

Analysis of the Geomorphologic Features Effective on Establishment and Formation of Settlements in North West Guilan

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Extended Abstract

Introduction

The establishment and emergence of a city, more than anything else, depends principally on the natural environment and geographical location because the natural effects and phenomena have strong impacts on localization, distribution, influence, physical and morphological development of urban areas. Some of the natural phenomena are plateaus, mountains, craters, valleys, plains and beaches, alluvial fans, slopes, rivers, seas, lakes, and etc. (Zomorrodian, 1995: 8). Therefore, one of the most important studies in basic planning of settlements is to identify geomorphological phenomena and to display them on a map of the same title (geomorphology). In fact, geomorphic and topographic features of a geographic place are not only effective on the dispersion or concentration of human activities, but eventually, it is also one of the factors influencing the shape and physical appearance of spatial structures (Ramesht, 2005: 102).

The purpose of the geomorphologic maps is to record information about the forms of surface materials (soils and rocks), surface processes, and in some cases, the age of land on these maps. The most successful approach to prepare such maps is the combination of field studies with the aerial photographs (Hosseinzadeh, 2007: 37). The first geomorphologic map of Iran, in a scale of 1:2500000, is among a set of maps of the near East in the University of Tübingen in Germany in 1990. This was produced and released by Servati, in collaboration with Bausch and Grounret; of course, some maps have been prepared by some colleagues in University of Tehran, with the scale of 1:250000 and 1:50000 (Jamshid Jedari Eivazi, Farajollah Mahmoudi). The point which must be mentioned in this section is that this is the first large-scale geomorphologic map (1:25000) prepared in the vast eastern part of Guilan province (Sarvar, 2002: 1-79). This study is part of a research project conducted by the author in the West of Guilan (Shahmari, 2002: 1-45).

Methodology

This study is a descriptive-analytical study in the purpose and can be functional. Overall, the research process is as follows: the preparation, experience and knowledge about the area, collection of large-scale topographic maps (1:25000) as the base maps, field visits and observation of objects and phenomena on the earth, production of primary map of landforms, geology and slope maps, data analysis, aerial and satellite image analysis, and, finally, analysis

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of the results and production of the final geomorphologic map. Topographic map of 1:25000 and 1:50000, Guilan Faults' Map 1:250000, Geological map of Rasht-Qazvin 1:100000, Geological map of Ardebil province 1:100000, satellite images of the west Guilan 1:100000 and Aerial photos of the West Guilan 1:20000 from the organization of Geological Survey of Iran (published in 1994).

Results and Discussion

The study area is in the West of Guilan province and starts from the zero point of the border between Iran and Azerbaijan (the town of Astara) and includes the southern parts of Astara city, Talesh, Rezvanshahr, and Masal. It is located between $37^{\circ} 15' 00''$ to $38^{\circ} 27' 00''$ north latitude of the equator and $48^{\circ} 35' 00''$ to $49^{\circ} 14' 00''$ east longitude (topographic map 1:25000). This area has 3839.6 square kilometers. This includes about 26.1% of the total area of Guilan Province. The minimum height of the area is 28 meters in Astara coast, and a maximum altitude is about 3197 meters in Baghrouda Castle. The area under study is composed of four distinct morphology sections including:

Mountainous Areas: some of the restrictive geomorphologic factors in development of settlements in the study area are including average altitude of 1500 meters above sea level, steep slopes, deep valleys and different streams on the slopes, existence of fault cliffs across the highlands of Talesh. Geomorphologic map of the mountainous area shows that the distribution of settlements of Aq Masjid (White Mosque), Baskem Chal, Chamlar, Haji Amir, Vonabin, Heiran, Degarmankshi, Damiroughlikesh, Giladeh, Mashand, Dash Dibi, Baharestan, and Latoun is influenced by the geomorphology (shape of the land). The properties which are clearly visible in most areas are lack of flat land for the development and expansion of settlements.

Foothill Areas: the foothill areas have lower elevation than the surrounding mountainous areas, but, compared with the plain areas, they have higher elevation. With a relatively gentle slope, the landforms extend a distance from mountains and connect to the plain. The main geomorphic elements of foothills can be alluvial fan, concave and convex slopes, valleys and streams, cliffs, and the water path. Physical expansion of settlements usually encounters an obstacle while developing from one side. In top of the plains, the existence of mountain, high steep rocks and boulder debris, and sediments are the major obstacles for spatial development.

Plain Regions: the plains have higher rank than other units regarding the expansion and the number of urban and rural settlements. Spatial distribution of these kinds of settlements is more regular compared with the mountainous areas, but less regular compared with the foothill ones. The most important cities in the study area, such as Astara, Lavandavil, Choubar, and Haviq are formed in plain units. Among the most important effects of geomorphology on plains of the study area we can mention Kanroud, Lavandavil, Cholvand, Choubar, and Haviq. As most of these rivers pass through the city, they have left some traces in cities, some of which are river signs around Choubar, Haviq, and Keshli.

Coastal Areas: the shores of the Caspian Sea are among the lowland shores and beaches (sand and gravel). The recession and advancement of sea water and high water levels in aquifers are bottlenecks and geomorphologic obstacles of the area and they are changed into environmental problems in releasing urban and industrial wastewater in the city of Astara. It is recommended to prevent the construction of residential houses and structures contributing to this waste.

Conclusion

The diversity of natural features and geographical positions has caused the heterogeneity and

inconsistency in the creation, distribution, and density of urban and rural settlements in the study area. Thus, at the first glance, it is likely that there are more settlements in the East (toward the sea) region compared with those in the West (toward the mountains). Study on the topographic maps of 1:25000 and analysis of the statistical data of the villages at different levels (Organization of Management and Planning, 2005, 37) suggests that, according to the increase in the height from the east to the west, the number of urban and rural settlements will be increased in a way that, from among the total villages of 692 in the study area, 179 villages are on the shore (height of below zero meters).

Keywords: geomorphology map, physical development, settlements, town and village, west Guilan.