

How Do Planners Engage with Regenerative Design and Development Principles in Urban River Restoration Projects? Insights from the Kinnickinnic River (WI) and the Los Angeles River (CA)

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Introduction

The world's urban population, which already exceeds 50% of the global population, is expected to grow quickly. In North America alone, more than 80% of residents already live in cities (United Nations Department of Economic and Social Affairs, 2014). Urban planning and design play a crucial role in determining how cities simultaneously create and address our most pressing environmental problems. They also influence how residents interact with each other and surrounding ecosystems. In a rapidly urbanizing world, opportunities for city dwellers to interact with natural systems are scarce. Channelized rivers are a prime example of how urbanized infrastructure limits residents' access to environmental resources. River channelization in the U.S. aimed to reduce flooding, control river channel migration, and open new land to development, but resulted in significant unintended consequences. It destroyed riparian areas, made flooding more severe, and was costly to maintain.

For the past two decades, U.S. cities have reversed this approach and are restoring rivers (channelized and not) to recapture lost ecological, social, and economic benefits. However, these projects are often guided by the same mechanistic worldview that led to channelization in the first place, in which humans are separate from—and can control—natural processes. This paper seeks to apply an alternative conceptual framework—regenerative design and development—to river restoration. It posits that cultural and psychological challenges are at the root of environmental problems (Mang, 2016); further, it states that successful, long-term urban restoration requires a shift in mindset and design processes to recognize the dynamic nature of ecosystems, and humans' integral role in fostering ecosystem health.

Our research seeks to examine the degree to which river restoration projects engage with regenerative design and development principles. We selected river restoration and, by extension, the field of urban planning, as the test case for understanding the application of regenerative design and development. Specifically, planners play important roles in interdisciplinary river restoration projects, and our research explores the ways these professionals interact with the regenerative design and development paradigm in their work. Do planners already engage with these principles in river restoration projects? If so, in what way, and how can they further incorporate these principles? If not, what are the barriers?

To answer these, we briefly review literature on river restoration, regenerative design and development, and critical planning challenges. We then examine 15 urban river restoration plans to better understand common river restoration goals, drivers, and proposed projects. The bulk of our research centers on two river restoration cases currently underway: the Kinnickinnic River in Milwaukee, WI, and the Los Angeles River in Los Angeles, CA. These river projects were selected based on several criteria, including the existence of a fully urbanized river, a similar restoration timeline, and the presence of comprehensive plans that demonstrated the project's intent to catalyze positive social, economic, and environmental impacts along the river and in surrounding neighborhoods. We explore the extent to which planners appear to engage with regenerative design and development principles in each case, identify areas of improvement, and highlight barriers. We conclude with strategies to promote these principles in river restoration projects and within broader planning practice.

This paper will begin with a brief literature review that provides the historical and contemporary context for river restoration projects, identifies the role of urban planning within these projects, and explores the potential for regenerative design and development to address existing gaps in the field. We continue with an overview of research methods and results comparing both case studies. We conclude with lessons learned, and areas of improvement.