

Urban Sustainability Hybrid System:

A proposed framework for assessing urban environment and providing guidelines for future sustainable development

PROBLEM

Today, for the first time in history, more than half of the world's population lives in urbanized areas. Cities have grown rapidly to accommodate millions of inhabitants and this urbanization process has intensified major challenges involving sustainability and quality of life. Over the last decade, the need for evaluating sustainability at the city scale has emerged alongside the challenge of understanding the built environment and the natural environment as a whole. However, most current urban sustainability assessment methods demonstrate limited success in understanding and addressing interrelations and interdependencies of social, economic and environmental considerations, and in connecting theoretical frameworks with applications. This is influenced by a poor understanding of city performance based on interactions, feedback loops and other phenomena recurring in urban environments. These limitations have emerged when designing sustainability indicators constrained within a monothematic domain, thus focusing only on a specific target.

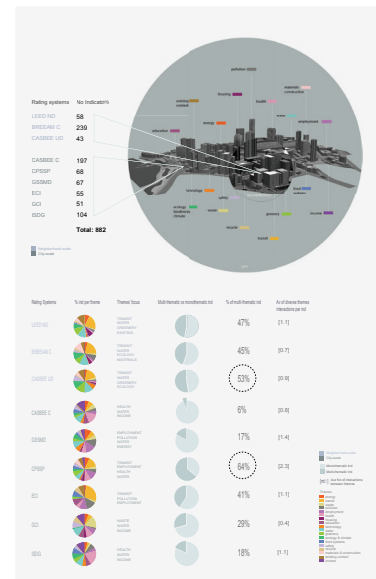


Figure 1-2. Limitations of current methods for evaluating sustainability at the city scale.

GUIDING QUESTIONS

The formulation of indicators is crucial not only for reviewing urban environment performance, but also for investigating links between qualitative and quantitative urban sustainability dimensions in order to guide policymaking, urban design, and planning interventions.

How do existing sustainability indicators address linkages, interconnections and interdependences of urban environments?

How can a multi-scalar and multi-thematic indicator-based system provide a platform for context-specific urban sustainability assessments?

How can urban sustainability assessments construct the bridge between theory and practice to valuably contribute to urban design and planning?

PROJECT DESCRIPTION

The key foundational hypothesis is that multiscalar and multi-thematic indicators are able to more accurately capture the complexity of urban sustainability principles. Therefore, the objective of this study is to develop a system of multiscalar and multi-thematic urban sustainability indicators for investigating existing rating systems. The framework has been adopted to evaluate urban sustainability in emerging cities and towns in China with a goal of providing guidelines for future urban design and planning.

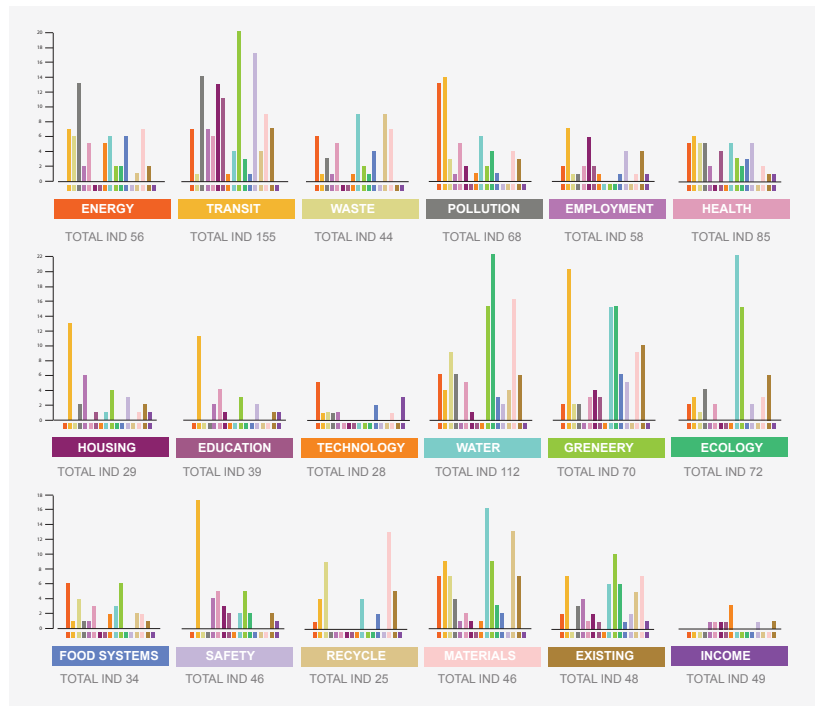


Figure 3. Multiscalar and Multi-thematic indicators for capturing the complexities of urban sustainability.

IMPACT

This study will provide a scientifically-based framework for assessing cities based on synergies and interrelationships between built and natural environments. The framework will serve as a platform for guiding context-specific urban design and planning interventions in a sustainable direction.

Provide a framework for scientific urban sustainability assessments.

Promote sustainable urban design and planning interventions.



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