

Improving Sustainability Concept in Developing Countries

# Reconciling a city with its natural identity (the role of water systems in Mashhad city sustainable planning)

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## Abstract

Today, the livability of many urban environments is diminishing as a result of negligence towards natural systems. In Mashhad City, decades of unplanned development have led to crippling natural systems, deteriorated quality of life and environmental alienation. To ensure sustainability, it is therefore essential to reconcile Mashhad with its natural context. By extracting forgotten cultural identity and underlying infrastructure, the research results in a regeneration plan to reclaim streams, rehabilitate urban spaces and reintroduce sustainability into urban realm. Finally a sustainable green network is presented as a basis to integrate and orient the currently dispersed urban design and planning endeavours.

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Peer-review under responsibility of IEREK, International experts for Research Enrichment and Knowledge Exchange

*Keywords: Sustainable Development; Urban Regeneration; Environmental Sustainability; Urban Identity; Urban Streams; Mashhad City.*

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## 1. Introduction: the relationship of nature and city

Today the livability of many urban environments, of particularly developing countries, is increasingly diminishing. In many cities the quality and the health of urban life has been compromised to a point where they've been transformed and reduced into places only to provide for commotion of living with the eliminated experience of an amiable urban environment, turning into a hostile living experience. The overwhelming noise and air pollution, overcrowded streets, harsh and insecure neighborhoods with no safety or visual and psychological amenity, has turned these cities into places only to commute. This downfall has occurred as a result of negligence towards the natural systems once valued equal to, if not more than, the man-made systems. A city's natural features and

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processes -of particularly water systems- were usually the initial reason for its establishment. They were often the determining factors in defining the future course of urban development pattern. Moreover, a city's natural features and processes along with constructed features shaped the inherent identity of urban places. But with the era of industrialization and new technology, a new economy emerged followed by a new culture and an altered definition of people's relationship with nature [1]. The human contact with nature changed and was mediated by built infrastructural networks [2] and there became a growing disconnection between natural bodies, and settlements. Man erased forests and natural green patches, largely interrupted and constricted the ecological flows and rearranged everything in his domain as pleased. Streams and waterways as the most important corridors ensuring the integrity and consistency of nature through city were erased from the urbanized areas. Their course was diverted, confined and their nature was fundamentally altered by being straight-jacketed and canalized in concrete linings, to the point that they barely resembled rivers anymore, becoming "*an absent presence in modern urbanism, an engineering trick; out of sight and, consequently, out of mind*" [1]. These natural corridors became physical, cultural, and economic dividers; sewage conduits with contamination emptying directly into them, and generally were transformed from natural amenities to environmental hazards. These all resulted in dissociation of man from his inherent natural environment.

Mashhad City, as the second most populated city of Iran, has not been immune to the side effects of this rapid unplanned urbanization trend. In this arid city in northeast of Iran, once valued for its natural beauty, decades of construction and unplanned development has led to the natural features gradually fading from the face of the city. The fragmentation of gardens and green spaces, elimination of greenways, burial of natural streams, and the ever-increasing pollution have all led to crippling the natural systems, deterioration of quality of life and consequently (social/cultural) alienation of people from their natural environment.

In the current dilemma where economic and social development is closely dependent on finding a harmonious resolution to fulfill both development and environmental objectives, it is essential to reframe our approach to urban development and redefine urban systems to first comprehend, and then interweave and reintegrate the natural and urban systems together. This article therefore aims to extract the underlying origins of natural structure and urban cultural identity of the city of Mashhad, the process of its change and transformation to a body of mass and the changing interaction of its natural bodies and processes through time -particularly of water bodies- through analysis of historical data, aerial photos and satellite imagery from available sources. By considering the present issues and disturbances, obstacles and potentials, this research results in new realistic strategies to enhance, reclaim and rehabilitate urban streams as a basis for urban regeneration, rehabilitate green spaces and potential urban spaces, and reintroduce environmental/cultural sustainability into the urban realm. Assuming the facticity of current malfunction of the connection between the constructed and natural systems in the city of Mashhad, the main objectives of the study are as follows:

- Determine the existing condition of the relationship between man-made and natural features and systems in the metropolitan area of Mashhad City.
- Extract the underlying formerly efficient natural infrastructure of the city and the old responsive urban culture.
- Identify the changes of this natural context and the mechanisms responsible for the transformation of this relationship over time to its current state in the process of -over one and a half century- urban development.
- Develop an approach, consistent with urban landscape ecology principles and the unique urban cultural identity of Mashhad, which converges these theories with practice in the reality of today.
- Suggest a regeneration plan, taking into account both natural and man-made features, and consisting of short and long term design, planning and management strategies and their prevalent approach (enhancement, protection, reclamation, rehabilitation) for the improvement of urban ecological and cultural sustainability, developed into a Green Integrated Network which can further be used as a basis to link, integrate, and orient the currently dispersed urban design and planning endeavors over the city.

## **2. Re-examining the current relationship of nature and city**

In many developing countries such as Iran, the relationship of human and nature is largely based on the priority of provision for human needs. While communities generally strive to meet their basic transient yet essential needs, expecting people and organizations to have the prospect and future needs of the environment and people in mind,

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