

THE ROLE OF ENVIRONMENTAL DATA INTEGRATION FOR SPECIFYING CONSERVATIVE BUFFER ZONE IN CULTURAL LANDSCAPES

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Abstract- The Cultural landscape is a complex phenomenon resulting from both natural-geographical and social-cultural processes. From the past, the various ecological structure of Iran has provided human inhabitants. Recognizing the Connection between these structures and peoples over the time by focus on Environmental data integration, guide to find the destruction reasons and also guide us for best conservation. Maryan-Taleshan Natural-archeological region is located on the valley of the southern Karaganrud River in Gilan province of Iran. This valuable region is considered as one of the largest pre-historic and historic graveyards in Gilan province hosting many valuable ecological characteristic. Up to now there is not any landscape conservative buffer zone for this cultural landscape to integrated conservation. As a result of growth the rural settlements, some important parts of Maryan-Taleshan cultural landscape have been destroyed in this river valley where have occurred development. In this approach, the interdisciplinary information including physical, ecological and historical layers is provided to recognize the structural specifications and the influence role of these structures in forming ancient cities. In this research, satellite data processing and image analysis have been applied besides field studies and environmental interpretations together with different scientific data such as geology, botany, hydrology, hydrogeology, Tectonic, and etc. The result of this study is studying the historical, natural and cultural context of Maryan-Taleshan led to identifying a more suitable conservative buffer zone for Maryan-Taleshan cultural landscape to prevent its destruction.

Keywords: Maryan-Taleshan, Environmental Integrated Approach, Conservative Buffer Zone, Cultural Landscape, Satellite Data.

I. INTRODUCTION

Iran is a mountainous territory formed during the Tertiary- Quaternary period by Alpine orogeny. By collision of the Neotethys, an ocean between Eurasia, and Gondwanaland (Afro- Arabian) a large bowl- shaped continental plateau has been formed. Although this plateau is a high land with several mountain ranges, and hinter land playa and lakes, but its marginal zones (Alborz and

Zagros) are much higher where surrounding a vast territory with Islberg-type peaks and wide plains forming an upper-lower correlated systems Figure 1 [1].



Figure 1. Geomorphologic structure of Iran [15]

This system with exceptional geomorphologic features and topographic setting have influenced by differences but correlated and associated distribution of natural resources such as water, plant cover, wildlife, climate favorability and etc... are the major natural potentials and intrinsic factors to cause differences in systems [12].

This plateau is a high land but its edges include much more elevation heights than those of the central areas. Considering the geomorphologic features and landforms of mountainous areas surrounding the Iran plateau, an upper- lower correlated system can be seen which is influenced by the different but yet correlated and connected distribution of natural resources such as water, vegetation cover, wild life, etc. In this correlated systems due to the relation between topography and moisture contents, which caused significant diminished temperature, climatic condition and plants covers. The abundance of water resources in mountains creates appropriate pasture in rugged levels as well as the flat amplitude plains [1].

These varieties of lifestyle in mountainous plain areas have caused sound reaction among their inhabitants. The signs of such a reactions, which are harmonious to the upper- lower nature, can be seen in Maryan domestic decision making from the thousand years ago for seasonal migrations which itself is in compliance with nature generatively or spatial planning and finding locations for settlement in the scales of valleys, heights and plains [5, 6].

In Iranian culture, mountain is sacred. It is fertile and provides water and pasture for the herd. In ancient Iranian beliefs, mountain was considered as the descending place of prophets, location for light and water and shelter for most freedom lovers. The tough condition and seclusion nature of mountains, have converted them to original incomparable birthplaces of ancient cultures in which profound interwoven ties of human and nature are clearly observable Mountains, in ancient land of Maryan in the north of Iran (in the Gilan province) are depositaries of historic and cultural heritage for many human societies which have protected north of Iran and its rich culture against harms of incidents within almost 8000 years [7].

Most of the Maryan villages and human habitats in Talesh area have been formed in inter mountain plains which have the privilege of altitude, water and pasture on one hand and on the other hand they are away from high elevations, ice and snow covers Figure 2.

The native plants of Talesh mountainous region and main river valley named Karaganrud river, have provided various plants cover in different heights from the low lands up to the highest level ranging from herbs to provender and from cover crops to shrubs and trees. Middle part of this mountain range, known as "High Talehs" -where Maryan's ancient villages have placed - has specific natural and geomorphologic features [4].

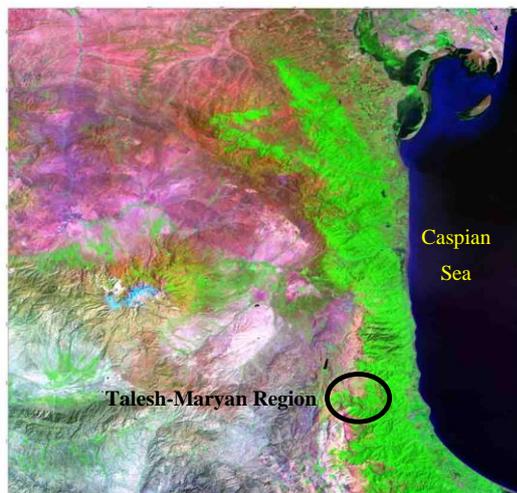


Figure 2. Satellite image of Talesh Mountain and archeological human habitats (Maryan) in inter mountain plains area in the east of Caspian Sea [8]

Since the like variety plain mountainous regions in Iran has great effects on forming human communities and settlements, the "High Talehs" region has been the origin of several pre- historic and civilizations. One of the greatest ancient civilizations in this region especially in the Maryan is about 2000 BC [7].

Based on the ancient's documents, the borders of Talesh civilization were not limited to the Maryan territorially and geographically restricted to present Iran; rather it involved all the territories in which Iranian tribes dwelled in and out of the northern board of Iran.

II. HISTORICAL AND NATURAL LANDSCAPE OF MARYAN

Maryan ancient site is located in 32 km away from the town of Talesh southwest wide and in the valley of southern Karaganrud River. This archeological site is considered as one of the biggest pre-historic and historic graveyards in the province of Gilan. Its average height is 1215 m above sea level. J. de Morgan excavated this site from 1899 to 1901 for the first time. He unearthed some objects belonging to 2nd half of the 2nd millennium and the early centuries of the 1st millennium B.C. Figure 3 [12].

The preplanned excavation of this large graveyard with an approximate area of 250-300 acres has been done after the Islamic revolution in 1999 under new supervision. This site is a collection of graveyards in short distances to each other. This means that in different periods with establishment of a residential district, its graveyard has been also built next to it. The studies on the unearthed objects indicate that these graveyards belong to 2nd half of the 2nd millennium and continued to the Sassanid era (One of the famous Persian ancient empire).



Figure 3. Remnants of Historic building in Maryan [4]

By the advent of the age of technology, making the modern buildings, roads, impetuous construction without feasibility studies, modern agricultural patterns, cutting the trees down, creating different damns on the way of Karaganrud river, using fertilizers and changing the structure of earth and the quality of soil, contamination of river basin, destroying different species of native forest plants along with irregular grazing of cattle, providing fuel and constructive materials out of trees and etc. is the basis of the idea how modern human beings have important roles in destruction of their occupancies, valuable natural resources for preparing food and developing industry and ecological environment which have been the main elements for designing the ancient settlements for centuries. There is any sign of destruction left in the ecology of the ancient settlements even in the course of time and yet they could be valuable natural resources for the occupancy of human beings Figure 4 [8].

The state of how the changes in the constant ecology of the area in ancient time has caused the accurate formation of civilization in nature, has led the environment to a rapid destruction.



Figure 4. New modern construction between the archeological remnants [8]



Figure 6. An archaic village cottage in Maryan built of natural material and in agreement with nature

For sure, with the presence of human and consequently his changes in the natural resource of Maryan area, the ecological intrusion has started Figure 5 [9].



Figure 5. Changing the cultural landscape of Maryan lead to destroy valuable natural resources [4]

The studies conducted in this research reveal that durability and survival of Maryan historical settlements approve how local native settlers have founded their settlements according to comprehensive knowledge of their hometown climatic characteristics and environmental indices. Besides, in comparison with nowadays` quick destruction of buildings, remainders of settlements, established decades before this era, denote more compatibility and harmony of applied form and material and their approach toward utilizing these materials in constructing shelters and rural of tribal cottages. Moreover, the chosen place for establishing settlements in natural context and special topography of the region illustrates their profound knowledge of geomorphologic features, ecological routes, content of landscape, river`s flood characteristics and their buffer, type of climate, appropriate vegetation cover for obtaining construction materials, conservation buffers of wildlife and forests as Figure 6 [9].

Contemporarily, Maryan region`s landuse and landscape have drastically changed due to alteration in people`s lifestyle from agriculture and livestock breeding and their migration from mountainous districts to lowland and urban living.

There is no agreement between current developments and natural and cultural landscapes of the region neither in form, color and morphology nor in environmental setting, sitting and material selection [8].

Maryann`s cultural landscape lacked any conservation buffer zone before this research be done, thus escalating constructions have lead to devastation of numerous invaluable historical sites in the region.

III. MATERIAL AND METHODS FOR APPLYING CONSERVATION BUFFER ZONE

In the archeological sites of Iran, identifying conservation buffer zone these zones has only been done considering a mono-dimensional attitude towards the historical and archeological works itself, whereas, considering the issue of historical conservation zones entails general examining and studying on the natural context of historical works and their link to surrounding nature [16].

Paying attention to recent issues like comprehensive integrated conservation paradigm, which deals with conservation of both historical monument and its natural context, it seems there has almost been no precise and complete margin identification for the monuments and works found through archaeological excavation and/or sudden discoveries. Obviously this leads to interruption in the cultural and historical context of a region.

Due to development in environmental science and modern technologies which provide protecting organizations with more precise and data about the historical and natural context of such cultural zones, the research trend in such zones have a more modern and utter orientation. This results in more constant and complete data for researchers [14].

Considering the location of the majority of historical occupancies in natural landscapes and with their unique specifications and their wide range of studies from the view point of accessing to the ecological and geomorphologic structure as well as perceiving the mutual correlation between the parts of the environment in shaping and identifying the whole natural – historical collection, is essential for doing inter-disciplined studies in different fields and scales. Utilizing satellite analytical and evaluating system in completing the professional studies is absolutely necessary [10].

Integrating interdisciplinary studies in this research, which aims at identification of historical and natural layers of cultural landscape, came up with determination of the Maryan region's conservation buffer zone. In addition, conservation principles for cultural landscaped were prepared by utilizing the conducted studies [13, 18].

In this study, satellite data processing and image analysis as a modern technology have been applied besides field studies and environmental interpretations together with different scientific data such as geology, botany, hydrology, archaeology and etc. Figure 7.

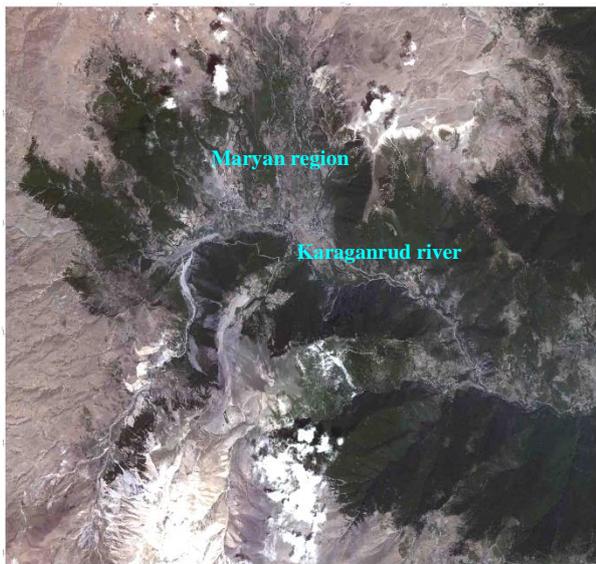


Figure 7. Natural structure of Talesh- Maryan region in this satellite image, basin of "Karganrud" river and mountainous plains' settlements especially Maryan region are to see [9]

Definitely, by the use of this unique research method, connection between different structures guide the researchers to a path that finally make them find the destruction reasons of the occupancies through comparing the available information and cultural and historical documents together with introducing a cultural view of the past Figure 8 [11].

In the above mentioned research, landsat satellite images "TM and ETM+" were utilized for studying the area in 1,50000 and 1,25000 scales, also satellite database "SPOT" in 1,5000 scale were used for preparing information layers. The number of final information layers based on satellite images are more than 50, and these layers is prepared in different scales Figure 9 [8].

Studying the historical, natural and cultural ties and consistency of Maryan region can lead to identifying a more suitable conservation buffer zone for Maryan's cultural landscape as a unified concept and also prevent its destruction.

Taking the general purpose of the study into consideration and introducing the natural historical context of Maryan in terms of a cultural landscape, in the process of studies, an analysis of natural context characteristics plus the historical and archeological features of the monument and works scattered throughout the plains and along Karaganrud River valley, has been carried out.

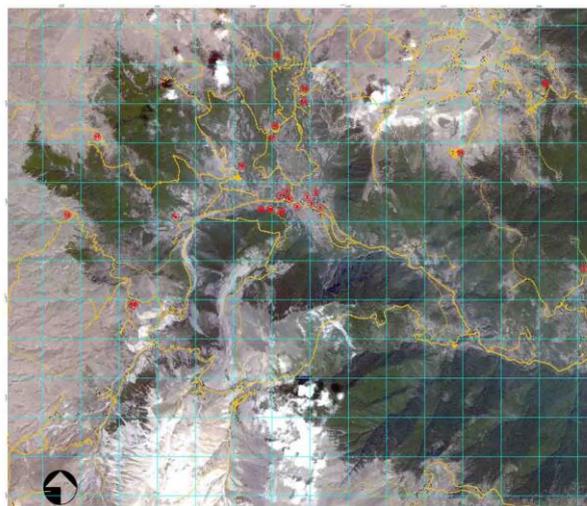


Figure 8. Archeological remnants on the Natural context of Talesh- Maryan region (Red Points represent historical sites scattered in Talesh region and located on the image) [8]

The criteria of analysis have been identified based on the modern definitions of cultural landscape in international conventions. Due to the variety of cultural landscapes in different countries, presence of different natural context variables, human and cultural resources and what has been left from ancient civilizations all over the world, the cultural landscape criteria have gradually got accomplished during several conventions.

To identify the conservation's buffer zone of Maryan region, great deals of studies have been carried out in several fields of environmental, archeological and cultural sciences. Parts of these studies took advantage of Satellite Data processing system and then were modified and adapted to field study interpretation [10].

All these different information including geology, pedology, botany, hydrology and hydrogeology, tectonics and etc. are provided in order to recognize the ecological specifications and natural structure of the area as well as identifying the role and influence of these structures in formation of human occupancies. Corresponding of these informational layers leads to new results for structural relation. The relation between the environmental components causes potentialities that interprets and justifies the formation of human civilizations and his occupancies as ancient cities Figure 9 [9].

IV. RESULTS AND DISCUSSIONS

In this historical-natural area, cultural and natural diversity have presented a complicated structure. In this structure the natural and historical layers have been mingled together and prepared a suitable condition for creation of human occupancies in previous historical eras [17].

The vast study came to the conclusion that natural landscapes of Maryan area have a significant role in the formation of both ancient civilizations and their physical structures and today's human life in the form of scattered villages. This study emphasizes on the role of land structures in the formation of the cultural aspect of the area as well. Regarding the fact that the load of the area's

magnificent and powerful culture lies in the historical monuments of it, it is important that more effort be put in preserving and protecting them while taking into account natural and structural changes of the features [1].

According to the above paragraph the connections of the area's natural and cultural context with the environment was carefully observed and studied and the result shows that the ecological amazing structure forms Maryan plain has been a suitable context for building constructions there. On the other hand the area's ecological features have been effective in completing and developing its landscape.

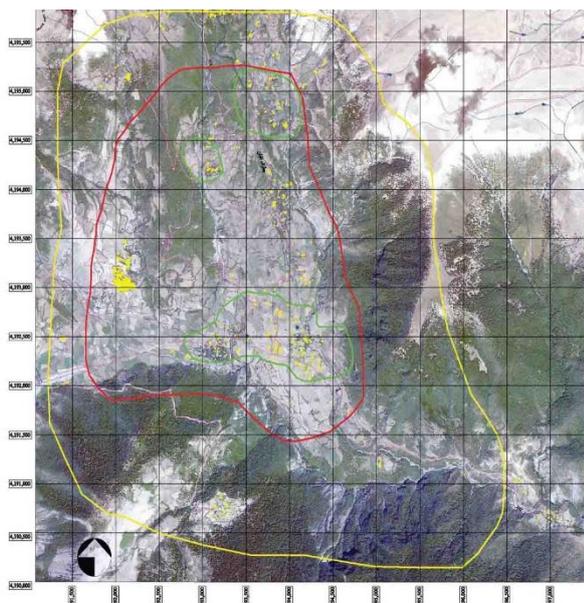


Figure 9. The processed satellite image reveals the result of overlaying interdisciplinary data layers for determination of conservation and cultural buffer zone [4]

By using remote sensing technique in GIS system, the analyzed "ETM" and "SPOT" images in multidisciplinary studies prove that the existence of springs, river courses, forests and pastures as critical factors for forming the ancient settlements of Maryan is very significant. Looking at the historical evidence and the natural context of the area we found out that climate has also influenced the emergence of human populations in mountainous flats where they needed the plant features to do farming activities. So it is quite understandable why people may have settled in this mountainous area with prolific flats and moderate winter and summer climate.

The processing and interpretation of satellite data and overlaying them in GIS, they were integrated with topography maps in 1:5000 scales and also with district's form map which led to cultural landscape and conservation buffer zone map. During overlaying these data layers, historical and archeological characteristics and also natural resources and ecology's values that have formed natural landscape in the area thorough the years, were taken into consideration. After preparation of various data layers through besides, according to continuity of historical and natural values that has made up cultural landscape in Maryan region, the cultural buffer zone has been determined.

- The most important proposed conservation principles for Maryan's cultural landscape consist of:
- Conservation and prevention of natural resources; especially: river basins, mountainous forests and farmlands.
- Each kind of alteration in morphology of the land must be conducted according to the controlling measurements of historical- archeological monument's conservation.
- Any change in area's landscape that has not been kept up with ecological structure's harmony is prohibited.
- Developing of new constructions is to be sited and located beyond the conservation buffer zones.
- Modern existing buildings should be relocated gradually and on the basis of asset ownership laws to beyond the buffer zones.
- Local settlers must be encouraged to conserving the natural landscape via participatory planning.
- Village cottages built in complete agreement with region's landscape could be an architecture sample for new developments from the point of view of form, color and material.

V. CONCLUSION

The natural landscape of Maryan with tall mountains, forests, river valleys has connected the historical settlements of Maryan to its surroundings. In the end it can be said that all of the different environmental, historical and social conditions have contributed to the formation and completion of the Maryan complex [8].

During research processes, we have got the following results to protect the cultural landscape of Maryan-Talesh region:

- Studying introduces Talesh mountainous region as a united and rich cultural landscape. The most evident features of this cultural region includes various ecosystems of wild life, different kinds of native plants (trees, shrubs, herbal), crevices, caves, various beautiful shapes of cuts, rivers, ancient leftovers of civilizations, the mobile nomadic life of pastoralists and the view of their migration alongside villages and farming lands.
- The significance of recognizing and comprehending the cultural landscape consistency in Talesh region is so much that can specify it as a united landscape under full protection taking aspect of history, civilization, culture and nature into consideration.
- At the time being, besides the native's following trend of life together with nomadic tribes, the whole areas of Maryan plains and Karaganrud river valley are under through examination and excavation of archeologists. There is still a great deal of signs belonging to ancient civilizations buried under the ground.
- Moreover sightseers from all around the world come to visit the historical zones of Maryan and other historical sites along the Karaganrud River, the interaction between past and present, nature, history and human, shapes the body of this cultural landscape. It is crystal clear that any sort of interference in the composing parts of this landscape will result in irreparable outcomes, and interrupting Maryan united and consistent cultural landscape will lead to its destruction.

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BIOGRAPHIES



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