geomorphic, and limitation in the industrial, commercial centers, and manufacturing city in the margins (as a gap), are very sensible. The range of mountains Oveneabn Ali in the north of Tabriz (the surfaces inclined between 10 to 25 degrees), with receptively layers of salty marl, limestone, sandstone and conglomerates during occurrence of earthquake and rainfall heavy, causing displacement of a material (rupture, slip, Soilefluation and liquefaction (Ticsotrophy phenomena) and will be exert damage to the foundation of urban

buildings. The slope deposits in North, North East and southern parts of Tabriz concluded unstable and disproportionate to the construction and urban structures are considered.

Today the site of Tabriz city due to the rapid development of urban land use d are contacted with varied topography and hydro- geomorphology situation problems. So would be avoiding from heavy and high constructions in the vicinity of active faults. Because of heavy investments in the region with alternating layers of marl slope (contains salt and limestone), sandstone, conglomerates and settlements ValiaAsr and Rshdyh, Fahmideh and so on, not only to intensify

the risks are hydro geomorphology but also during a strong earthquake caused to Liquefaction occurs, as well as movements in the slope layer and lead to the destruction of buildings. Therefore the from construction of the huge building on slopes greater than 20 degrees lands, especially in eastern and northern parts of East Tabriz must be avoided, because those slope pediment land areas have a loose marl and active faults.

Keywords: Tabriz metropolis city-Geomorphological limitations-morphodynamic phenomena

References

- Abedini Mousa, (2006), Analysis of the land use in the Ardebil tourist city due to the environmental potentials (with emphasizing on the geomorphic problems of urban site. National congress of urban management and planning. University of Fardosi Mashhad.
- Abedini Mousa,(2008), An analysis on the processes of historical development of tourist Ardabel urban with emphasis urban land use. Research Project result in the University of Mohaghegh Ardabili.
- Abedini Mousa, (2008), An investigation on the roll of hydro-geomorphology hazard's and deposition in the determining the urban land use.(with emphasis on urban structural foundation instability).4th national congress on civil engineering .faculty of civil engineering ,university of Tehran.
- Abedini Mousa,(2009), An investigation of the tectonic and weathering surface formation of Sareyen tourist town (with emphasis on urban structural foundation instability).8th international congress on civil engineering Shraz university.
- Abedini Mousa,(2009), An investigation on the development limitations and Environmental hazard's on the Tabriz metropolis city. Research Project in the University of Mohaghegh Ardabili.
- Abedini Mousa,(2009), The role of frosting process and infiltration waters in the destruction of asphalts in Ardabil streets and strategies for decreasing that risk with emphasis on infrastructures. 1th congress on the degreasing and controlling influence of natural hazards .Organization of Climatology and Ardabel province governor.
- Alan Borning, Paul Waddell, and Ruth Foster. (2006), Using Simulation to Inform Public Deliberation and Decision-Making. Preprint of paper to appear, Digital Government.
- Azimi, Nouraddin, (2005), The morphology changing of urban, Quarterly, geography and regional development journal. serial number 4.
- Babai Agdam, faradon, and Abedini Mousa,(2008).Modeling of Sarayian urban land use. Using CLUE model in 1400.Reserch Project result in the University of Mohaghegh Ardabili.
- Brown, Robert Wade, (2000) Practical foundation engineering handbook-second edition published by McGraw-Hill.
- Che ,F.H, (1975), Foundation on expansive soils, Elsevier scientific publishing company.

- Darwish zadeh, Ali, (1991), geology of Iran. Published by Nasher Danish Amroz.
- Ebrahimzadeh, Esa and Rafahi, Gasam, (2009). optimal site selection in the urban development (using GIS), Quarterly, geography and development journal. serial number 15.
- Esmaili Sirous, and Asadi, Mohammad, (2004). Land slide of Nagenpark area in the Tabriz. Special periodic Bodenaj, Payam Nor university.
- Francesco, S, et al, (2009), Curvature analysis as a tool for subsidence-related risk zones identification in the city of Tuzla (BiH). Geomorphology Vol 107, PP (316–325).
- Gazi fard ,Akbar and Emami, Sayed Naim, (2001), Foundation of Engineering Geology. Jahad Danish gahi of Esfahan University
- Geology maps (1:100000), Arial photos (1:55000) and Topographic maps (1:50000).
- Gyasiyan, Hasan and et al, (2003), Failure of tiny sols in the granular soils in the tree dimential experimental. 6th international congress on civil engineering. Industrial university of Esfahan. pp(340-341).
- Hasami, Kaled, (2001), the project on paleo- seismology of the Tabriz fault, The geology organization of Iran.
- Hossinzadeh Delir, and Maleki. S (2009), Explanation of sustainability indicators in an urban zone using sustainable development approach in the city of Ilam Journal of geography and Planning. Vol 13. No 26. pp(29-60).
- Janalizadeh Chobbasti, Ali, (2003). stabilization of tiny soils by adding microsilica with lime or cement. 6th international congress on civil engineering. Industrial university of Esfahan.
- Mamarian, Hossin, (2007), geology for engineering. University of Tehran press. nine reprinted.
- Moghimi Ebrahim, and Shapouer Godarzinejad, (2003), Environmental Hazards. Translated. Samt press.
- Moghimi Ebrahim, (2006), Urban Geomorphology. university of Tehran press.
- Nader Sofat, (1996), Mohammad Hossain, (1379), Urban geomorphology. Pyam Noor press.
- Najafzadeh, Nobar, Sima, (2006), An investigation on the morpho-tectonic, fault of Tabriz using morphometric index. University of tabriz.
- Nazaryan, Asgar. Iranian urban geography. Auteur, press by payam Noor university.
- Organization of housing and urban planning of North Azerbaijan, (2006), The rust of detailed plan.
- Pourmohamadi, Mohammad reza, (2003), urban land use planning. Samt Press. printed by Sazeh.
- Rajai, A. hamid, (1994), The Application of geomorphology to landscape efficiency and environmental management. Nasher Gomas.
- Roostaii, Sharam, and Jabbari, Iraj, (2007), Urban geomorphology. Samt.
- Roostaii, Sharam, and Sari . Sarraf, Behroz, (2006), Zonation effective environmental hazards in the physical

- development of the Tabriz city .Quarterly, geography and development journal. serial number 10.pp(110- 126).
- Sariat Jafari, Mohsuen, (1996), Land slide. Principles of natural slope stability.
- Smith, K (1992), Environmental Hazards Routledge.
- Tagipour, Karim, (2002) investigation on the Tabriz fault between the Bostan Abad and Tabriz.Tabriz university. Faculty of physical science.
- Zaree, Mahdi,(2001),Investigation on earth quick risk of around north fault of Tabriz and around the Iranian faults. Research Bulletin of earthquake. Number 2 and 3.year 4.
- Zaree, Mohuen, (2007) investigation on the North Tabriz fault and roll of them to the physical development of the Tabriz city. M.S Thesis. Azad University of research unit of Tehran. Supervisor Moghimi.Ebrahim.

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