



Implications for sustainable land use in high-density cities: Evidence from Hong Kong



Hao Wang^a, Xiaoling Zhang^{b,*}, Martin Skitmore^c

^a School of Management Science and Engineering, Central University of Finance and Economics, Beijing, China

^b Department of Public Policy, City University of Hong Kong, Hong Kong, China

^c School of Civil Engineering and Built Environment, Queensland University of Technology, Brisbane, Q4001, Australia

ARTICLE INFO

Article history:

Received 20 May 2015

Received in revised form

11 July 2015

Accepted 16 July 2015

Available online xxx

Keywords:

Sustainable land use planning

Hong Kong

Urban renewal

Problems in practice

ABSTRACT

Sustainable land use policies are concerned with the kind of world we want to live in now, and in future, and therefore inevitably involve some form of community involvement or consultation process. Hong Kong's sustainable land use planning system is well developed, involving considerable community participation and therefore serves as a good model for similarly situated cities. However, although there are several recent studies involving aspects of its land use planning system, none has yet examined the system as a whole from the perspective of sustainability.

To correct this, this paper describes the land use conditions of Hong Kong from both demand and supply perspectives, reviewing its statutory and administrative procedures of land development and allocation together with the sustainable urban renewal practices involved. Problems in current sustainable land use planning and management, such as difficulties in urban renewal, the inherent shortage of land and the lengthy time involved due to need for coordination and responsiveness to multiple stakeholders, and outdated and overcomplicated administrative processes were also analyzed.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

The debate over the concentration or planning of sustainable land use development has had a long history, and has been attracting prioritized academic attention since the widespread acceptance of the ideas of sustainability. Physically, land use varies between different cities due to different terrain conditions, populations, legal restrictions, cultures, etc. For example, in a city with a high population density, the pattern of land use is always compact, mixed and efficient. In contrast, if a city has a low population density or hilly terrain, a reasonable land-use layout (urban form) that can provide convenient living services to its citizens is often more important than exploring the potential for efficient land use. Land use policies, therefore, need to be developed according to local characteristics and development.

Sustainable land use policies are concerned with the kind of city/region that we want to live in now, and in future, and therefore inevitably involve some forms of community involvement or

consultation process (Watson, 2015). Although such policies may differ in specific standards and regulations, however, they have a common objective, which is to adapt to practical land-use conditions and serve for building a sound legal system of land development and management in which community involvement is recognized and supported. Previous studies on sustainable land use have been widely conducted in the US, the UK, and European countries (e.g., Collins, Steiner, & Rushman, 2001; Pauleit, Ennos, & Golding, 2005; Young et al., 2005; Reginster & Rounsevell, 2006; Adam & Fritzsche, 2012; Musakwa & Van Niekerk, 2013), aiming to provide theoretical and practical reference for sustainable land-use policy making in the cities. Land is relatively scarce in metropolises such as the Hong Kong Special Administrative Region of the People's Republic of China due to the continual attraction of immigrant employment placing increasing demands on urban development. Hong Kong's sustainable land use planning system includes considerable community participation (e.g., Ng, Skitmore, Tam, & Li, 2014) and therefore serves as a good model for similarly situated cities. In other words, Hong Kong is a very typical high density city with the combination of rapid population growth and limited land resources made a high-rise and high-density development approach become necessary. The fact can be illustrated by a

* Corresponding author.

E-mail addresses: holy.wong@connect.polyu.hk (H. Wang), xiaoling.zhang@cityu.edu.hk (X. Zhang), rm.skitmore@qut.edu.au (M. Skitmore).

few figures. In 1958, the built area was 57 km² accounting for 5% of a total land area of 979 km². However, around 80% of the undeveloped land area was hilly, with slopes mostly ranging from 30 to 45° (Gregory, 1964). In this context, there is an extreme scarcity of land for urban growth and urgent need for seeking sustainable land use for Hong Kong. Therefore, Hong Kong was chosen as the target city in this study to illustrate how tailored land use policy was made to achieve sustainable land use development. However, although there are several recent studies involving aspects of its land use planning system (e.g., Tang & Ho, 2015; Wang, Shen, & Tang, 2014; Cheung & Tang, 2013; Cheung, 2015; Lai, Davies, & Cheung, 2011), none has yet examined the system as a whole from the perspective of sustainability.

This paper seeks to correct this situation by describing the land use conditions of Hong Kong from both demand and supply perspectives, reviewing its statutory and administrative procedures of land development and allocation together with the sustainable urban renewal practices involved. The analysis of land demand and supply explores the driving forces of land use changes, while a summary of the statutory procedures for land management helps identify the main issues that are affecting the sustainable land-use allocation in practice. Problems in current sustainable land use planning and management, such as difficulties in urban renewal, the inherent shortage of land and the lengthy time involved due to the need for coordination and responsiveness to multiple stakeholders and outdated and overcomplicated administrative processes are also analyzed.

1.1. Sustainable land use in high density cities: literature review

The United Nations World Commission on Environment and Development defines sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their own needs (Yaakup, Bakar, Zalina, & Bajuri, 2005). As a result of the political agenda of sustainable development, the significance and approaches to sustainable urban development in high density cities have been extensively discussed in international literature (Breheny, 1992; Campbell, 1996; Bruff & Wood, 2000; Thinh, Arlt, Heber, Hennesdorf, & Lehmann, 2002; Chan & Lee, 2008; Fischer & Amekudzi, 2011; Long, Liu, Hou, Li, & Li, 2014). In terms of sustainable land use, Li and Liu (2008) claimed that sustainable land use should coordinate the land-use demand from multiple aspects and different interest groups, and a useful tool can be provided to alleviate land-use conflicts. The sustainability of land use implies not only the sustainability of land use model and biological production on the temporal scale, but also includes the optimization of land use patterns on the spatial scale (Peng, Wang, Wu, Chang, & Zhang, 2007; Zhang, Uwasu, Hara, & Yabar, 2011a; Zhang, Wu, & Shen, 2011b). Particularly, in high density cities, the sustainability of land use can be reflected in the sustained capacity of supporting the urban future development with limited land resources.

Some researchers have focused on urban form/land use pattern in compact cities to explore what sustainable land use is. For example, Breheny (1992) presented a review paper on the contradiction inherent in compact cities, and deeply analyzed the close relationship between urban form and sustainable development. Welbank (1996) made a further search for a sustainable urban form, and thought that the compact city can be a sustainable form. Kombe (2005) paid attention to land use dynamics and its implications on the urban growth and form. Land use and land cover change (LUCC) helps interpret the interactive mechanism of land use/cover changes between human driving forces and environmental responses, which has been studied in some high density cities (Weng, 2002; Herold, Couclelis, & Clarke, 2005; Turan,

Kadiogullari, & Günlü, 2010). Land use planning directly regulates urban future land-use development, and some researchers have discussed sustainable land use in high density cities from the perspective of land use planning, including land suitability analysis (Bruff & Wood, 2000; Joerin, Thériault, & Musy, 2001; Pourebrahim, Hadipour, & Bin Mokhtar, 2011). Due to the complexity of urban systems, urban land aims to support more socio-economic activities such as large-scale constructions, public facilities, and infrastructure than suburban land, and the complexity becomes higher in high density cities. In order to improve the sustainability of urban land use, some researchers have looked into urban land carrying capacity from different perspectives (Rees & Wackernagel, 1996; Oh, Jeong, Lee, Lee, & Choi, 2005; Du, Zhang, Song, & Wen, 2006).

Although there are some recent studies relating to sustainable land use in compact/high density cities, none has yet examined local land use policies as a whole system with the consideration of sustainability. There is a necessity to systematically analyze sustainable land use policies and introduce the whole system as a good model in this paper to provide more insights and implications for sustainable land use in the context of high density cities.

2. Land demand and supply in Hong Kong

2.1. Land demand

As a world city in Asia, Hong Kong is an international financial and service center, serving as a hub for logistics and information services, and a premier world tourist destination (Shen et al., 2009). The region has over 7 million people, with an average population density of 6500 persons/km² (over 20,000 persons/km² in metropolitan areas). Hong Kong also has very limited land resources (approximately 1100 km²), consisting of Hong Kong Island, the Kowloon Peninsula and New Territories with many small islands - all dominated by hilly terrain, 84% of which is unfavorable for urban and agricultural development (Ye, 1998). Meanwhile, the population is projected to steadily increase over the next 30 years at an average of 0.7% pa, with the working population and employment on a similar trajectory. How to accommodate the increasing demand for space is a long-standing question faced by the Hong Kong government.

To meet the needs of this growing population, one basic land demand is from housing. This has been a major problem in Hong Kong for many years. The average living space in Hong Kong is less than 14 m² per capita (Wong, 2011), in contrast with mainland China's 25, Japan's 37, UK's 35 and U.S.'s 79 m² (Personal Finance, 2015). Not only is the quality of housing in need of improvement, but also more residences need to be built for the increasing population. A total housing demand of around 924,000 units (averaging about 34,000 per year) is anticipated over the period leading up to 2030 (Planning Department, 2007). In addition, as a world financial hub, Hong Kong needs an enduring land provision for economic activities serving both the local and global market. Land is also needed for transportation and infrastructure development in addition to that for housing and economic activities.

2.2. Land supply

Unlike most world cities, the built-up (developed) area in Hong Kong comprises only 25% (less than 300 km²) of the whole territory. Approximately 66% of land is woodland/shrubland/grassland/wetland, including 46% in country parks and special areas under statutory control. Public sector land is provided by the government through land sales to general developers, and private treaty grants to approved bodies for specified uses. Developers can also procure

Download English Version:

<https://daneshyari.com/en/article/7455799>

Download Persian Version:

<https://daneshyari.com/article/7455799>

[Daneshyari.com](https://daneshyari.com)