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Spatial Planning and Sustainable Development

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# Green City Planning and Practices in Asian Cities

Sustainable Development and Smart Growth  
in Urban Environments

 Springer

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# Foreword by Zhi Yin

With the rapid development of cities in Asian countries, awareness of environmental degradation and climate change such as global warming continues to rise. Many Asian researchers and practitioners such as urban planners, designers, and policy makers make efforts in engaging a sustainable approach to reducing the environmental footprint caused by urbanisation. The development brings a dynamic and complicated impact in many aspects of cities such as social, economic, and environmental issues. The provision of people's health, safety, and security needs induces many challenges, such as exploitation of natural resources; increasing energy demand; pollution impact on air, water, and soil; and involvement of sophisticated technologies. These aspects are interconnected and considered in a sustainable approach for a green city concept.

To attain a utopian city that is smart and sustainable, the approach of green city concept offers an ideal thinking of city environment to safeguard the equilibrium of natural environment, social-culture effect, and technology. However, implementing the whole concept of green city is a very difficult task that requires complex strategies within different regions of the world. As the original concept of a green city comes from European countries, modification is needed in terms of strategies to create a green city in Asian countries. This is due to differences in history, development, natural and social-culture situation, governance systems, and available technology among cities in the European region and those in the Asian region. Although there are many challenges and obstacles pertaining to green city construction in Asian countries, these do not discourage the urge to accomplish sustainable development in the region.

The most concrete principles and strategies of Asian green cities are manifested in planning and practice by utilising local potential and strength to overcome the disadvantage and weakness of each city. Hence, the most appropriate technique can be adapted and addressed for the local context. Integration of up-bottom and bottom-up approach becomes particularly interesting to accomplish sustainability in all levels of the green city at building, community, and urban scales. The feasibility of implementing an integrative green city concept can be perceived from a higher level of the city by determining the general guidelines, followed by performing detailed strategies in a lower level of unit scales such as building code for indicators assessment and performance evaluation.

In Asian countries, the core of green city practice appertains with three-dimensional city greening and green and blue space network interlink. Green spaces accommodate multiple functions that include natural restoration and preservation, oxygen supplier, public spaces, and city aesthetics. Cities are often divided into cells formed by unique natural and/or artificial barriers as a frame to place city elements. Preservation of characteristics of natural ecology and land resources is an essential consideration in planning and design of Asian cities. Conforming to the natural ecological process for balancing the urban construction and natural system is usually recommended in green planning and designing of urban form, space layout, and urban expansion.

Green building is the most favourite element in applying the green concept in most of Asian cities that is conformed in this book's chapters. This book describes the current developments of green city concept, research, and application in Asian cities through a multidisciplinary approach that includes planning perspective, design practice, and green city assessment. We underline several necessary action stages to attain a green city by defining the goals and suitable concepts, preparing appropriate evaluation tools, determining strategies and techniques, and implementing them into practice.

The sustainable approaches presented in this book are derived from the most concrete method of green city practised in different areas, which is responsive to Asian cities' environment and demographic situation. Although the ideal green city is difficult to achieve in recent situation, this book offers feasibilities in constructing a green city in Asia by presenting several case studies that demonstrate strategies and techniques in different contexts by overcoming obstacles and barriers and maximising local resources. Finally, this book offers tantalising ideas to encourage innovative design that can be practised in different parts of Asian cities.



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# Foreword by Youguo Qin

Up till now, there has been no universally accepted definition of the green city. By general thinking, the green city is an ideal city that balances the construction and natural ecology of the city by encompassing high environmental quality, liveable design, humanistic spaces, graceful landscape, convenient city service, and technology support.

The green city concept strives to lessen the environmental burden resulting from urban development by lowering emissions, supplying oxygen, reducing-reusing-recycling waste, increasing compact urban services, promoting historical and cultural heritage preservation, and expanding green space. Constructing a green city is more complicated than just putting in place a perfect urban planning and design, certain policies, and codes. With dynamic and complex urban problems, integrative strategies combined with best practices of city government and supportive attitude from every citizen are indeed needed to achieve a true green city. The possibility of a green city to be practiced, maintained, and managed is one of the important keys in achieving a green city.

In planning a green city for a sustainable development, the urban setting is essential as it influences the system layout and allows for crucial environmental change. To tackle many urban problems, it is imperative to formulate a comprehensive and integrative planning interrelated across all levels from a single building, to the community, to regional and urban scale. Every city in the world has a unique characteristic and encounters different challenges that need to be resolved. Numerous kinds of solutions and strategies with refreshing ideas and novel thinking which are genuine and ingenious may appear in various places. The differences in natural conditions, history, development, social-culture situations, governance systems, and available technology among the cities may lead to different preferences of green city principles.

Even though the origin of the green city concept is not in Asia, various ancient and traditional wisdoms from Asian cultures deliver many indigenous ideas, strategies, and techniques that complement the green city concept which is adapted to their context. The most accurate strategies and appropriate techniques are employed to achieve a green city adapted to particular local conditions that are derived from

the utilization of local potential to overcome specific urban problems. As a result, many compelling green solutions allow for the creation of unique characteristics of Asian green cities which are different from green cities in Europe and North America where the original green city concept comes from. The newest idea of the green city concept in Asia is the integration with the smart city concept aimed at providing a comfortable, healthy, safe, and secure living environment while maintaining carrying capacity of natural ecology and accelerating efficient technology. The rapid development of information and communication technology (ICT) in recent years triggers this concept integration. The role of ICT in supporting the realization of the green city is placed on smart technology in data gathering, data processing, and action execution. This technology is helpful in several stages of the green city, from city planning and designing to city management processes.

Green city practice in Asian cities mostly focuses on city greening and green building. This practice also encourages technology development on smart-green building and smart-green gardening in Asian cities. Certain sensors and smart management system are already embedded in many green buildings and green houses in Asia to support energy efficiency. Energy efficiency mostly gained from integration of passive-active techniques in lighting, air conditioning, and energy is balanced with renewable energy supply and energy consumption. Green spaces which accommodate multi-functions that include natural restoration and preservation are supported by smart-green watering involving renewable energy supply to generate pumps, advanced technology of water efficiency, and smart treatment for planting.

This book presents the current state of green city development in Asia that includes the idea, concept, research, and implementation from a multidisciplinary approach in regard to planning, design practice, and green city evaluation. Distinctive methods to construct a green city are sketched in this book by associating the most possible strategies and techniques of the green city as practiced in different areas responsive to Asian city environment. The integration of the green city concept with the smart concept is introduced in this book. Although the idea of the smart-green city is still in process in Asian countries, it is still worth mentioning that one of the book's chief contributions is on how to construct the green city. Finally, innovative smart-green design ideas offered by the book are expected to encourage green city practice in distinct parts of Asian cities.



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