

Sustainability Analysis in the Field of Urban Rivers (Case Study: Baliqloo River)

Babak Ahangar Azizi, Faramarz Sattari Ardabili

Young Researchers and Elite Club, Ardabil Branch, Islamic Azad University, Ardabil, Iran

Received: March 26, 2015

Accepted: May 17, 2015

ABSTRACT

Due to the development in the coming years, particularly in developing countries, paying attention to environmental sustainability has become more important. Urban rivers for many reasons such as identification, water resources and etc. are not separated of this issue. This study through the SWOT analysis shows that influencing factors of urban rivers in general and specifically Baliqloo River which one had greater impact and which have a greater impact solutions and suggestions? The results show that ST strategy is the best way and to implement that suggestion usage of the special urban region in Baliqloo River has been given.

KEYWORDS: Sustainability, Environment, Urban River, Baliqloo, SWOT

INTRODUCTION

Considering that more than half of the world's population live in urban areas and it is expected by 2050 this rate to reach 70% of world population (Shen et al., 2013). Social and environmental balance of future cities growth will affect the future of civilization (Martine, 2011). Growth of urbanization in the world's rivers and stream constantly are becoming local wastewater discharge (Livingston, 2006) Hence environmental resources face growing challenges of management at the same time with increasing water restrictions due to drought and climate change and this challenge is in which competition for water use increased (UN, 2009, according to the Nikooei and Zibaei, 2012) so river is an important source of ecosystem provides important services to humans (Loomis and Helfaind, 2001) according to the sustainable management Urban Rivers makes it more inevitable. This study is based on the analysis of factors affecting the sustainability of the Baliqloo River in Ardabil.

Theoretical Foundations:

Sustainability:

The concept of sustainable development even has been existed before the beginning of this century. It's a social and environmental process that achieves unlimited human needs while preserving the environment coverage. The official publication of the Brontland Commission Report by the World Commission of environment and development was introduced in 1987. It has been launched by the UN Commission on Sustainable Development that defines the developmental needs of the present generation without compromising future generations (WCED, 1987; Jiboye, 2011; Daramola and Ibem, 2011).

The purpose of creating a balance is among the sustainable development in economic, social and environmental needs. In order to achieve sustainable cities, cities need to develop structural, social and economic development without harming the environment and to achieve a balance between population and natural resources (Abu-Ghazaleh, 2008)

With respect to the existing urban growth, sustainable development means the ability to provide the desired quality of service in urban areas their suburbs without decreasing the level of present and future generations and do not offer negative impact on its internal and external boundaries (Jiboye, 2011b, 213).

Accordingly, sustainable urban development is a dynamic and continuous process of change in response to economic, social and environmental pressures (Haughton and Hunter, 2005:276). Unlike the theories of sustainable urban development planning and physical planning calls attention to the relationship between the dynamic structures of economic, social, cultural, environmental, political, administrative and intra- and inter-urban areas (Healey, 2006). Within the present paradigm place sustainability comes on stage. Its definition is given where due to natural or man-made features, is able to improve the physical condition, performance, cultural and institutional forces and capabilities that improve the quality of human life (Phillips, 2003).

* **Corresponding Author:** Babak Ahangar Azizi, Young Researchers And Elite Club, Ardabil Branch, Islamic Azad University, Ardabil, Iran. e-mail: Babak.ahangar@gmail.com

Sustainable management of the river:

Calendar begins with blue civilization. The first key feature of the Mesopotamian and Egyptian civilizations develop new methods of agricultural irrigation. These changes were subject to change in the societal transformation (Newson, 2009). This change has been mutual and river changes back through thousands of years ago. So today, very few rivers in the world shall be considered as an original system (Carpenter et al., 2011; Palmer, 2010; Wohl and Merritts, 2007). Sustainable management of the river is a concept that means the ability to repair it with bio-physic system includes technological, social, economic and cultural (Higgs, 2005).

Today we have found out that to avoid causing harmful effects on any changes in the natural river or reduce them and make rivers re-balance we shall find the laws governing on processes and predicts subsequent changes resulting from any modified or adjusted affair. Since the surface water environment is one of the major sources sustainable term must be considered. Because it is believed that set of constraints on the environment by humans has expired. In summary it can be said in terms of sustainable development in a river, you should consider the followings (Zand, Jafrmn, 2010)

- identifying different species of river and adopting appropriate strategies to deal with it
- Environmental considerations
- Attention to wildlife (if any), environment ecosystem and plant growth and development
- Considering technical points dealing with river
- Considering to water quality and storage and how to use it
- Privacy appropriate in order to avoid disrupting the flow of river shortage, river edge and its vegetation
- Considering to the historical and cultural aspects of living and past rivers and their sides and squarely addressed it as a new form of matter and surrounding structures and facilities in order to maintain the identity of the water tradition

Acceptance of the river as an open ecosystem, adopting appropriate strategies in dealing with river, highlighting efforts to preserve the ecosystem and its environmental considerations cause river converted to urban public space.

Reviewing the experiences and accomplishments in the field of rivers environmental sustainability leads to a more comprehensive understanding. Take a few look on examples of domestic and global organization in the field of urban rivers show planning and environmental aspects of rivers and the issues with.

Environmental factors on the River	Case Studies
Preserving and restoring natural systems, biological vitality, energy efficiency	guadalupe riverin California
Creating green axis, maintaining rivers edge, vitality, climate comfort	Chicago River in Chicago
Biological vitality, environmental and sustainability quality	Elk and Kanava River in Virginia
Emphasis on landscaping, energy efficiency, cleanliness, protection and support of nature	Clark Fork River in Montana
Resuscitation natural life of the river, Sustainability	Cheon River in Seoul
Preserving and restoring natural systems, biological vitality	Darabad River Valley in Tehran
Sustainable development, creation of green axis, biological vitality	FARAHZAD River Valley (Park nahj) in Tehran
Maintain and create green axis, health	Velenjak River Valley in Tehran

Table 1 Effective measures on the ecological status of rivers in other studies (Ansari and Poor Jafar, 2011) Research Scope

Ardabil is one of Iranian cities at the same time is Ardabil province in northwestern Iran. The city is also the center of Ardabil city. Ardabil is the ancient and historical city of Iran. Mausoleum of Sheikh Safi Ardabili and Friday Mosque is one of the monuments of the city. Ardabil city is at an altitude of 1500 meters above sea level and between the mountains of the Baghroya Talesh and sabalan (savalan) located in Alborz mountain range and located in the Iranian plateau. Ardabil's population totaled 482,623 persons in 1390adding with the population of more than 580,000 people in the suburbs Baliqloo permanent river which crosses the southern city of Nirand except the main branches, several springs feeding the flow path. This is due to its location in the center of Ardabil and on the other side the old identity plays an important role.

Hypothesis Approach

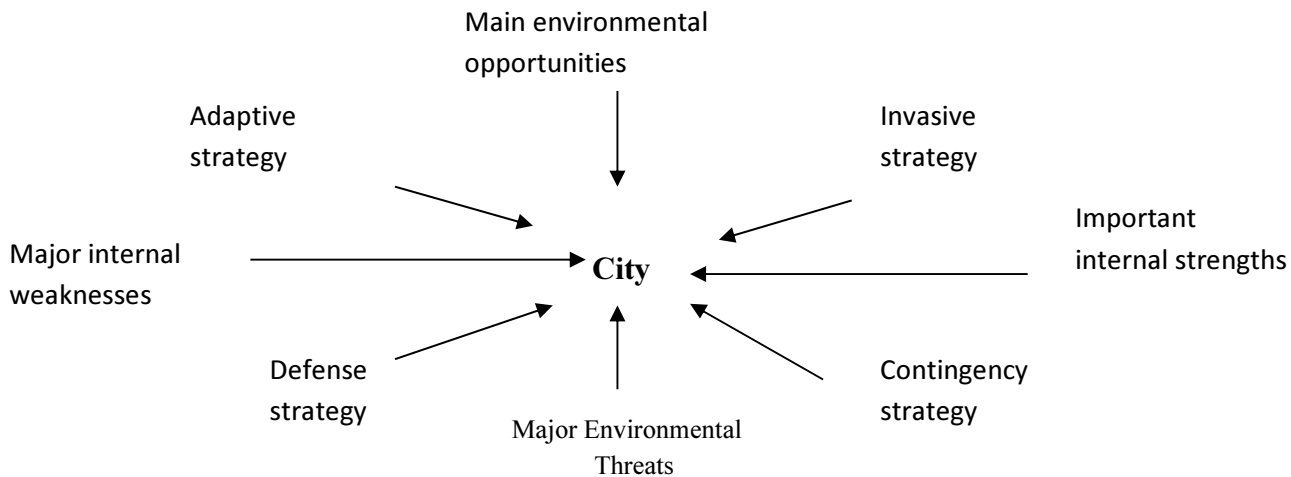
In order to analyze the sample data, SWOT techniques are used. SWOT words stand for strengths, internal weaknesses, opportunities and environmental threats. Identifying and analyzing strengths and weaknesses, opportunities and threats in the region are essential. Choice of SWOT analysis is as a complete and yet simple tool in analyzing strategy can be used in many projects and research. This method by expressing the strengths, weaknesses, opportunities and threats and provides the possibility of considering internal and external factors combined in a single table (Dorlatiet. T, 2004, 329). Planning approaching to strategic selection considers all

decisions activities, planning and policy-making together in a dynamic way. A strategic choice must be able to strike a balance between these factors:

- 1- Choice Range 2- complexity 3- incompatibility 4- Uncertainty and 5- progress.

For this purpose, based on the analysis of external and internal objectives are clear and policy measures are located. These conditions leave no opportunity to comply with these unpredictable performances and consequences.

Figure 1: Strategic matrix choice based on the SWOT analysis



As Figure 1 shows that in the matrix strategic choice, both internal and external variables (or environmental) have essential roles. If there are internal strengths and external opportunities, the best conditions for achieving the goals come, whereas having external threats and internal weaknesses the undesirable situation arises. The main idea of strategic choices is to maximize their strengths and overcome internal weaknesses. The base of the strengths and weaknesses is in the organization of urban management and section system (system design).

Data Analysis

Based on SWOT analysis first effective factors considered and the numerical factors between zero and one were assigned from researchers according to their importance. The total bonus points in each stage of the organization's strengths, weaknesses, opportunities and threats. Table 2 presents it. As seen strengths Score is 2.75, weak points 2.25, opportunities 3.5 and threats 3.5 it means that ST strategy should be used, i.e., using strengths to reduce the impact of external threats.

Threat	Score	Opportunity	Score	Weakness	Score	Strength	Score
Increased traffic pollution	1	Strengthen cultural programs to enhance the identity of Baliqoo River in Ardabil	0.25	Existence of air pollution and noise	0.5	Being located in the center of Ardabil	1
Due to lack of space shrinking rivers and unplanned construction in river	1	Become a recreational and cultural space in order to attract tourism and create a lively atmosphere in the evening	1	Lack of adequate space for parking	0.5	There are a variety of plant species in river	0.25
Lack of appropriate standards and enforcement of laws to protect the environment	1	The use of green space, trees absorbing pollution in river	0.5	The lack of a proper place for gathering and recreation along the river	1	Adjacency to the mausoleum of Sheikh Safi Ardabili (strengthening the cultural dimension)	1
		Create trails or bike to access green space around the river	0.5	Possibility of missed opportunities in the development of spatial functions	0.25	River located in central area with the majority of the administrative, educational and residential functions	0.25
Increase of administrative functions around the river and the river is not welcome	0.5	Become a hive of young people to have fun, study and cultural activities and exhibitions	0.25	Located in a traffic area	0.5	Age and extent of the river	0.25

Table 2 - Assessment of sustainability indicators of Baliqoo River Based on SWOT (writer)

As it is seen more often, they refer to urban spaces than green areas. Therefore, precise control of current applications and transferring it to other urban areas on one side and creating green space can contribute to the sustainability of the river.

Conclusion:

Based on this analysis ST approach is the best strategy for the sustainable management of Baliqloo River. It seems in this context to identify a particular area of the city is one of the main strategies. This particular area is necessary in order not to create business structures for the start and then the transfer of land from one side to the other structure defined area of green space to act. Naturally, its control, preventing influence and influential stakeholders in achieving sustainable urban environment will be effective. In this issue traffic reduces and thus reduce the amount of environmental pollutants which is another factor in the analysis to evaluate. Finally, it is proposed in collaboration with the cultural heritage organization, particularly its emphasis on the tomb of Sheikh Safi Ardabili in Ardabil city as one of the symbols of identity, and tourist attractions specifically developed to Baliqloo River. Here it is again emphasized that the issue of environmental sustainability is holistic perspective, so section planning is not efficient and requires some a continuous planning.

REFERENCES

- Abu-Ghazalah, S. (2008). The Sustainable City Development Plan for Aqaba, Jordan. *Journal of Developing Societies*, 24, 381-398.
- Carpenter, S. R., Stanley, E. H., & Vander Zanden, M. J. (2011). State of the world's freshwater ecosystems: physical, chemical, and biological changes. *Annual Review of Environment and Resources*, 36(1), 75-99.
- Daramola, A. & Ibem, E. O. (2010) Urban Environmental Problems in Nigeria: Implications for Sustainable Development. *Journal of Sustainable Development in Africa*. 12 (1), 124-144.
- Doralti, N., Onal Hoskara, S., Fasli, M. (2004) An analytical methodology for revitalization strategies in historic urban quarters: a case study of the Walled City of Nicosia, North Cyprus. *Cities*, Volume 21, Issue 4, 329
- Haughton, G. and Hunter, C. (2005) *Sustainable Cities*, Published in the Taylor & Francis e-Library.
- Healey, P. (2006) *Urban complexity and spatial strategies: towards a relational planning for our times*, Routledge.
- Higgs, E. (2005). The two-culture problem: Ecological restoration and the integration of knowledge. *Restoration Ecology*, 13(1), 159-164.
- Jiboye, A. D. (2011) Ensuring Sustainable Development through an Effective Housing Delivery Process in Nigeria. *African Journal of Social Sciences*. 1 (2), 36- 45.
- Jiboye, A. D. (2011b) Sustainable Urbanization: Issues and Challenges for Effective Urban Governance in Nigeria. *Journal of Sustainable Development*, 4(6).
- Livingston, R.J. (2006) *Restoration of aquatic ecosystems*, CRC Press, 423 pages.
- Loomis, J. and Helfand, G. (2001). *Environmental Policy Analysis for Decision-making (Vol. 1)*. New York, US: Kluwer Academic.
- Martine, G. (2011) *Population distribution, urbanization, internal migration and development: An international perspective*, Un Department of Economic and Social Affairs, New York.
- Newson, M. D. (2009). *Land, water and development: Sustainable and adaptive management of rivers (3rd ed.)*. Wiltshire: Routledge.

Palmer, M. A. (2010). Beyond infrastructure. *Nature*, 467, 534-535.

Phillips, Christine (2003), *Sustainable Place; A Place of Sustainable Development*, WILEY-ACADEMY.

Shen, L., Kylo, J. M., &Guo, X. (2013). An Integrated Model Based on a Hierarchical Indices System for Monitoring and Evaluating Urban Sustainability. *Sustainability*, 5(2), 524-559.

WCED, (1987). *Our Common Future*. World Commission on Environment and Development. Oxford University Press. Oxford, New York.

Wohl, E., &Merritts, D. J. (2007). What Is a Natural River? *Geography Compass*, 1(4), 871-900.

Ansari, M. , M. J. , M. (2011) Editing a design frameworks in rivers edges to build an urban environment, Second planning and environmental management of Environmental Conference, Tehran

Zandieh, M.; Jafar, Mohammadreza (2010) approach in a sustainable perspective on Permanent Rivers, *Nazar Garden*, Number 14, year VII, pp. 15-26.