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Analysis of Borazjan Geomorphologic Domain

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ABSTRACT— In general for study the geomorphic domain in geomorphology the hierarchical classification system is used. This research tries to discuss about Borazjan geomorphic domains by using hierarchical classification system. The results show, this area consist of form units such as convex surfaces and plane surfaces. Also landscapes formed from some land feature and land features formed from territorial units like alluvial fans, Gulli, and alluvial terraces.This territorial units show that generally formation systems of this area appear as the result of fluvial system performance.
KEYWORDS: Alluvial terraces, Formation system, geomorphology, Borazjan, Bushehr

Introduction

Geomorphology is one of the physical geography branches that will discuss the emergence and evolution of the Earth's uneven in domain of land, beach, and seabed. Part of Geomorphology that studies the processes and landforms between the land and the uneven shallow coastal is the coastal geomorphology (Ziaeian Firoozabadi, 2009). So coastline is the important Terrain and changing short and long term. These changes may be caused by natural factors or human. About 82 percent of the societies live in coastal areas. Having knowledge about behavior of coastline help so much to the beaches management during design and construction of shore facilities and determining the secure coastal margin (Jan Ahmadi, 2014). Now studies for planning on landforms, landscapes in all national, regional, district and local is one of the sustainable development levers. For this goal researchers like K. Dharanyrajan in 2006, Ziaeian in 1997, Khosravi in 2003 enterprise to investigate and identify coastal areas, and can control coastal area through this knowledge for planning, designing and providing an opportunity for ecological balance spaces and also use of technical equipment, and accomplish the optimal management. K. Dharanyrajan in his doctoral dissertation in 2006 (as title of the coastal areas management of south of the Andaman Island by using remote sensing and GIS[1]) has study existing forms and the effective factors in their formation on the Andaman Island and provided study area's landforms map. He has express coastal environmental pollution factors and preventive strategies in this paper (Ziaeian Firoozabadi, 2009). Chech et al (2006) in study of Taiwan coastal plain found that the motion of terrace due to motion of Neotectonic caused the formation of river wave movements (Madadi, 2015). Damizadeh, Chopani, and Hoseinpour (2006) used satellite images to classify land resources in Minab's littoral. Their research showed that the alluvial plains, alluvial fan, and deltas are the largest coastal units in this area (Ghanavati, 2013). Javani (2009) said that studies about landforms are so few in Iran. This is especially severe in coastal areas and there is on condition that the planning and implementation of development projects requiring environmental studies of this kind, Well felt (Ziaeian Firoozabadi, 2009). Therefore, in this study tries to analyzed Borazjan's geomorphic domain that is the area between dryness and uneven shallow shores of the Persian Gulf.

Location of the study area

The study area located in the Zagros Folded units and geographically is located in the range of 51° 05′ longitude to 51° 12′ of East and 29° 15′ Latitude to 29° 29′. This area limited from north to Ganaveh, and from the West to the Shapur-Dalaki watershed area and from south to Ahrom.

[1] Geographic Information System

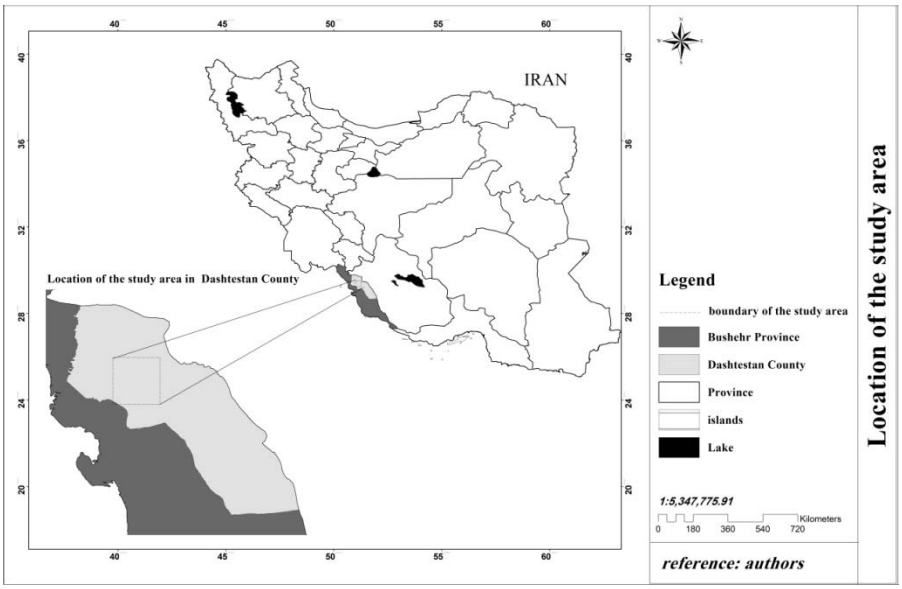

Figure 1: Location of the study area

Research Methodology

This study is based on field visits, library resources and using topographic maps of 1: 50000 Series k753, card 6248IV, digital elevation model (DEM) and taken satellite images. For this purpose, at first by reference a topographic map of the study area the intended region was set. Then various geomorphic facies such as surfaces, parent material and geoforms were traced by using topographic maps, DEM, geological maps and specific satellite images, and their maps in Arc GIS. Then by compilation facies maps the geomorphology maps of the study area were prepared.

Research findings

In general for study the geomorphic domain in geomorphology the hierarchical classification system is used. In this system the largest land form unit is landscape. In fact, a geomorphic landscape is a series of smaller units consisting of convex, concave and plane surfaces place to each other with certain ratios. Each landscape consists of several units can be called land view. Land view refers to a form of viewpoint that the similarities prevailed throughout it or under the process or processes it have shaped. For example, planar surfaces are such landscapes which shaped by the process of stagnant water. Or land view of concave surface (Dashtsar) formed by water sheet erosion process. Geomorphic landscape itself contains smaller units called Land Feature. Land Features are form units that reflect texture, strength, and kind of surfaces. Finally the last and smallest division is geo (land) units or geoforms. Dolines, Gullies, and cirques are the example of geoform. Geoforms are the reflection of the balance between force performance and surface information such as slope, parent material, vegetation and permeability. Geoforms are presented in geomorphology maps and become the base of geomorphosites analysis (Saif and Mohammed, 2010: 18). Hence for correct classification of formic units, the dispersion map and distribution of elevation of the study area was prepared. In the study area the lowest height is 2-0 Mtr that is located in the West, as well as the maximum height of 223 meters relates to the highlands of North and East region. Distribution elevation representative reduce of the height from the North and East toward the West of study area. Wide range of elevation changes in this area has an effect on management systems performance and separation of form units (Figure 2).

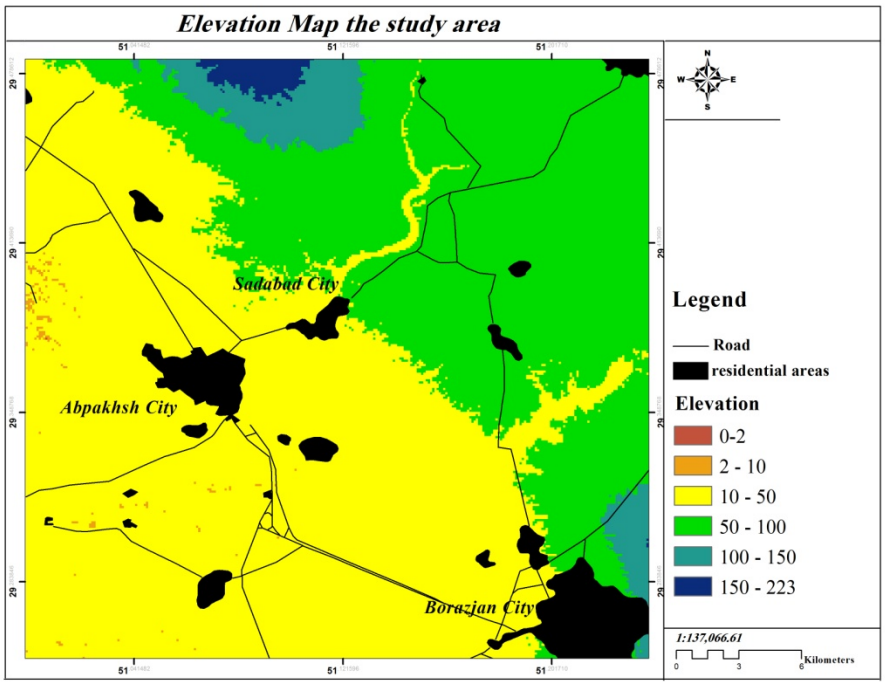

Figure 2 Digital elevation map of the study area

Territorial units of the study area

A) Levels of territorial unit

Landscape of the study area is divided into two units of mountainous and plains. The unit of mountainous has limited vegetation due to low height, low annual rainfall and type of rock. While the plains unit of Borazjan has begun with a very low height by small distance from Mountainous and will continue from river sediment plains of low ups and down and mild slope to the borders of eastern, western and southern areas. Also the highest flood flows and vegetation are located in this unit mainly due to the river flows (River of Shapur and Dalki and Hillah).

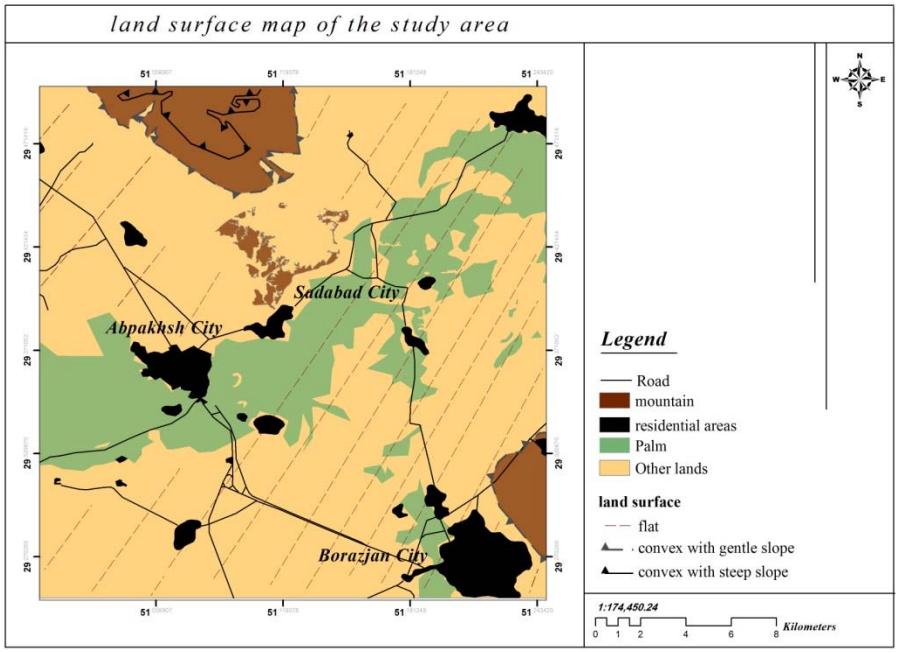

Figure 3: levels of territorial map of Borazjan

B) Parent material

Parent material determines the form units of the landscape in different regions. This information includes facial features that would segregation in form and management. To prepare this analysis, the method of analysis scale curved lines form and geological maps and satellite imagery has been used. Determination of kind of territorial and its effect on management have great importance. Because on the one hand is due to the different resistance of different rocks against erosion factors ,and on the other hand is due to the different behaviors of each of them in different climates. Different rocks resistance against the tectonic factors can also have very different forms ground level. Hence the effect of territorial kind of management is complex and remarkable. Parent material of study area are divided in section 2 which height of region are adapted to cement mass conglomerate with intense alteration and slightly weathered sandstones with cross stratification (Sazand Bakhtiari) .Also there are new low hight alluvial fans mountainous and resources of terraces from the highlands to the West, East and South.

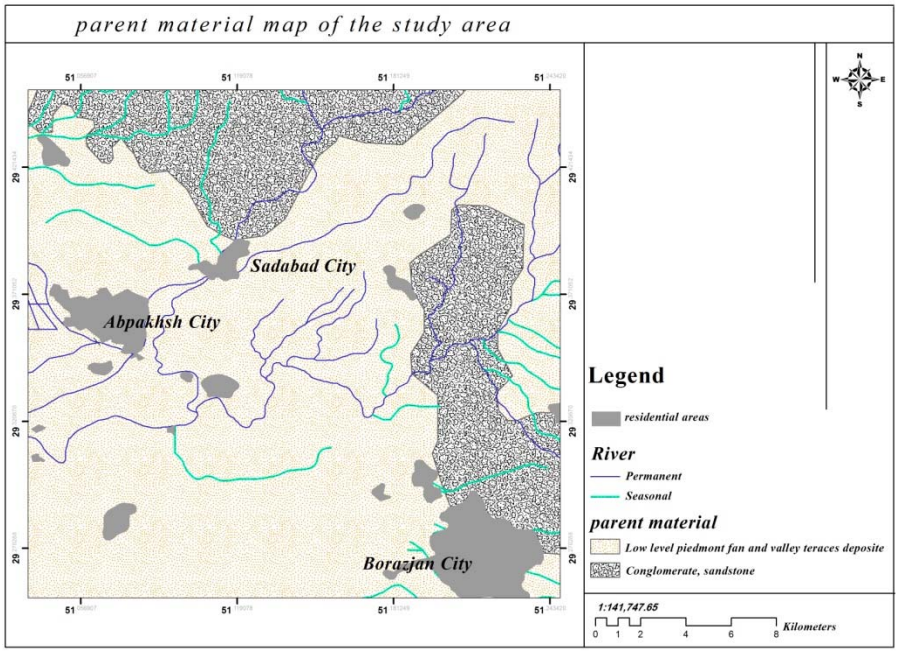

Figure 4: Map of parent materials studied area

C) Territorial units or geoforms

The last and smallest division unit in geomorphology is territorial forms. Territorial forms are the reflection of the balance between force performance and surface information such as territorial slope, territorial kind, vegetation and permeability. As it can be realize to its prevailing process from the territorial forms. According to the dispersion and distribution of a land view form units in the study area and due to the climatic conditions prevailing in the region, different geoforms that are because of different management system performance, dispersing through studied areas. Among these geoforms there are alluvial fans that spread on convex surface (level). These geoforms are the result of fluvial management system performance in the study area. So when move forward from the highlands to the south, East and West of this area will face with geoforms of the result of system performance, such as alluvial fans, alluvial terraces, Gulli, swamps, springs, seasonal lake, watercourse.

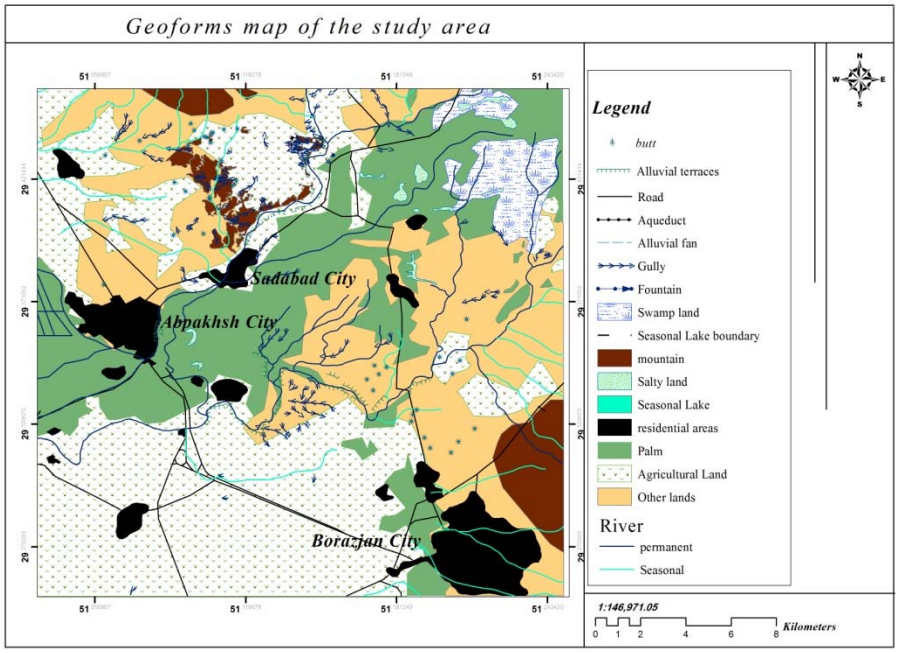

Figure 5: map of dispersion territorial units in study area

In general it can be said that the aim of mapping geomorphology is recording the information about the surface forms, parent material, causing geoform process and in some cases their age. Maps that are prepared in such way, containing basic information about ground systems and can be useful in most environmental issues such as land-use studies, natural resources and agriculture, surface water and groundwater, and such a thing (Foroughi Far, 2007: 1). Finally, geomorphic map of the study area were drawn with compilation different facies (Figure 6).

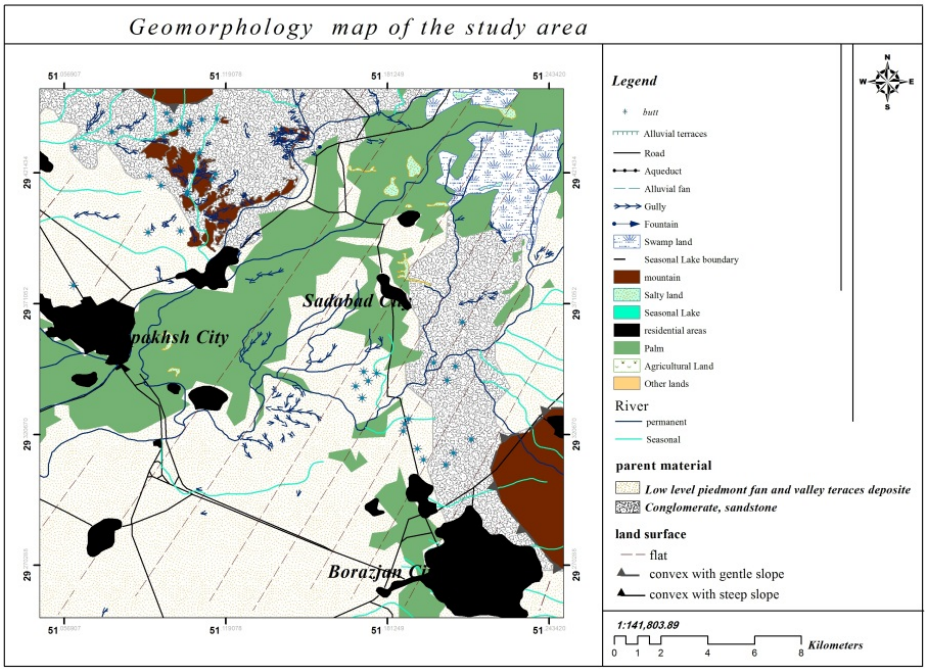

Figure 6: Geomorphic map of the study area

Conclusion

In general, the hierarchical classification system is used for study geomorphic domains in geomorphology. This research is trying to use the hierarchical classification system to discuss the Borazjan's geomorphic domains area. The results show that this area consist of land view form units such as convex surfaces, concave surfaces are plane surfaces. Also landscapes formed from some land feature and land features formed from geo form units like alluvial fans, Gulli, and alluvial terraces, and seasonal watercourse.This geo form units show that management systems of this area generally appear as the result of fluvial system performance.

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