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Rethinking Runoff in Urban Resilience: Drainage or Landscape Creation?

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Abstract

The growth of urbanization, the increase in impervious surfaces, and the intensification of extreme climatic events have made urban runoff one of the fundamental challenges of urban resilience. Nevertheless, the dominant body of literature has predominantly framed runoff as a technical-managerial problem, situated within the framework of risk control, infrastructure performance improvement, and quantitative indicator-building. The aim of this article is to critique this reductionist approach and to examine the extent to which this perspective has overlooked the landscape and identity-forming capacity of water in strengthening sense of place and multidimensional resilience. Drawing on two main critical perspectives the "hegemony of technical management" and the "neglect of the landscape and identity of water" and grounded in the theoretical foundations of resilience, green-blue infrastructure, nature-based solutions, and landscape studies, the body of critique demonstrates that runoff can be not merely a functional threat but an active element in creating spatial quality, enhancing lived experience, and reproducing place identity. The article's conclusion states that the shift from the logic of "water drainage" to "landscape creation" does not negate risk management but rather expands the horizon of resilience from structural containment to dynamic, landscape-based adaptation a horizon in which safety, function, meaning, and citizens' experience are simultaneously taken into account.

Keywords: Urban resilience; Urban runoff; Water landscape; Sense of place; Place identity

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Have the dominant approaches to urban resilience predominantly reduced runoff to a technical-managerial problem, thereby neglecting its landscape and identity-forming capacity in enhancing sense of place and multidimensional resilience?

Extended Abstract

Introduction and Problem Statement: Accelerating urbanization, expanding impervious surfaces, and the increasing frequency of extreme rainfall events have made urban runoff a major challenge for urban resilience. Nevertheless, the dominant resilience literature has largely framed runoff as a technical-managerial issue centered on flood control, infrastructure performance, and quantitative assessment, while paying limited attention to the landscape and identity-forming dimensions of water. This article critically examines whether such reductionist approaches have constrained resilience by treating runoff solely as an engineering problem and overlooking its potential to strengthen sense of place and multidimensional urban resilience. The study is based on a critical-narrative review of Iranian and international literature on resilience theory, green-blue infrastructure, nature-based solutions, and landscape studies.

Critical Discussion: The critique is developed through two interrelated perspectives. The first addresses the hegemony of the technical-managerial paradigm, in which resilience is understood primarily as the physical capacity of urban infrastructure to resist hydrological disturbances. This approach prioritizes structural interventions, quantitative indicators, and risk control while marginalizing ecological processes, social adaptation, and citizens' lived experiences. Consequently, runoff is reduced to surplus water that must be rapidly removed from the city. The second perspective examines the neglect of water's landscape and identity-forming capacity. Replacing traditional water systems with rigid concrete drainage channels has weakened the relationship between people and water, diminishing sense of place, collective memory, and the cultural significance of urban landscapes. The contrast between the channelized Kan River in Tehran and the historic water infrastructure of Bukhara illustrates the competing paradigms of water drainage and landscape creation.

Conclusion: The article argues for a paradigmatic shift from water drainage to landscape creation. Rather than rejecting hydrological engineering or flood-risk management, this perspective broadens resilience from structural control to dynamic socio-ecological adaptation. Urban runoff is reinterpreted as a landscape asset integrating ecological performance, spatial quality, cultural identity, and everyday urban experience, thereby strengthening the environmental, social, and cultural dimensions of urban resilience.

Drawing on a landscape-based and socio-ecological perspective, this article rests on the foundational premise that urban resilience is realized only when runoff is reread as part of the experience, meaning, and identity of space. In other words, the second critical perspective—addressing the neglect of water's landscape and identity-forming capacity—is not an independent weakness but a direct consequence of the same epistemological blindness underlying the first perspective; for when runoff is seen merely as an engineering variable, its perceptual and semantic layers naturally fall outside the attention of researchers and designers.

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