Presenting an Architectural Design in Order to Preserve the Riversides Landscape with a Sustainable Development Approach (case study of Zarrinerood River Banks)

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ABSTRACT

Formation of many human communities and civilizations alongside permanent rivers indicates the importance of river, this natural element, in nature and human life. Unfortunately, however, today this natural element and its potentials for improving quality of human life and existing natural and artificial landscapes are not given due attention and most rivers are in poor conditions and are home to useless plant growth, places for disposal of urban waste, uncontrolled and unharmonious developments and constructions which spoil the landscape. Designing and creating useful environments is a step towards revitalizing river bank potentials and landscapes, promoting tourism and ensuring regional growth and development. To this end, taking into account the principles of sustainable design and incorporating them in river bank designs as well as building a green belt on the margin of a river and transforming it into a dynamic and active center along with the element of water, it can produce good results with its physical and spiritual presence. In this study, the focal point is shedding light on sustainable design, particularly regarding a context such as river bank. This is attained by case studying the sustainable development of Zarrinerood river bank. With the existing conditions of its banks, Zarrinerood River, which is located in Miandoab, requires an approach to sustainable design and providing for environmental, social and economic parameters. Offering some solutions for the existing problems in the region and using its potentials such as water and vegetation can be the result of this study. To this end, descriptive research is employed and using articles, books and authentic internet sources have helped the author in setting the objectives, achieving the desirable results and offering answers and suitable strategies.

INTRODUCTION

Aquatic resources as the earliest areas of human concentration and connection between human being and his surroundings based on their primitive needs are considered crucial elements in formation of today’s urban texture. National, natural wealth of rivers can develop the contextual, functional and spiritual urban environment required and this requires man’s harmony with it and its nature. Revitalizing riversides –an integral part of aquatic resources and recognized as a city’s feature- doubtlessly improves conditions of the river and environmental quality, creates active and lively shores and also urban development and investment development.

In Miandoab City, located in West Azerbaijan Province, the imbalance between human and his surrounding environment and failure to understand it has damaged and deteriorated the natural landscapes, beauties and possibilities bestowed upon the region by being in the vicinity of Zarrinerood and Siminerood Rivers. They are at risk due to this imbalance and river, as the main source of urban environment survival is endangered and the present conditions require thinking and providing an expedient solution.
Designing Zarrinerood River banks in the development plan of Miandoab City is a great step in these circumstances where the required potentials for this goal are present. However, not only no measures have been so far taken in this regard, the incorrect usage of the region has been detrimental to and has been threatening the geographical and organic position of the region of which Zarrinerood river and its banks are considered the main elements. Methodical design in this region will eliminate the destructive effects which question and threaten the environmental, social and economic sustainability of the region and will create a sustainable environment in the vicinity of the city.

**Sustainable Development:**

Sustainability is rooted in the Latin word “sustinere” meaning “protection” and “support”, while different meanings have been offered in various dictionaries for this word. For example, in Oxford Online Dictionary, it has been defined as “[a]ble to be maintained at a certain rate or level.” Whereas in Merriam Webster Online Dictionary has been defined as “able to be used without being completely used up or destroyed.” In addition, different sources have mentioned this word with the meaning of “tolerating,” “supporting” and “holding.”

Mankind has always striven to live in harmony and agreement with nature and his activities have been incessantly going in consistence with this and life quality improvement. In continue of human efforts in understanding his natural environment more profoundly and in order to reduce or eliminate the damages inflicted on the surrounding environment, April 22\(^{nd}\) 1970 was chosen by U.S senator, Gaylord Nelson, as “the Earth Day” and renamed as “International Mother Day” on April 22\(^{nd}\). Activities continued in form of conventions, conferences, and seminars which contributed to better understanding existing conditions of the environment and the problems posed by them and finding the suitable solution. The first large-scale public assembly was the UN conference on human environment held in Stockholm on July 1972. This conference focused on air pollution, reduction of natural resources and decline of social life quality and protection of natural environment and several principles were designated for ensuring a sustainable development.

In continuance of its activities, the UN held World Commission on Environment and Development in 1983 and its Brundtland Report also known as Our Common Future was published by Oxford University in March 20\(^{th}\) 1987 in which the notion of sustainable development was first mentioned. In this report sustainable development was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This is, in fact, is a general concept which includes "environmental," "economic," and "social" elements as well.

**Environmental Aspect of Sustainability:**

The goals of preserving the natural environment for next generations may include preventing damages to natural resources and environments and reconstructing and restoring damaged or destroyed parts and energy recycling. This is achieved by preventing further air pollution and improving existing conditions, preventing further damage to the ozone layer by eliminating or reducing influential factors, taking into account the size and type of human constructions and their relation with natural environment (natural elements such as mountains, seas, lakes, rivers, etc and plant and animal species), optimum usage of materials and preferring recyclable materials, economizing natural and energy resource usage, using replaceable energy resources and recycling resources.

**Social Aspect of Sustainability:**

When it comes to society, social concepts and subjects will be considered and sustainable society is the integral part of a sustainable development. While it is difficult to provide a comprehensive definition to understand the subject, different definitions have been offered for this concept including that of Western Australia Council of Social Services (WACOSS) which maintains that “social sustainability occurs when the formal and informal processes; systems; structures; and relationships actively support the capacity of current and future generations to create healthy and livable communities. Socially sustainable communities are equitable, diverse, connected and democratic and provide a good quality of life.” Dr. Stephen McKenzie, in his series of studies in Hawke Research Institute, attempts to provide an efficient and useful concept of social sustainability. According to him, social sustainability is defined as "a life-enhancing condition within communities, and a process within communities that can achieve that condition.” He considers the following features as the indicators of these conditions:

- “equity between generations, meaning that future generations will not be disadvantaged by the activities of the current generation;”
- “equity of access to key services (including health, education, transport, housing and recreation);”
- “a system of cultural relations in which the positive aspects of disparate cultures are valued and protected, and in which cultural integration is supported and promoted when it is desired by individuals and groups;”
- “a system for transmitting awareness of social sustainability from one generation to the next and a sense of community responsibility for maintaining that system of transmission.” [3]
Economic Aspect of Sustainability:
Along with social and environmental sustainability, economic sustainability is also an integral component of sustainable development. Protecting financial resources and existing financial capital, creating a favorable atmosphere for increasing society’s income, planning for employment, avoiding usage of existing resources faster than their replacement, developing necessary economic policies to achieve economic and business goals, and respecting equity in distributing financial resources among various classes are some of the crucial factors in sustainability and durability of human communities.

Parameters of Sustainable Designing on River Banks:

Environmental Parameter:
River as one of the main elements of natural environment plays a crucial role in human life and this makes it necessary for human beings to take care of the river environment. In this regard, preserving the area’s vegetation in order to maintain the existing balance between plants and their effect on the surrounding texture and also preserving aesthetic elements, preventing pollution of river water in order to keep safe the ecosystem’s wildlife-on land or sea-, securing the healthfulness of drinking and irrigation water that feeds the surrounding environment are necessary.

Social Parameter:
The fact that rivers have been the starting place for most human civilizations is a culture and tradition which still holds true. Small communities are still being built where possible on the margins of this natural element and this is preserving the same culture and tradition through which our ancestors made material and spiritual use of aquatic resources. Optimal designing and usage of river banks and creating environments which are able to respond to human needs-spiritual or material- in terms of aesthetics and/or functionality will, in fact, enhance quality of life for the current human generation and future generations.

Economic Parameter:
Today, economy is an inseparable part of all environments with which human is involved and mankind has always sought to change conditions in the direction of economic advantage. First of all, presence of water has a fundamental role in economy both in terms of survival and production of energy. Apart from that, constructions and developments along river banks can result in material benefits including employment opportunities.

Findings: Zarrinerood River Bank and Sustainability of the Area

Introducing the Area:

Miandoab City:
Miandoab is one of the 14 cities of West Azerbaijan Province located on the northwestern Iran with an area of approximately 2233 square kilometers constituting 5.9 percent of the province’s area and 0.13 percent of the total area of the country. With an elevation of 1300 meters above sea, this city enjoys a special position due to being located in a delta composed of deposits formed by the two large rivers of Zarrinerood and Siminerood [1].

This city is located southwest of Urmia Lake and is, in fact, the connecting bridge between West Azerbaijan and East Azerbaijan. From the south, it is limited to the cities of Shahin Dezh (65 km), Bukan, Mahabad (45 km) and Naqadeh and from south to Malekan (25 km). It is located on the latitude of 36 degrees and 59 minutes and longitude of 46 degrees and 5 minutes. Miandoab city is in a distance of 600 kilometers from Tehran and 140 kilometers from Urmia (Province Capital) [2].

The name Miandoab consists of the three words “mian” (between), “do” (two), and “aab” (water). This naming is due to city’s being located between the two rivers of Zarrinerood and Siminerood. In the local dialect of the region, the city is called “Qushachay” (two rivers). In Amir Sharaf Badlisi’s Sharafnama, this region is referred to as Two Waters (Official Website of Miandoab Local Government).
Delta topography of the region and direction of elevations, Urmia Lake, blowing of winds and passing of Mediterranean oceanic humid air and Siberian cold front from north and northeast are factors influencing this city’s climate.

Zarrinerood River:
Zarrinerood River, with the local name of Jeghato, in northwestern Iran, is located southeast of West Azerbaijan Province. With a length of 230 kilometers, it is the longest river in the province that flows through the length of Miandoab and Shahindezh cities and finally flows in Urmia Lake. This river drinks from Chehecheshmeh Mountains in Saghez City of Kurdistan Province and it is joined by the rivers Khorkhoreh and Sarugh from Takab City and Holasu, Mahamoodabad, Hachesu and Ajorluchay rivers from Shahindezh city and the river Leylanchay from Miandoab. In the past, floods originating in this river encompassed many villages. This large river is home to water sports including yachting along the entire length of the river.

Present Conditions of the Area from Sustainability Perspective:
More than half of industrial and urbane waste from Miandoab city including sugar factory, Miandoab slaughterhouse, etc which are located on the banks of Zarrinerood River are disposed in this river, the most important river in West Azerbaijan. However, local authorities consider this plight and pollution something normal, whereas the waste from these factories is disposed in the river without proper purification and seriously threatens the environment and the life of those who use the water for irrigation and drinking. Numerous environmental warnings have not prevented this environmental issue in the city.

As the most important river in the region, this river has a fundamental role in the life of locals, particularly residents of Miandoab city. The conditions governing the area including lack of any measures to protect the vegetations of the area such as pastures, preserving animal species in the riverside such as flamingos, various species of ducks, pelicans, Tanches, and swans and many types of fish in the Zarrinerood River such as catfish, asp, grass carp, golden and regular minnow, Crucian carp, silver carp and bighhead, river white and Caspian sea sprat, capoeta and also aesthetic issues make the intervention of the authorities and cooperation of the local necessary.

Conclusion:

Environmental Strategies:
- Preventing disposal of industrial waste and urban pollutant and waste into water flow without necessary purifications;
- Taking care to preserve the natural ecosystem around Zarrinerood (animals and birds) by reducing pollutants;
- Taking care to preserve natural ecosystem of the river (water animals) by reducing pollutants affecting water wildlife;
- Preventing nonstandard excavations from riverbed and altering it;
- Preserving the river surroundings and avoiding any constructions around them;

Social Strategies
- Preserving and creating aesthetic factors in the area by using natural landscapes (existing potentials) and artificial environments;
- Enabling spiritual and material utility of water resources (river);
- Optimum and design and usage of river margin;
- Creating environments which can functionally respond to the needs (spiritual and material) of the local people;
- Creating recreational environments using existing potentials of the region;

Economic Strategies
- Using water for potable consumption for the communities close to the river for economic saving and reduction of costs;
- Using water for energy production which is the main problem of the present age;
- Establishing plants and constructions that operating by water and water force;
- Creating employment opportunities and material resources by creating industrial, service and recreational environments.

REFERENCES


