

BOOK REVIEW

Eco-city Planning – Policies, Practice and Design

Edited by Tai Chee Wong and Belinda Yuen
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Eco-city is an environmentally sustainable city in managing the limited natural resources for existing and future generations. Its primary aim is to minimize the damages to the eco-system while maximizing benefits to the human population. Some of the notable targets to achieve eco-city include: reducing pollution, limiting environmental damages, preserving open and green spaces, utilizing renewable energy, conserving energy consumption, maintaining water bodies and so on. However, it is highly challenging to attain eco-city status especially in developing economies as population and demand for infrastructure and facilities has been growing steadily in urban areas. Eco-city development and promotion is a very important agenda in planning future cities and managing existing cities. There has been growing diversity in the way physical infrastructure, environmental resources, heritage conservation, non-human species, energy consumption, waster production are being managed between developed and developing countries. These aspects, if not managed properly, would not only have a detrimental impact on the promotion of eco-city phenomenon but also affects quality of life and well-being of the population at large to a greater extent. In many developing countries, what is planned and implemented for a town and city, in many occasions, proves only to overcome environmental and other related problems in a short-term basis, but what is really required to address the impending problems that many cities and towns in the

developing countries are facing is a practical and pro-active solutions which could address them in a long-run. In this context, many planners, architects and engineers are devising strategies, applying design principles and implementing management aspects to achieve eco-friendly and environmentally sustainable cities, despite of substantial challenges that they need to face in realizing this novel ideas.

One of the greatest aspirations of the cities both in developed and developing countries is to attain a ecologically pronounce, environmentally sustainable, and socially integral communities by balancing the use of natural resources including land for providing benefits to their existing and future populations. This book demonstrates the concepts, policies, design principles, strategies and challenges that are involved in planning an eco-city by using examples in Asia, Europe, Africa, and Latin America. This book consists of thirteen chapters focusing on different aspects of eco-city planning. The understanding of the origins and evolution of eco-city was explained in the *introduction* chapter by the editors of this book. The contents of this book are divided into three main parts; Part I focuses on the Macro-Strategic Planning - Policies and Principles and consists of four chapters, part II on the Implementation and Practice and includes five chapters and finally part III on the Micro Local Planning – Design and Methods and detailed in three chapters.

The population living in urban areas has increased over the years and it continues to increase in the coming years which, eventually, impose a greater stress on the supply and capacity of physical infrastructure to meet their demands. In Asia, some 1.1 billion are anticipated to move to cities in the next 20 years (p.1). This includes 11 megacities, each with a population exceeding 10 million, for example, Beijing, Shanghai, Kolkata (Calcutta), Delhi, Jakarta and Tokyo (p.1). As Tai-Chee Wong and Belinda Yuen, in chapter 1, rightly pointed out, these cities would exert tremendous pressures on the land and environmental resources in order to meet the demand of the growing populations. Some of the problems that may encountered as a result of the growing demand are: increase in traffic volume, air and noise pollutions, decrease in the agricultural land, poor and limited housing and

infrastructure supply, environmental degradation, use of non-renewable energy and decrease in efficient waste management system. These negative signs are the clear indicators of unsustainable urban development. However, it is vital that sustainable urban development be pursued as cities continue to grow (p.1).

Part I of this book addresses ecological city framework in a macro scale, explaining on “how cities can enter the ecological age” in chapter 2. Peter Head and Debra Lam, the authors of this chapter, believe that, against the background of continuing growth in population, increase in resource consumption due to urbanization and climate change, the cities can reach a sustainable future in reducing carbon emissions, retain a limited ecological footprint, and improve human development to enter the ecological age if cities work together globally with the supporting policy framework and new eco-oriented business models (p.17). In chapter 3, Meine Pieter van Dijk highlights the analysis on Asian cities in China and Singapore and a city in Netherlands to show reasons for the creation of a new neighborhood taking environmental factors into consideration (p.31). With the review of Asian cities, the author has made an attempt to answer three questions like what would the ecological city of the future look like, why more ecological cities and what can we learn from these experiences for the ecological city of the future? (p. 31). The author’s message to the urban manager (responsible to develop an integrated approach to the key issues facing the city) is that the eco-city of the future is not only about dealing with environmental issues but also a city needs a sound economic basis, appropriate solutions for its transport systems and requires urban amenities. It is envisaged that the presence of sufficient amenities is an important factor to make a city attractive and receives more attention because it is contributing to the quality of life in cities (p. 48). Carlos H. Betancourth in chapter 4 has focused on the role of the environment in providing solutions to climate change. He shows that urbanization can be a sustainable process capable to create secure urbanities through an eco-infrastructure approach for reducing urban vulnerabilities that explores a series of strategic responses in a weave of eco-infrastructures, feedback-loop urbanisms and networks of zero

carbon settlements powered by renewable energies (p.51). The author outlines the challenges posed and the responses required by the environmental security of cities by taking into account the case of Latin America in general and Cartagena city (Colombia) in particular (p. 52). The author stresses the importance of recognizing the benefits of ecosystem services in strategies for climate change adaptation and improve resilience to climate change impacts on cities through investments in nature's eco-infrastructures (p.86). Chapter 5 examines the concept of eco-cities from a tourism perspective. Scott Dunn and Walter Jamieson, in this chapter, looks at the urban and metropolitan tourism together with examples of responsible and sustainable tourism development. This chapter also provides a series of recommendations for innovative sustainable tourism destination creation within the overall objectives of the concept of eco-cities (p.93). These recommendations are considered very important knowing that the growth of tourism in many urban areas not prepared for tourism activity (p. 109).

Part II of this book focuses on the implementation and practices of eco-town, eco-cities, green urbanism and sustainable urban development. Chapter 6 examines the evolution of new towns to eco-towns in Britain. The proposals of eco-towns in Britain are compared with the New Urbanism proposals in the United States which burst upon the anti-suburban scene in the 1980s. Eleanor Smith Morris, in this chapter, summarizes that the proposed eco-towns, unlike New Urbanism, offer important opportunities to bring together models of environmental, economic and social sustainability (p.113). They will provide testbeds for different methods of delivering, for example: (a) zero carbon building development, (b) offering 30% affordable housing, (c) creating 40% green infrastructure; and (d) looking after waste. Tai-Chee Wong, in chapter 7, investigates the hindrance and potential in developing an environmentally-sustainable urban system in China which has been undergoing a late but rapid urbanization backed up by a huge surplus rural population eager to settle down in the cities. This chapter also analyses public policy measures in energy saving, promotion of renewable energy, public transport, reforestation, recycling of water and other materials. The role of eco-cities in terms of whether they have the potential to lead a

new development path towards a more sustainable urban future in China is also studied in this chapter (p.131). Steffen Lehmann, in chapter 8, argues that the fast growing cities need to develop as more compact, polycentric mixed-use urban clusters, strongly inter-connected by public transport and highly mixed-use, towards sustainable “network city” models (p.151). In this chapter, the author looks at the holistic pathways to rejuvenate the matured housing estates in Singapore as some of them are relatively energy-inefficient and highly air conditioning dependent. The necessity to re-conceptualize the aged housing estates and districts in Singapore to make them realize from low to no-carbon society is emphasized in this chapter. This chapter also explores the typology and findings of a German city namely Freiburg, where two recently completed eco-districts are analysed, as they could inform urban developments in Singapore (p.152). An interesting analogy drawn from this city in Germany is that the cities need to always find local solutions appropriate to their particular circumstances, and that government is key in driving the outcome with the notion that good urban governance and governmental leadership is crucial to eco-development. Chapter 9 of this book focuses on factors that undermine sustainable development from eco-city perspective. Asfaw Kumssa and Isaac K. Mwangi, in this chapter, underline the factors such as ineffective planning and implementation problems of urban residential plan have undermined the development of sustainable and livable urban community in line with the principles of affordable housing for eco-cities (p.181). They refer to the case of Umoja 1 residential community in Nairobi city, Kenya to stress on six factors. The factors include: first, the altered and changed structural forms, character and functions of buildings; second, planned capacities of roads, streets water supply and sanitation networks and social facilities are overstretched, undermined and can no longer cope with increased loading without expanding the existing capacity; third, the degradation of the social and physical environment hindering the realization of the benefits that come with planned urban development; fourth, building of almost all houses beyond original planning and design level of completion in terms of densification of built structures with high-rise rental and commercial buildings dominating sites previously designated for

a mere 3-room low-income houses which obviously spilling into public green spaces; fifth, households from outside Umoja 1 have moved to live and work in new multi-storey apartments and commercial buildings, thereby increasing the community population several times beyond the initial 12,000 people and sixth, service facilities such as those of water and sanitation stand out as areas of grave concern because they are overloaded and have turned out to be as a source of constant water supply shortage besides the health risks presented by the constant leaks from sewer pipes (pp 194-195). In chapter 10, Chin-Siong Ho and Wee-Kean Fong reexamine the concept of low carbon cities and explore the perspective and scenarios towards transforming the Iskandar Malaysia, the South Johor Economic Region (SJER) into an environmentally sustainable urban region (p.199). The authors suggested measures such as low energy buildings, establishment of recycling system, transit-oriented development and Brownfield development are required to reduce CO₂ emissions through reduction in energy and carbon intensity.

Part III focuses on the sustainable architecture in a micro local planning scale. Hoong-Chor Chin and Reuben Mingguang Li, in chapter 11, critically re-examines the presentation of ecological footprint information with reference to past studies. The aspect of “spatiality” and “visualization” of the ecological footprint is explored by juxtaposing popular presentation techniques with the original goals of ecological footprint analysis. The result of the discussion is an identification of several shortcomings inherent in presentation techniques in ecological footprint literature and a subsequent suggestion of a standardized, spatial presentation technique that is in-line with present trajectories in the field of study (p.223). The Chin-Li (C-L) polygonal footprint charts introduced by the authors offers possibility of re-establishing ecological footprint as “visually graphic tool” which continues to remind the limited resources exemplified by the limited land area of the world (p.236). The authors presented a research methodology for the assessment of the sustainability of human activities bounded by cities or economic sectors of cities, and in setting required standards in assessing eco-city development projects (p.236). Selin Mutdogan and Tai-Chee Wong, in chapter 12, examine the efforts made towards constructing sustainable

office buildings (efforts leading towards sustainable architecture) in Istanbul, Turkey. Using a chosen set of green building rating system as criteria, the authors of this chapter made assessment on site-environment, energy-water, materials-resources and indoor environmental quality on high-rise office buildings such as Metrocity office building, İsbank Headquarters and the Akbank Tower along Büyükdere Avenue in Istanbul (p.239). The results of this study show that standards achieved were low but they were symbolic of a self-initiated will in line with the international agenda towards urban ecological conservation (p.239). In chapter 13, T.L. Tan and Gissella B. Lebron measured the CO (carbon monoxide) level in an urban structure in Singapore to determine the indoor air quality (IAQ). The measurement of indoor air quality is important to determine the effects its causes on the workers of the building as they spend substantial amount of time working in air-conditioning operating buildings. The study found high levels of CO emanating from sidestream environmental tobacco smoke (ETS). The air exchange rates in air change per hour (ACH) for six different ventilation rates were found to be from 2.53 to 8.63 ACH (p.261). Half-lives of the CO decays at six different air exchange rates were found to decrease from 16.4 to 4.8 min as the air exchange rates increases (p.261). It is expected that the results would provide a better understanding of how the IAQ can be assessed if CO is of paramount concern in the air-conditioned buildings (p.276).

This book clearly explains the concepts, policies, design principles, strategies and challenges of an eco-city planning by taking cities in Asia, Europe, Africa and Latin America. With the growing population in many cities, the pressure on the limited natural infrastructure has been dramatically increasing. On the other hand, the damage to environment arising from the overpopulation of cities and overuse of resources are clearly seen. The publication of this book is timely to comprehend the deterioration in the urban environment in many cities and it indulges to take necessary actions and preventative measures to protect the environment, reduce energy consumption and waste generation and preserve natural resources for the benefits of existing and future population needs.

Reviewed by:

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