

# **Towards Sustainable Urban Development with the Contribution of Ecological Design Principles**

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## **Abstract**

This study aims at providing a clear and concise framework of sustainable urban development (SUD) to encourage strategically organized ecological efforts in order to develop cities which are sustainable enough to meet their citizens' needs both in the current and future generation. Today, the ongoing struggles between climate change and urban growth has become more severe and has greatly threatened the global natural environment, economic development, social stability, and human wellbeing. Therefore, it is highly recommended that careful planning of the environment in urban areas will be the crucial step to securing a sustainable future. Throughout this process, the potential effects of ecological design and its principles are highly determining in development of sustainable urban areas. Based on literature review on SUD and ecological design, this study provides design strategies and principles for cities to provide more healthy environments for citizens of all generations.

**Key words:** sustainable urban development (SUD), sustainable cities, ecological design, ecological design principles

## **1. Introduction**

Today the disruption of ecosystems is much greater and more harmful than the past due to our effects on natural environment. According to the 2005 Millennium Ecosystem Assessment (MEA) study, the health of the world's ecosystems is in significant decline [1]. The Ecological Footprint, a conservative measure of natural resource consumption, calculates the total amount of land that world's countries need to produce the resources they use to absorb the waste generated from energy used, and to provide space for infrastructure [2]. According to this source, man has exceeded the earth's ecological capacity, and we have been living beyond our means since 1987 (Figure 1).

In a time of rapid changes in climate and environmental degradation, planning and building an ecologically sustainable environment have become a necessity and urban areas are the center of the attention [3]. The United Nations Human Settlements Program (UN-HABITAT) has discovered that, due to population growth in cities and excessive human activities like manufacturing and consumption, they are responsible for generating nearly