Chapter 6

Applying the Water Sensitive City Index in a House of Quality Framework to Enhance Urban Water Governance and Sustainability:

Evaluating Smart Water Cities

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ABSTRACT

This article presents a combination of tools to determine if a city could be considered Smart Water City. Smart Water cities are those that use advanced technologies and innovative solutions to improve water management and ensure the long-term sustainability of water supplies. This includes optimizing water use, reducing water losses, treating, and reusing wastewater, and conserving water resources. This paper proposes the use of the evaluation of the water sensitive city index applied in the house of quality, to identify the fulfillment of the seven goals that the water sensitive city index manages within the scheme of the house of quality and thus precisely observe the areas of opportunity for decision making.

INTRODUCTION

The concept of Smart Water Cities integrates advanced technologies and sustainable practices to manage urban water resources effectively. This chapter explores the application of the Water Sensitive City Index (WSCI) within a House of Quality (HoQ) framework to enhance urban water governance and sustainability. By synthesizing relevant literature, we identify key indicators and governance challenges that can inform the development of resilient urban water systems.

Urban water management is increasingly challenged by rapid urbanization, climate change, and resource scarcity. The Water Sensitive City Index (WSCI) provides a comprehensive framework for assessing the sustainability of urban water systems by evaluating various indicators related to water governance, quality, and infrastructure. Integrating the WSCI with a House of Quality (HoQ) framework can facilitate a structured approach to enhance urban water governance and sustainability. This paper reviews existing literature to identify the critical components of this integrated framework.

There are different types of water cities, some of which are mentioned below (Brown et al., 2009):

- **Water Supply City:** To be a drinking water supply city is one that enables water to move from the point of catchment to the point of consumption in a fit condition. Suitable means not only in terms of sanitary conditions of quality, but also in terms of quantity. The source of water that gives rise to the system can be from: Natural spring water, seawater, which is desalinated before entering the supply network, surface water, such as from lakes, rivers, reservoirs or streams, groundwater, captured through abstractions and other, such as rainwater stored in cisterns.

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