

Compact city, a sustainable urban form

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Abstract

This paper is divided into two sections. The first section, describes sustainable urban form and its design concepts in urban area. A thematic analysis has been used to cope with vast body of sustainable development and environmental planning literature. The analysis identifies seven design concepts related to sustainable urban form: compactness, density, sustainable transport, mix use, diversity, greening, and passive solar design. Moreover, we mention four types of sustainable urban form at the end of the first section. In the second section, this article has focused on compact city as one type of sustainable urban form and describes some main characteristics of that. Finally, we explain some models of compact city with their characteristics and provide a comparative chart of the expected performance of these models based on agreed sustainability characteristics.

Key words: sustainable urban form, design concepts, compact city, compact city models

۱. Introduction

The form of the contemporary city has been perceived as a source of environmental problem [۱, ۲, ۳, ۴]. The environmental protection agency (۲۰۰۱) concluded that the urban form directly affects habitat, ecosystem, and water quality through land consumption, habitat fragmentation, and replacement of natural cover with impervious surfaces. In addition, urban form affects travel behavior, which, in turn, affects air quality, premature loss of farm land, open space, global climate, and noise [۵]. Moreover, growing evidence from around the world indicates that, owing to our excessive use of fossil fuel, greenhouse gas concentrations are accumulating at an alarming rate. Urgent changes are needed not only in our behavior but also in the design of the builds form. The emergence of “sustainable development” as a popular concept has revived discussion about the form of the cities. Undoubtedly, it has motivated and provoked scholars and practitioners in different disciplines to seek forms for human settlements that will meet the requirements of sustainability and enable build environment to function in a more constructive way than at present. Moreover the concept of sustainable development has given a major stimulus to the question of the contribution that certain urban form might make to lower energy consumption and lower pollution level [۶, ۷]. In this regard, designers and practitioners in all over the world are trying to propose some components and elements for urban form that can contribute to more sustainability.

Compactness is one of the components which are required in order to save limited land, natural sources, and other valuable things which are required to contribute to attainment of the ideal and sustainable city. For this aim, Compact city is one of the urban forms that we can