

Introduction of Active Tectonic in Urmia – Silvana Region

fardin-pashazadeh

Corresponding author: West azarbaijan Natural resours office

E-mail address: fardinbijan@gmail.com

Abstract

Urmia – Silvana region is located in north – west of Iran in west azarbaijan state (west of Urmia Lake) .the purpose active tectonic surveying in this zone is surveying of relative vulnerability from view point of geology moves and activations . this subject studied by G.I.S method and finally relative vulnesability of ourmiya – silvana region is evaluated .At first map of fault zones are prepared and finally by using of G.I.S their active limitation and map of active fault zones are afforded . In next stage land slides of zone are identified from 1: 20000 photo map and last are digitized then with considering their magnitude the map of slide zones then landslides are prepared finally map of zones is prepared .In next stage are geology parameters (Tectonic geomorphology of Escarpments and Mountain Fornts & Use of Surficial Earth processes & Stream gradient index & ratio of the width of valley floor to valley hight & ..) are prepared and those maps are assimilated with seismological map (prepared from magnitude of earthquake) and relative vulnerability zone of Urmia – Silvana is prepared . Finally prepared : hazard map of Urmia – Silvana west azerbaijan province , has a survey about 12863 square kms and is located between Oshnavieh`s active faults in south and salmas active fault on north. From the viewpoint of politic divisions , it includes considerable part of Urmia city. For preparing the risk fullness map and staging active tectonic of the region , several information layers have been used that finally have been recognized after mixing these layers using geographical information systems of special regions with different geognosy features that will be mentioned after general indications about region in following lines.

generalities

This province is bounded to the north by autonomous republic of Nakhjavan , from east to east Azerbaijan province and from south to Kurdistan province and from west to Turkey and Iraq countries. The highest place of the province is avrin peak with the height of 3622 meters in Khoy city and the lowest one with 710 meters height from the sea level is located next to Aras river in Maku city. , shows the location of the province in country and the location of project limit in west Azerbaijan province. The climate of province is generally affected by cold north airflow and polar Siberia and also polar naval and torrid naval. The maximum absolute temperature is about 44 degrees centigrade and the minimum is about -34. The average amount of rainfall in the region is about 300-400 mls, and because of the mountainous condition of the region , most of downfalls are snow. In moving from center part of province to the half north, downfall range decreases and in going to half south it increases.(Maku and Sardasht 250-800 mls). Population structure of Urmia has had considerable changes from 1335 to 1385 in a 50 year period and this has led new residential regions to be built so city's limit has increased multiple times during this period and this happens when population increases from 67,6 thousand to 604 thousand people. Thus this requires more exact surveys on the residential regions to prevent from natural disasters like flood , earthquakes which threats residential regions and mankind societies in a way.

General geology of the project region

This region is a part of ophiolite and changing belt of Sanandaj-Sirjan zone according to division of sedimentary-constructive units of Iran by Eshtoklini (1968). Facies of this region include part of Zengine and ophiolite. Eshtampali (1978) has put this region on the north of Volkanomus hole of Iran and finally has named Magma serves of this region in the zone of Urmia-dokhtar magma zone and Alborz magma series . This region which is a part of west Azerbaijan province is the westernmost part of geognosic state of Iran that has previous percambery formations and has been covered with younger sediments has a considerable width that Silvana's complex sediments have been put on them. Banider and Soltanieh builders haven't been known and constructor sediments have given a distinctive lean on the constructor.

Cretaceous stone have a considerable development by three complex chemistry and ruin facies. Palsos sediments haven't been recognized but other sediments of different constructions of tarsir with high development are ready in the region. Alluvions mostly include detrital sediments in sorts and sandstone . Olgus-mius alluvions include 200 meters of lime stones similar to Qum constructors. Quatormoz constructions mainly include Traverten ,young geyser rocks ,waterways and cones that veil origins with low batopography. In next chapters , areas faults that have tremble potential are evaluated. Among the most important of them we can mention Urmia fault , Drik fault , Silvana's fault , Oshnavieh fault and other active faults in project region. each of these faults has experienced stirs during last years and creates some risk for residential areas .

In regard of fault's activities ,special structural micro zones in the region established , as Salmas zone , Bakhtar zone of Urmia lake , Miandoab zone and southern islands of Urmia lake have Varity of tectonic qualities shows fault's situation in the area and area's faulty width. Among all important and several implement that we can find out in one area's structure land , using implements and data that are for minimizing toll and finally comparing them together that can help to recognize variant areas. For this , important elements are Topography maps of ethnic area that have more usages and can be used in some methods like:

Hyposometring integral_Drain asymmetry_Mountain frontal waving_Width of valley bed

Results have been prepared in form of tables and have been edited that collected data in G.I.S system have been converted to a series of maps that have been used in preparation of active polls.

In quaking subject , statistics and data related to happened machinery earthquakes during years 1980 to 2007 are registered and finally relation of these earthquakes with active faults are coincided and prepared in basis of depth and magnitude of earthquake's risk with plans. As a result , extant faults are categorized.

Map earthquakes that have happened in pattern realm and vibrating fountain width in realm. Data layers of area's earth slips are prepared using surveying preumatic pictures of 120000 project realm and transmitting them on the topography maps by conformity of data layers related to faults and landsliding , it's absolute that the most important element of bulk movement is related to fault's moving area. In this chapter , too ,the sensibility of rocky units of project area with usage of riskability plans of the region in viewpoint of landsliding is completed with use of area's pendant plan. Surveying deposit phenomena is one of the most important geognosy phenomena that uses the methods of data statistics related to underground

water tables nutrition in two areas of Silvana flat and their depletion has been assessed . Finally it's assessed again with usage of radar picture methods and absolutely it has less importance in phase of project's range deposit. Another important phenomena is geyser that has less emphasis in this case Some of area's most important geysers are Sahand and Sabalan in the east of Urmia lake and Ararat in north of province in ridge of Iran and Turkey that they don't have significant influence in project's region. Constructed and under construction dams` breakings and intaking Urmia city , spate's diffusion sheets and dam's sediment are important parameters that their situation and flood trapping width and sediment trapping with use of G.I.S methods are estimated. Ultimately by using collecting riskability plans and preparing widths of risk by different aspects of studied area's geognosy dangerous comparative are prepared that are shown in map No 4 .