

Chapter 1.13

Sustainable Urban Development: An Integrated Framework for Urban Planning and Development

Suharto Teriman

Queensland University of Technology, Australia

Tan Yigitcanlar

Queensland University of Technology, Australia

Severine Mayere

Queensland University of Technology, Australia

ABSTRACT

Sustainable development has long been promoted as the best answer to the world's environmental problems. This term has generated mass appeal as it implies that both the development of the built environment and its associated resource consumption can be achieved without jeopardising the natural environment. In the urban context, sustainability issues have been reflected in the promotion of sustainable urban development, which emphasises the sensible exploitation of scarce natural resources for urbanisation in a manner that allows future generations to repeat the process. This chapter highlights attempts to

promote sustainable urban development through an integration of three important considerations: planning, development and the ecosystem. It highlights the fact that spatial planning processes were traditionally driven by economic and social objectives, and rarely involved promoting the sustainability agenda to achieve a sustainable urban future. As a result, rapid urbanisation has created a variety of pressures on the ecosystem upon which we rely. It is believed that the integration of the urban planning and development processes within the limitations of the ecosystem, monitored by a sustainability assessment mechanism, would offer a better approach to maintaining sustainable resource use without compromising urban development.

DOI: 10.4018/978-1-60960-472-1.ch113

INTRODUCTION

Urban planning can be defined as the intentional interventions of a local authority in the urban development process, utilising a variety of mechanisms, including regulations, collective choice, and stakeholder participation (Hopkins, 2001). It has been widely acknowledged that urban planning originated as a response to the appalling living conditions widespread throughout the cities of the 19th century (Adams, 1994). From this public health-oriented beginning, planning started to shift towards promoting a more efficient use of land for human settlements and associated development activities. Ebenezer Howard's garden cities concept was instrumental in this shift. The garden city concept proposed urban and rural magnets in the form of self-contained, employment-generating communities surrounded by agricultural activities. Cougill (2008, p. 42) acknowledges that Howard's garden cities transformed urban planning 'from public health exercise to one which considered the detailed spatial arrangement of urban activities... for the first time, the neighbourhood became an integral part of urban planning activity'. Within the modern urban planning context, such measures were introduced to achieve a desired outcome—improvement of the built environment.

As more than 50 percent of the world's population are currently urban dwellers, the concept of sustainable development and the examination of human settlement problems involve looking deeply into urban issues and seeking solutions that can facilitate the establishment of urban sustainability (Devuyst et al., 2001). Concerns about the unsustainability of modern urban development patterns have existed since the early 19th century when rapid growth in industrial cities led to an unsustainable consumption of the world's scarce resources (Wheeler & Beatley, 2004). From growth of these industrial cities in Europe through to current urbanisation trends in Asia, the continuous expansion of cities and human settlements has resulted in an increasing consumption of

resources; and whilst some are renewable, others such as land and minerals, are not. These trends also generated waste and pollution which have further increased environmental stress (WCED, 1987). Although the term 'sustainable development' has been in use since the early 1970s, its wider application within the urban planning profession was only recognised less than two decades ago (Choguill, 1993). This recognition followed the Brundtland Report, which stated that humankind is consuming the world's resources unsustainably and called for more egalitarian and sustainable use of existing resources.

SUSTAINABLE URBAN PLANNING AND DEVELOPMENT

Sustainable development is 'a process of change in which exploitation of resources, the direction of investments, the orientation of technological developments and institutional change are all in harmony and enhance current and future potential to meet human needs and aspirations' (WCED, 1987, p. 47). This term has generated mass appeal as it implies that the development of both the built environment and its associated resource consumption can be achieved without jeopardising the natural environment (Berke et al., 2006). With sustainability concerns currently in advanced stages, especially in developed countries, sustainable development has become a major influence in the physical planning of the built environment and should be examined more closely. In this context of physical planning, the concept of sustainable development is strongly absorbed in the urban framework, which is comprised of centres of active economic, social and cultural development. Thus, cities are at the core of this urban framework, and are characterised by strongly transformed natural environments and highly developed complexes of infrastructure (Kavaliaukas, 2008).

Whilst the Brundtland report has generated much literature on the centrality of urban sus-

12 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/sustainable-urban-development/51696

Related Content

Measuring Cascading Failures in Smart Grid Networks

Sotharith Tauch, William Liu and Russel Pears (2016). *Smart Grid as a Solution for Renewable and Efficient Energy* (pp. 208-225).

www.irma-international.org/chapter/measuring-cascading-failures-in-smart-grid-networks/150322

Development of an Information Research Platform for Data-Driven Agriculture

Takahiro Kawamura, Tetsuo Katsuragi, Akio Kobayashi, Motoko Inatomi, Masataka Oshiro and Hisashi Eguchi (2022). *International Journal of Agricultural and Environmental Information Systems* (pp. 1-19).

www.irma-international.org/article/development-of-an-information-research-platform-for-data-driven-agriculture/302908

A Bayesian Probability Model Can Simulate the Knowledge of Soybean Rust Researchers to Optimize the Application of Fungicides

Gregory Vinícius Conon Figueiredo, Lucas Henrique Fantin, Marcelo Giovanetti Canteri, José Carlos Ferreira da Rocha and David de Souza Jaccoud Filho (2019). *International Journal of Agricultural and Environmental Information Systems* (pp. 37-51).

www.irma-international.org/article/a-bayesian-probability-model-can-simulate-the-knowledge-of-soybean-rust-researchers-to-optimize-the-application-of-fungicides/237183

Spatiotemporal Evolution of NPP in Sandy Land of China's Seasonal Freezing-Thawing Typical Region

Jingfa Wang and Huishi Du (2022). *International Journal of Agricultural and Environmental Information Systems* (pp. 1-11).

www.irma-international.org/article/spatiotemporal-evolution-of-npp-in-sandy-land-of-chinas-seasonal-freezing-thawing-typical-region/312254

Fuel Reduction Effect of the Solar Cell and Diesel Engine Hybrid System with a Prediction Algorithm of Solar Power Generation

Shin'ya Obara (2011). *Green Technologies: Concepts, Methodologies, Tools and Applications* (pp. 815-839).

www.irma-international.org/chapter/fuel-reduction-effect-solar-cell/51733