

## **The role of Geotourism in tourism development of Neka- Behshahr plain (Mazandaran province)**

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### **Abstract**

*Tourism related with alive nature using and protection is calling Ecotourism, and tourism related with lifeless nature using and protection is calling Geotourism, and geotourism and ecotourism totally is called nature- based tourism. Ecotourist is searching ecosystems and their attractive and geotourist is searching for geology and geomorphology attractions.*

*Neka-Behshahr plain is located in east of Mazandaran province and into central Alborz structure zone. Structural activity in the hanging wall of the Alborz fault has resulted in development of small lake and fluvial-lacustrine and lagoon basins in the central part of the Alborz range. Neka-Behshahr coastal plains and neighboring heights with interesting geological phenomena with a combination of scientific characteristics , beautiful landscapes, showing the history of the region's geology, demonstrating events that not only have geological value, but are also precious in terms of historical, archeology, ecology, culturology. This region has unique attractions including Caspian Sea and coastal plains, lagoons, sand dunes, river channels and their meanders, caves, springs, waterfalls, anticlines and synclines covered with virgin forests, canyon valley and Lar formation cliffs.*

*Geotourism with emphasis on the region exclusive characteristics cause to profitability for the local settlers and its aim is enriched achievements of region with assistance tourists for the Neka-Behshahr plain turn to tourist peak in the eastern of Mazandaran province.*

### **Introduction**

It is emphasized that the major feature of interest for the most popular tourist destinations is undoubtedly the «natural environment», and that the «natural beauty» is the prime criterion of interest for the tourist. The «historic significance» of a site remains, after landscape and natural beauty, the second factor of choice for most tourists (Tourtellot,2004).

One of the new tourism developments is Geotourism. It is rapidly being recognized as an exciting new direction for tourism surrounding geological and geomorphology attractions and destinations. Geotourism is concerned with sustaining or enhancing a destinations geographic character (wartiti et al, 2007). This tourism has some differences compared to the other types of tourism.

Geotourism is based on the earth's heritage with a focus on its geological forms (features) and processes, unlike ecotourism which occurs in depends a natural. Setting, Geotourism may occur in either a natural or an urban setting (Dowling, 2008). Geotourism is a form of cultural environmental tourism that can develop in areas with important geological monuments which are exploited in order to attract visitors with special interests. This tourism ensures sustainable socio-economic and cultural development for local people. Geological heritage sites properly managed can generate employment and new economic activities. This paper tries to present general information about Neka-Behshahr plain's geology and geomorphology and places

where it occurs, as well as some examples of Geotourism products. However, it is clear that the future development of Geotourism requires a comprehensive inventory and detailed planning.

### **Geotourism resources**

Neka-Behshahr plain is located in southern coastal plains of Caspian sea, from climatology point of view it has a temperate and semi humid climate with average yearly rainfall 760 millimeters and about 60% of this area's are covered by original forests. This region which is located Alborz structural zone has a very rugged and high topographic structure in southern part and coastal plain in northern part. The geological structure in this region is complex. Main causes of these situations are related to Alborz fault movements that occurred during the Tertiary era and epigenetic activities look places between the Tertiary and Quaternary eras. Moreover, effective outer agents in coming in to existence geomorphology were sea level changes, rivers, floods, avulsion, wastewater, dissolution, freezing, weathering and destruction that cause to various manifestation of nature in this region. Neka-Behshahr plain has an important richness from geological and geomorphology heritage resources point of view.

Alborz Mountains in Mazandaran province lead to the altitude ecological belts and have very big potential from endemic or relic animal and plants points of view. At the same time, these areas provides for the irrigation of the agricultural lands and drinking water for the urban centers. Alborz Mountains are important resources for Geotourism because of nature structures, local architecture, cultural characteristic and mountains sports such as mountain biking and parachute of slope.

Caspian Sea is the world's largest land locked body of water or lake (Fig.2). It shores are sandy and covered by bivalves with diverse ripples and dunes. Caspian Sea is a unique ecosystem with minerals, organic and recreational components. One of the most important clefts of the Caspian Sea is the gorgan gulf; gorgan gulf has environmental and natural attractions, unique vegetation specific for wildlife and interesting views that make this region one of the top travel destinations. Sea tourism can also help to boost ecotourism in the area as well natural landscape in a part of peninsula of miyankaleh, as well as the jungle view in the eastern south part are among other tourism sites.

In Neka-Behshahr plain only carbonate rocks can be naturally affected by dissolution (Fig.3). Therefore all caves and karstic features are situated in the limestone units. The dissolution processes affecting the limestone are at the origin of underground features (caves, rivers, concretions) as well as typical surface morphology and sites (dolines, sinkholes). There are about 10 caves in this region that they have huge potential for archaeological, historical and paleontological researches.

Nekariver and its tributaries represent a river with rushing water and 12 waterfalls. This river originate from shahkooh mount in 2000m above sea level and gently slopes down to its lowest point that join to Caspian sea. River channel is filled with medium sand to pebbles in most upper parts and in down parts river bed is sandy and silty. The source rock effect and changes in slope gradient are the most important factors influencing the variations of the sediments texture and river type ((Fig.4). The fissure and fracturing features in the limestone units, laminate erosion and facilitate weathering of Gorgan schists to cause the parting and large

fragmental rock movements that this fragmental rocks fragmentations because of mechanical erosion severely and the fragments to fall in slope elevations and river margins.

There are about 15 springs in this region that Ghoremarez and Asiabsar are the most important among Ghoremarez spring begins at the foot of Alborz Mountains and its water rushed with great force through a canyon-like channel (Fig.5).

There are a few wetlands in coastal plains in Caspian Sea such as Khorshid swamp, Shahkileh and these wetlands comprise the trees, fields of reeds and the most extensive water (Fig.6).

Sand dunes are formed by wind blowing over the surface of the beach and drying out the sediments. As the sand dries the wind begins picking up sand grains and carrying them inland.

Sand dunes of Caspian Sea along the coasts are such an awesome natural feature, in fact coveted for their beauty, recreational and industrial benefits, dunes also serve as crucial transition zone from Caspian Sea to inland area. Simply put, dunes are magnificent to look at, to walk through, and to play in.

Abbasabad collection composes of Abbasabad Lake and nature, which is aesthetic uniqueness. This collection is ideal for whale sentiment and highly desirable for recreational (Fig.7).

### **Conclusion**

The diverse geological features of Neka-Behshahr plain are not only possess physical values but also possess cultural values. A survey of interesting geological sites throughout Neka-Behshahr plain has identified at least 65 sites. These geological sites comprise of different rock types (e.g. sandstone, red sandstone, limestone, mudstone, conglomerate, and Gorgan schists, green and blue and yellow marl) fossils (e.g. foraminifera, trilobites, ammonites and...) sedimentary structures (e.g. sand dunes channel, cross bedding, oxbow lake, ripples) tectonic structures (fold, thrust fault, normal fault) and landscapes (e.g. canyon valley, syncline valley, water falls, coastline, karsts, caves).

The Geotourism character allows, indeed encourages the local populace to be involved in the tourism business and allows for the business of tourism to meld with the joy of life in this peaceful and content region.

### **References**

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Figure 1- Beautiful Landscapes of Neka-Behshahr plain.



Figure 2- picture of Caspian Sea and its beach.



Figure 3- Kamarband cave, Hooto cave and Ghalebond cave in Neka-Behshahr plain.



Figure 4- Nekarud River and its canyon valley.



Figure 5- Asiabsar spring, Afracheshme spring and Sembi spring.



**Figure 6- Khorshid Swamp and Aland Wetland in this region.**



**Figure 7- Abbasabad collection and Abbasabad Lake.**