Zonnation of western Alborz zone based on geomorphic indices

Z. Mehrjerdi A. A.

Islamic Azad University of Meybod Branch

Ghayoomiyan J.

Institue of Soil and water preservation

Abstract

western Alborz between located between 30 longitude from 50 to 49 E within the two Caspian plain in the north and south of Qazvin and in place trend change in West and Central Alborz. Movements of the earth's crust is one of the most important factors shaping the perspective of land so that affected movement on the ground morphology and related complications. Some of these include the quantity of Sinus Mountain Front ,River Gradient, Zone of Deep Valley , Asymmetry channel and curves of the 30 hypsometry Sinus which have been studied in 30 Basins watershade .The above indices have been activated in three categories which include high activity, moderate and week activities .The results indicate that thirteen Basin area located in active basins and are energetic , while the other fourteen watershed basins can be categorizes as moderate and the other basine and watersheds are inactive

Keywords: *western Alborz, indicators of tectonic form, zone scheme, qezel ozene*

Introduction

Rastagh Area is located in 35 kilometers northwest of Yazd and south of Meybod .This area is in between 54° 10″ longitude 30° 12′ 54″ Eastern and latitude 31° 56′ 30″ to 32° 10′ 15″ North with an altitude of 1218 meters from sea level. This region with more than 13 villages in the Yazd plain - Ardakan is located along the main road.

The alluvial fields of south of Meybod and particularly in the Rastaq region within 20 years the land subsidized between 50 t0 120 Cm . The result of this subsidizing is very devastating in the region. For example of these damaging include : the destruction of casing water wells and subsequently drying the wells, and thus change the slope of valley and surface drainage, destroying the agriculture land , loss of aquifer sides, creating left and deep on the ground and in cases where damage to structures and ways to achieve communication in the study area many factories and manufacturing units in the structure of industrial towns or are under construction, and these will be more and more in futures .In addition the cities of Meybod and Ashkzar locating in this area. The networks of water pipe supplying , gas, electricity and telephone widely extending in these area and all of the are under crisis condition.

Methods

In the first stage of this research we have collect the pervious information .In the next stage during the field work we had studied the land development within the study area as well as gender and alluvial development is largely determined well derailing . For better understanding the structural complications such as precision faults, joints and cracks in

ground type faults, the mechanism of displacement movements initially was determined separately for each features. All the sampling points was recorded by most GPS Then by using Schmidt diagram its pole drawing and determine their status and fracture by analysis software WINTEK Point Dipole moment diagram into contour line. For better distribution along the joint show in the region, the software diagram Dips 3.3 was used , and derive the Rose diagram s for this fracture. The different level of sediments with differents characteristic were studied by the help well logging of water wells drilled by R**egional water of Yazd province** . The different samples were studied and analyzed by XRD & XRF method. The information of soil Mechanic Laboratory of Yazd transportation was used for clay shrinkage

Discussion

The main strike of YAZD-ARDAKAN Plane is, North West-South East which are following the main strikes of regions. The Yazd active fault passing along the NW-SE from the center and has displaced the young alluvium in the aria .The biggest and the best water table in Yazd province which is used for agriculture, drinking and industry cities of Yazd, Meybod, is located in the Yazd-Ardakan plain. Operation of the table simultaneously through the aqueduct and deep wells will be done. This table depth based on excavations made in the region has been proven to 400 meters, but the final location Contact stones at least 500 meters following main plain is estimated. Underground water table Rastaq large part of the plain table Yazd – Ardakan, Mahriz that the input and output wells in the North Ardakan is better. Mentioned in the groundwater table to the south are moving north. Because this motion differences between the beginning and end table height to Mahriz If the altitude 1400 m and 990 m in height Afzal well above sea level is located. This means that there is about 410 m level difference between end of two Yazd-Ardakan table. Due to height difference, water damage to the operating table to over flow and underground water flow with relatively high speed and deep to the main table join is plain. However, this slope is not uniform and its value is different in different parts. Mahriz-Yazd and gets to the slope 5/3 in a thousand is better wells K output table is considered, is the slope of 1 in a thousand. In the Yazd Province, about 3000 deep wells and semi-deep wells is in operation , out of these 1700 wells are deep ranging from 1700 and 1300 wells are semi deep . The deepest wells with 400 m .depth located in Rastaq Chah kharkhab. At the initial stage the level of water was only at the depth of 60 meters deep but after 20 years fall done up to 80 meters,that means change of 20 meters within 19 years. This fluctuation is to much for such short period. Figure 1 shows linear hydrographyi changes of water level for 2005 -2004. Table 2 shows deep variation of water deuring 20 years in the Rastaq region

Conclusion

Increased productivity of water resources or decrease water table in the Rastaq region cause hydraulic pressure reduction and thus reduce tensions and create land settlement. Ratio water table in the Rastaq area during 20 years ago was 15/4 m. Soil in this region is silt and clay. Available cracks have a lot of depth in this broader and deeper gaps have been formed . The silt cause soil evaporation humid in deeper region and clay-ciliate forming underground water table Rastaq than to coarse grain sand areas more affected by the creation of effective by the

density forces. In addition to low groundwater levels also increase the thickness of sediments above water table, and both factors, rate of settlement produce intensity in Rastaq region. catching from the water table of pyzometric Rastaq reduced pressure is 3 meters in this cause pressure on the balance of eating and increasing pressure from high sediment table has been modified so that the porosity sediments matching of this decline and increase in density, is the result of subsidence and pillar of the Rastaq Abad specially around the exploitation wells with casing apparent growth. The aqueduct can not create such a dimension to depression. In the other hand to create and karsts dissolution cavities in the constructor of geology in the region and particularly no bed rock. Analysis of influencing factors and possible role of tectonic faults in the formation of subsidence, the total study shows that some of the fractures orientation Yazd-Ardakan plain is due to tectonic factors which affected the region.

Excessive with drawal of groundwater level decline and stagnation are caused mostly stretching type and the radial and have no particular trend.

Excessive withdrawal of water can be allowed a lack of proper management of water resources in the harvest and other losses as a result of massive water additional extraction for the propose agricultural and industrial use or drinking . As a long-term solution based on experience in other countries no choice but to reform water management practices there and the time remaining to be moving towards it.

But for immediate and urgent solution ,we should stop unauthorized users of drilled wells and venture stressed.

References

- Zareh Mehrjerdi, Ahmad Ali. 1996 Study of Dehshir fault as geotourism phenomena. Msc thesis, faculty of Sciences Tarbiyat Modaress University.
- Zareh Mehrjerdi, Ahmad Ali, 2004. Tectonic Model of Western Alburz ,unpublished PhD thesis .Center Research and Sciences Islamic Azad university Tehran.
- Zare Mehrjerdi, Ahmad Ali, Eslami zade, Ezat, Samani Rad, Shahram, 2006 , The study of Subsidence in the South of Rastaq regions south of Meybod twon to understand the reasones of subsidences and method of determination and controlling.

Tabl.1 :Variation of water table of studies wells in Charkhab region2004-2005 (Yazd –Ardekan plain)

عمق سطح آب از نقطه نشانه	81.5	81.72		81.72	81.79	81.95						
ارتفاع مطلق سطح آب به متر	1104.8	1104.58	1186.3	1104.6	1104.465	1104.35	1186	1186.3	1186.3	1186.3	1186.3	1186.3

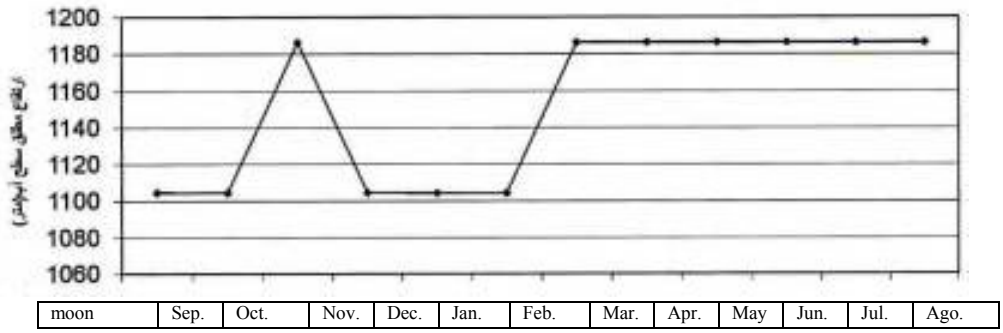

Figure 1 :Hydrograph showing linear changes of the level of underground water between 2004—2005 (after water organization of yazd)

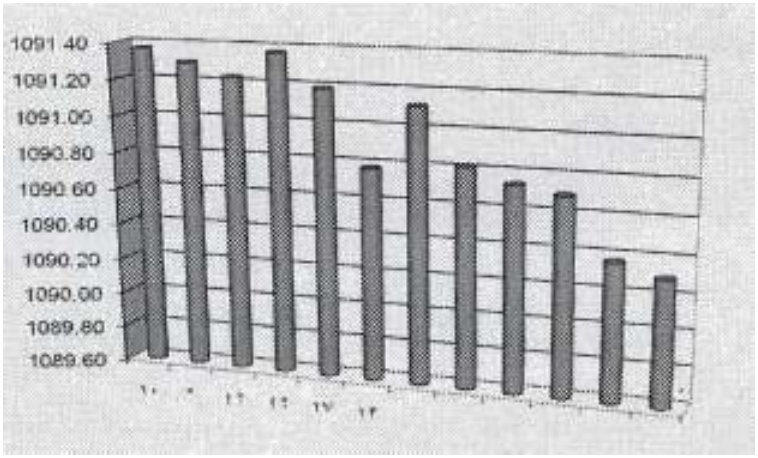

Figure 2-Histogram of hydrograph for changes of water leveling underground water of Rastaq region 1985-2005

Table2 : quality analysis of borhole water from area under studied

Depth (m)	Type Borhole M Table No. 4-A
0-2	High Silt + Clay with low sand
2-3	Silt + Clay
3-5	Sand
5-6	Silt + Clay with low sand
6-8	Silt + Clay
6-8	Silt
8-9	Silt + Clay with low sand
9-10	Silt + Clay
10-11	High Clay + Silt
11-15	Silt + Clay

Depth (m)	Type Borhole AC Table No.4-B
0-3	High Silt + Clay
3-7	High Clay + Silt
7-9	Sandy silt
9-10	High Silt + Clay
10-12	High Clay + Silt
12-15	High Silt + Clay

Depth (m)	Type Borhole AS Table No. 4-D
0-3	High Silt + Clay
3-5	High Clay + Silt
5-6	High Silt + Clay with low sand
6-7	Sandy silt
7-8	High Clay + Silt
6-8	Silt
8-9	Sandy silt
9-10	Silt + Clay
10-14	High Silt + Clay with low sand
14-15	High Silt + Clay

Depth (m)	Type Borhole AS Table No. 4-C
0-3	High Silt + Clay
3-5	High Clay + Silt
5-6	High Silt + Clay with low sand
6-7	Sandy silt
7-8	High Clay + Silt
6-8	Silt
8-9	Sandy silt
9-10	Silt + Clay
10-14	High Silt + Clay with low sand
14-15	High Silt + Clay