

Towards Eco-Cities in East Asia

Introduction

The galloping process of industrialisation, urbanisation and globalisation has brought mounting environmental problems including climate change, acid rain, water shortage and pollution, hazardous waste, smog, ozone depletion, loss of bio-diversity and desertification that pose severe challenges to sustainable development of our human society. Environmental considerations are assuming greater importance in the urban planning processes of an increasing number of governments around the world. Cities, now home to half of the world's population, are increasingly at the forefront of our most pressing environmental challenges which require governments, public and private organisations, and individuals to take a fresh perspective at how economic and social activities can best be organised particularly for those living in crowded urban areas.

In some industrialised regions such as the European Union, around 80% of the population there lives in urban areas and the majority of these people live in small to medium-sized towns and cities. In the developing world like China and India, the sheer magnitude of urbanisation driven by massive demographic shifts is unprecedented, with vast implications for human well-being and the environment. In the metropolises where population growth has outpaced the urban capacity to provide sufficient infrastructure and services, the worst environmental problems are at the doorstep. Bearing in mind the fairly-new but serious challenges posed by climate change, people should also be reminded that the world's cities today account for 75% of global energy consumption and 80% of greenhouse gas (GHG) emissions. Although city dwellers in developed countries with the highest per capita levels of consumption in the world are largely responsible for these resource consumption and emissions, major cities in the developing

countries especially emerging markets are quickly catching up and becoming wealthier, bringing their consumption levels closer to those of the industrialised world. Due to rapid industrialisation and increased motorised transport, many cities in developing countries are experiencing the world's worst urban air pollution that poses enormous threat to human health. The United Nations Environment Programme (UNEP) estimated in 2008 that urban air pollution causes one million premature deaths each year and costs 2% of the GDP in developed countries and 5% in developing countries.

As a result of these urban growth patterns, cities that occupy less than 3% of the world's land mass witness an ecological footprint that extends far beyond their urban boundaries to the forests, mountains, rivers and ore mines in order to sustain the insatiable needs of the urban population. Consumption of fossil fuels and emissions of GHGs continues to increase, especially for transport, and resources such as metals, water and energy, which should be preserved for future generations, are being excessively exploited. Urban sprawling is eroding large suburbia areas, impairing the overall life quality of more and more people. The need to make cities more resource-efficient and less polluting is hence more urgent than ever.

From Garden City to Eco-City

How to plan and build our cities more sustainably, efficiently and liveably without damaging the ecological surroundings have been a focus of scholars, practitioners and activists for more than a 100 years. As early as 1898, Sir Ebenezer Howard launched the "garden city" movement, aiming to promote the concept of garden cities comprising planned and self-contained communities surrounded by greenbelts as well as carefully balanced areas of residences, industry, and agriculture. Ebenezer Howard's famous book *Tomorrow: a Peaceful Path to Real Reform*, which was first published in 1898 and then re-printed in 1902 as *Garden Cities of Tomorrow*, has had profound influence on ecological urban development all over the world and provided indispensable groundwork for the evolution of the "eco-city" concept. In the mid-1970s after the first oil crisis, Urban Ecology, a U.S. Berkeley-based non-profit organisation was established to address the importance of compact urban structure and other city planning approaches in saving energy and resources. This organisation coined the term "eco-city" to address the sustainability of city development. Richard Register, founder

of Urban Ecology, argued in his influential book *Ecocities: Building Cities in Balance with Nature* that people have been trying to build cities in balance with nature all along but have continually been led astray.¹ He advocates more density at closer proximity, because when the distance between destinations goes up, so does energy use, waste, and land-use, or “footprint”. Urban Ecology organised the first international conference on eco-city that was held in Berkeley, California, in 1990. Up to 2006, five international conferences on this topic had been organised in several countries, namely, Australia, Senegal, Brazil, China and India. Although Urban Ecology defines the eco-city concept as a goal to “rebuild cities in balance with nature”, most environmentalists, architects and engineers agree that there is no clear-cut and universal definition, principle, model or content for this notion. In the book *Eco-City Dimensions: Healthy Communities, Healthy Planet*, Mark Roseland listed 10 principles for practitioners to create ecological cities, defining the notion as the most durable kind of settlement that humans are capable of building and a city that provides an acceptable standard of living without depleting the eco-systems or bio-geochemical cycles on which it depends.² Today, the main task of working towards a sustainable urban planning is addressed at the United Nations Human Settlements Programme, UN HABITAT. In association with the United Nations Environmental Programme (UNEP), the Sustainable Cities Programme (SCP) has been established to improve urban environmental planning and management, a sister programme to Agenda 21 that aims to manage global issues at a local level.

In the ensuing debate on how to integrate sustainability into city planning, one of the central and foremost issues is the relationship between transportation and urban life. The modern concept of eco-city was set in the context that cities all over the world were being quickly motorised with increasing dependence on the use of private cars. The simultaneous suburbanisation and city sprawling process has made commuters travel much longer distances than before to reach places of exchange such as shops, schools, offices and theatres. Since the establishment of Urban Ecology in 1970s, almost all the eco-city advocates have been talking about compact

¹Register, Richard (2002). *Ecocities: Building Cities in Balance with Nature*. Berkeley: Berkeley Hills Books.

²Roseland, Mark (ed.) (1997). *Eco-City Dimensions: Healthy Communities, Healthy Planet*. Gabriola Island, BC: New Society Publishers.

city structure, self-sufficient neighbourhood, strengthened city centre and limitation of private car usage.

David Engwicht was one of those acutely aware of the problem posed by the rapid and increasing allocation of the surface area of cities to motor car usage. In his book *Toward an Eco-City: Calming the Traffic*, David Engwicht discussed how traffic destroys the eco-city, revisiting the fundamental purposes and functions of cities.³ He argued that the car-dominated way of movement does not facilitate exchange of information, friendship, material goods, culture and knowledge; on the contrary, the wide use of cars in cities inevitably leads to movement space (roads, car parks and train tracks) erosion of exchange space (homes, shops, work places, parks and community halls). According to Engwicht, this resulted in not only the obliteration of some exchange opportunities but also a vicious cycle in which fewer accessible exchange places require more movement that demands more space be converted from exchange places to movement space. He worked out ten guidelines for re-building the eco-city including building healthy neighbourhoods, optimising exchange efficiency, charging the true costs for access to exchange opportunities and building public facilities, and putting forward four modest proposals, namely, seven year moratorium and revitalisation of neighbourhoods, encouraging exchange-friendly neighbourhood development, city-wide calming and experimental car-free urban villages. Such similar thrusts were also reflected in the works of other urban ecologists such as Richard Register and Mark Roseland, as well as relevant reports by the United Nations and other international organisations. According to the UN HABITAT II Chapter 7 of Article 151, governments in partnership with private sectors, community sectors and other relevant interested parties should “coordinate land-use and transport planning in order to encourage spatial settlement patterns that facilitate access to such basic necessities as work-places, schools, health care, places of worship, goods and other services, and leisure, thereby reducing the need to travel” and “encourage the use of an optimal combination of modes of transport, including walking, cycling and private and public means of transportation, through appropriate pricing, spatial settlement policies and regulatory measures”.

Sustainable transport is just one important aspect that most eco-city projects place emphasis on, while latest research findings have been

³Engwicht, David (1992). *Towards an Eco-city: Calming the Traffic*, pp. 41–66. Sydney: Envirobook.

increasingly focused on a much more comprehensive picture, which should also include advanced water treatment system, solid waste disposal capacity, wide use of renewable energy and enhancement of bio-diversity. More important is how to translate such well-meaning concepts into practice and balance the environmental protection, economic growth and social harmony in the context of local requirements. Under an eco-city themed project sponsored by European Commission, Philine Gaffron, Ge Huismans and Franz Skala jointly depicted the definition, objectives, planning process and model settlement of eco-cities in *Ecocity Book I: A Better Place to Live*,⁴ and subsequently, put forward guidelines and detailed planning techniques and tools to put the concept into practice in *Ecocity Book II: How to Make it Happen*.⁵ They advocated that “eco-city guidelines and objectives have to be woven together with local requirements”, arguing that “an eco-city should be understood as a single integrated system (holistic approach) and not as a combination or result of many sectoral developments planned in isolation”. In their books on eco-city planning, those sectors related to the metabolic and environmental functions of the city (transport, energy and material flows and socio-economic aspects), which conventional planning considers as subsidiary to urban structure, are accorded the same level of importance.

In Ooi Giok Ling’s book *Sustainability and Cities: Concept and Assessment*, the author discussed extensively the realisation of sustainable development in cities and the usefulness of quantitative and qualitative indicators to assess and monitor the green effort in cities, using Singapore as a case study.⁶ Besides sustainable urban transport, the book also included chapters on urban housing, urban population, management of non-hazardous solid waste and the “neglected agenda” relating to bio-diversity, ecological integrity and public participation. Ooi highlighted the sharp contrast in that Singapore had insisted at the beginning that the cleaning-up would proceed in tandem with economic growth, while the other three emerging markets in East Asia, namely Hong Kong, South Korea and Taiwan had adopted the approach of industrialising first and

⁴Gaffron, Philine, Ge Huismans and Franz Skala (2005). *Ecocity Book I: A Better Place to Live*. Vienna: Facultas Verlags-und Buchhandels AG.

⁵Gaffron, Philine, Ge Huismans and Franz Skala (2008). *Ecocity Book II: How to Make It Happen*, Vienna: Facultas Verlags-und Buchhandels AG.

⁶Ooi, Giok Ling (2005). *Sustainability and Cities: Concept and Assessment*, pp. 80–108. Singapore: World Scientific.

then cleaning-up later. Compared with early works on the topic, current research is trying to give a clearer and more detailed and technical solution to implement the eco-city concept rather than just outlining the basic principles.

The growing number of studies on the eco-city concept and practices over the years has underscored the importance of further studying the interaction between urbanisation and sustainable development. Cities are often viewed as the engine of economic growth, but today more and more nations have realised that it is time to alter the traditional emphasis on the single-minded pursuit of higher economic growth with scant regard for environmental protection and social harmony. As the globalisation process deepens and the planet's natural processes transform local problems into transnational and transcontinental issues that demand collective actions, few societies are being left untouched by major environmental problems. As hubs of prosperity, cities have been blamed for causing environmental degradation due to the high-carbon lifestyle and huge amount of waste generated. It is therefore extremely important to understand that one of the most effective solutions to current environmental problems on a global scale lie in the way we plan and build our cities.

Contributions of This Book

The burning issue confronting us today is not whether eco-cities should be built or whether eco-friendly projects should be undertaken but how to ensure that existing cities and new ones that will sprout up will enhance the environment or at least not cause further damage to it. Rather than go for a big-bang, this book advocates a practical and incremental approach to build eco-cities or to simply move closer towards this goal. The steps that are taken should not ignore current realities and challenges. Instead, present realities and challenges ought to be taken on board in planning for eco-cities or eco-friendly projects. This will facilitate a more realistic outcome and gradually encourage more buy-in from existing interests groups long accustomed to the high consumption and high wastage style of living.

It is important to recognise that every government, organisation or individual on this planet, whether in the public or private sectors, can and has a role to play in saving and protecting our environment. In other words, there is a common and shared responsibility for everyone living on this

planet. Those who are more capable and have more resources ought to do more. Those who are less able and have less at their disposal should not conveniently eschew playing a role. Having common but differentiated responsibilities should be welcomed.

The concept of “eco-city” originates from the fundamental objective of sustainability and the application of ecological principles to urban planning, design and management. “Sustainability” and in turn “sustainable development” can mean different things to different people, making it challenging to provide a single definition. This book therefore adopts the original and most widely used definition of sustainable development as contained in the 1987 Brundtland Report commissioned by the United Nations General Assembly. The report defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

As an important model of sustainable development, we believe that an eco-city must be economically, environmentally and socially sustainable (see Fig. 1 below). These three essential components must be present in order to be regarded as a sustainable eco-city or an eco-friendly project. First, on the environmental front, the eco-city must be able to protect or, preferably, even enhance the environment. Within the eco-city, there

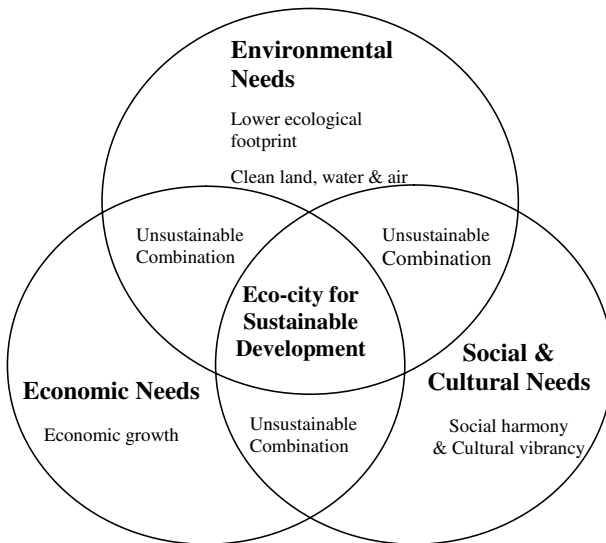


Fig. 1 Eco-city for Sustainable Development

ought to be important aspects or features such as the application of green technologies, environmentally sustainable transportation, rational use of space, green-belts and parks, and cultural and heritage conservation. On the whole, the eco-city should strive towards producing a lower ecological footprint. This would require paying attention not only to what is being practised within the confines of the eco-city itself but also to the impact of building an eco-city beyond the confines of such a city.

Second, on the economic front, the eco-city must be able to contribute to the growth of the economy through attracting investments and generating employment. Economic growth will provide the necessary resources to the government, to organisations and individuals to better protect the environment. More importantly, economic growth will raise the living standards of the people. Over time, with greater prosperity and better living standards, the people will likely become more aware and supportive of efforts to safeguard the environment especially if the environment is regarded as critical to their well-being and quality of life.

Third, on the social and cultural front, the eco-city must be able to meet social considerations including promoting interactions and strengthening the bonds of friendship and even unity among the different ethnic and religious groups of society. An eco-city must not become or be perceived as an enclave for only the rich and powerful but must welcome and be accessible to people from various walks of life. The eco-city should also provide employment for residents living in it so as to maximise convenience for them and minimise travel out of the city. By allowing residents to witness and experience the benefits of living in an eco-city, they will become strong advocates for the norms, values and practices prevalent in such a city. This will foster valuable ground-level support — a key ingredient if the eco-city is to last.

Having discussed the three essential components of an eco-city, it must be unambiguously stated here that this book does not seek to prescribe a single blueprint of sustainability. It would not be prudent to do so as different countries and societies have their unique political, socio-economic, cultural and historical circumstances. Moreover, their capabilities in terms of resources and competitive advantages differ from one to the other. Hence, the model described above is not intended to be a one size that would fit all.

Most importantly, individual countries and societies have to strike a balance among the three essential components of an eco-city. Such a city would not be sustainable if any of the component parts is ignored or neglected. For

instance, merely focusing on economic growth and environmental protection would not be viable if the cost involved is too high and the people who are supposed to directly benefit from it are against it. Also, merely concentrating on achieving environmental protection and social and cultural needs without generating economic wealth and gainful employment will be unrealistic. There has to be wealth first before other priorities can be fulfilled. Furthermore, merely emphasising economic growth and social and cultural needs while neglecting the environment will be disastrous in the long run. In pursuit of eco-cities, the three dimensions of harmony or sustainability must be met simultaneously even though the exact mix may differ. Taken together, a project that has a balanced mix of the economic, environmental, and social and cultural needs will be in a good position to reduce the ecological footprint while improving the quality of life for current and future generations.

Besides outlining a model of a sustainable city, the other significant contribution of this book is to provide a snapshot of the development of eco-cities from the Asian perspective. Most books on eco-cities or eco-friendly projects are usually written either from the Western perspective or concentrate on practices in Western countries. A brief survey of the books written on eco-cities or sustainable cities in recent years can generally be divided into three broad categories. The first category includes books that examine the topic of eco-cities or sustainable cities from the broad or strategic perspective. They include aspects such as the significance and rationale, policies and strategies, current debates, salient features, and measurable indicators of building eco-cities or sustainable cities.⁷

The second category of books tends to single out specific aspects or features of eco-cities or sustainable cities for further study. The

⁷Kemp, Roger L. (ed.) (2008). *Cities and Growth: A Policy Handbook*. North Carolina: McFarland and Company; Wheeler, Stephen M. and Timothy Beatley (2008). *The Sustainable Urban Development Reader*. New York: Routledge; Wachter Susan M. (2008). *Growing Greener Cities: Urban Sustainability in the 21st Century*. Philadelphia: University of Pennsylvania Press; Fontana-Giusti, Gordana (2008). *Designing Cities for People: Social, Environmental and Psychological Sustainability*. London: Earthscan; Short, Lisa Benton and John Rennie Short (2007). *Cities and Nature*. New York: Routledge; Curwell, Stephen, Mark Deakin and Martin Symes (2005). *Sustainable Urban Development: The Framework and Protocols for Environmental Assessment*, Vol. 1. London: Routledge; Curwell, Stephen, Mark Deakin and Martin Symes (2007). *Sustainable Urban Development: The Environmental Assessment Methods*, Vol. 2. London: Routledge; and, Curwell, Stephen Mark Deakin and Martin Symes (2009). *Sustainable Urban Development: The Toolkit for Assessment*, Vol. 9. London: Routledge.

particulars areas that are being examined may range from the use of green transport and transport-related policies,⁸ sources of renewable energy and energy-related policies,⁹ land-use and urban policies,¹⁰ urban planning and/or urban design,¹¹ green houses or green buildings (that are aesthetically compelling as well as environmentally-friendly),¹² rehabilitation of waterways or canals,¹³ understanding and implementing sustainable practices at the local levels (as opposed to the national level),¹⁴ the linkage

⁸Sucharov, Lance and C. A. Brebbia (ed.) (2000). *Urban Transport VI: Urban Transport and the Environment for the 21st Century*. Boston: Wessex Institute of Technology; Sucharov, Lance and G. Bidini (1997). *Urban Transport III: Urban Transport and the Environment for the 21st Century*. Boston: Computational Mechanics Publications; Newman, Peter and Jeffrey Kenworthy (1999). *Sustainability and Cities: Overcoming Automobile Dependence*. Washington D.C.: Island Press; and, Engwicht, David (1992). *Towards an Eco-City: Calming the Traffic*. Sydney: Envirobook.

⁹Droege, Peter (ed.) (2008). *Urban Energy Transition: From Fossil Fuels to Renewable Power*. Oxford: Elsevier; Mega, Voula (2008). *Sustainable Development, Energy and the City*. New York: Springer; and, Capello, Roberta, Peter Nijkamp and Gerard Pepping (1999). *Sustainable Cities and Energy Policies*. New York: Springer.

¹⁰Chalifour, Nathalie J, Patricia Kameri-Mbote, Heng Lye Lin and John R. Nolon (ed.) (2007). *Land Use Law for Sustainable Development*. New York: Cambridge University Press; and, Banister, David, Kenneth J. Button and Peter Nijkamp (ed.) (1999). *Environment, Land Use and Urban Policy*. Northampton, Massachusetts: Edward Elgar Publishing.

¹¹Cooper, Rachel, Graeme Evans and Christopher Boyko (ed.) (2009). *Designing Sustainable Cities: Decision-Making Tools and Resources for Design*. Ames, Iowa: Wiley-Blackwell; Cliff, Moughtin, Kate McMahon Moughtin and Paola Signoretta (2009). *Urban Design: Health and the Therapeutic Environment*. Amsterdam: Architectural Press; Ratcliffe, John, Michael Stubbs and Miles Keeping (2009). *Urban Planning and Real Estate Development*. Oxford, UK: Routledge; Newman, Peter, Timothy Beatley and Heather Boyer (2009). *Resilient Cities: Responding to Peak Oil and Climate Change*. Washington D.C.: Island Press; Farr, Douglas (2008). *Sustainable Urbanism: Urban Design with Nature*. Hoboken, New Jersey: Wiley; Miller, Donald and Gert de Roo (2004). *Integrating City Planning and Environmental Improvement: Practical Strategies for Sustainable Urban Development*. Brookfield, Victoria: Ashgate Publishing; and, Moughtin, Cliff (1996). *Urban Design: Green Dimensions*. Boston: Butterworth Architecture.

¹²Gallent, Nick and Mark Tewdwr-Jones (2007). *Decent Homes for All: Planning's Evolving Role in Housing Provision*. New York: Routledge; Stang, Alanna and Christopher Hawthorne (2005). *The Green House: New Directions in Sustainable Architecture*. New York: Princeton Architectural Press; and, Yudelson, Jerry (2008). *The Green Building Revolution*. Washington D.C.: Island Press.

¹³Nothmann, Frank (2006). *A Guidebook for Riverside Regeneration: Artery — Transforming Riversides for the Future*. New York: Springer.

¹⁴Lauren, C. Heberle and Susan M. Opp (2008). *Local Sustainable Urban Development in a Globalized World*. Aldershot, England: Ashgate Publishing; and, Gouldson, Andrew and Peter Roberts (2000). *Integrating Environment and Economy: Strategies for Local and Regional Government*. New York: Routledge.

among tourism, culture and urban renewal,¹⁵ the legal aspects of urban and sustainable development,¹⁶ the integration of agriculture into the urban landscape,¹⁷ to the ethics of architecture.¹⁸

The third category of books generally focuses on case studies of eco-cities or eco-friendly practices in various countries. In particular, there is a vast literature on the experiences and practices (including achievements and challenges) of building sustainable cities or undertaking eco-friendly projects in the West, which includes the countries in Europe,¹⁹ the U.S.,²⁰ Canada²¹ and Australia.²² Only some of the more recent ones are highlighted here to provide some flavour and substantiation as they are too numerous to name. The main reason for such voluminous literature is

¹⁵Melanie K. Smith (ed.) (2007). *Tourism, Culture and Regeneration*. Wallingford, CABI Publishing.

¹⁶Daniel K. Slone, Doris S. Goldstein and Gowder W. Andrew (2008). *A Legal Guide to Urban and Sustainable Development for Planners, Developers and Architects*. Hoboken, New Jersey: Wiley.

¹⁷Luc J. A. Mougeot (2005). *Agropolis: The Social, Political and Environmental Dimensions of Urban Agriculture*. Ottawa: Earthscan.

¹⁸Fox Warwick (ed.) (2000). *Ethics and the Built Environment*. London: Routledge.

¹⁹Clark Peter (ed.) (2006). *The European City and Green Space: London, Stockholm, Helsinki and St. Petersburg, 1850–2000*. Aldershot, England: Ashgate Publishing; Altrock, Uwe (ed.) (2006). *Spatial Planning and Urban Development in the New EU Member States*. Aldershot, England: Ashgate Publishing; Hooper, Alan and John Punter (ed.) (2006). *Capital Cardiff 1975–2020: Regeneration, Competitiveness and the Urban Environment*. Cardiff: University of Wales Press; Hunt, Julian (ed.) (2005). *London's Environment: Prospects for a Sustainable World City*. London: Imperial College Press; Moore, Niamh and Mark Scott (ed.) (2005). *Renewing Urban Communities: Environment, Citizenship and Sustainability in Ireland*. Aldershot, England: Ashgate Publishing; Holmes, Chris (2005). *A New Vision for Housing*. New York: Routledge; C. A. Fletcher and T. Spencer (ed.) (2005). *Flooding and Environmental Challenges for Venice and Its Lagoon*. Cambridge: Cambridge University Press; Chris Couch (2003). *City of Change and Challenge: Urban Planning and Regeneration in Liverpool*. Aldershot, England: Ashgate Publishing; and, Ravetz, Joe and Peter Roberts (2000). *City-Region 2020: Integrated Planning for a Sustainable Environment*. London: Earthscan.

²⁰John M. Levy (2009). *Contemporary Urban Planning*. New Jersey: Pearson Prentice Hall; Christopher B. Leinberger (2008). *The Option of Urbanism: Investing in a New American Dream*. Washington D.C.: Island Press; Douglas R. Porter (2008). *Managing Growth in America's Communities*. Washington D.C.: Island Press; and, Rob J. Krueger and David Gibbs (2007). *The Sustainable Development Paradox: Urban Political Economy in the United States and Europe*. New York: Guilford Press.

²¹Ferrara, Luigi and Emily Visser (ed.) (2008). *Canada Innovates: Sustainable Building*. Toronto: Key Porter Books; and, Patrick M. Condon, *Sustainability by Design: A Vision for a Region of 4 Million*. Vancouver, B.C.: Design Center for Sustainability.

²²Beatley, Timothy and Peter Newman (2008). *Green Urbanism Down Under: Learning from Sustainable Communities in Australia*. Washington D.C.: Island Press.

most probably due to the fact that many of the developed countries in the West, which have attained a certain standard of economic growth, have become more aware of the negative impact of unbridled economic activities on the environment. Hence, one of the key focuses of policy-makers, non-governmental organisations, academics and even individuals is to ensure quality growth, i.e., growth that balances the requirements of the environment and other considerations such as social and cultural needs. Even businesses see value in internalising green practices and green standards in their operations to stay competitive in the long run. Their products can become more appealing to consumers which will in turn increase their profit margin.

To be sure, Western authors have also looked at eco-cities or eco-friendly projects in Asia, but these seemed to be generally written within the context of their examination of eco-cities or eco-friendly projects in the developing world which also includes some countries of Asia. For example, in *Designing Sustainable Cities in the Developing World*, Roger Zetter and Georgia Butina Watson examine various case studies in the developing world that included Mexico, South Africa, Brazil, Saudi Arabia, Bethlehem-Palestine and Bijapur (India).²³ India is the only Asian country included in the study. In *Compact Cities: Sustainable Urban Forms for Developing Countries*, Mike Jenks and Rod Burgess discuss compact cities in the context of developing countries that included Colombia, Brazil, Egypt, Chile, South Africa, China (covering case studies on mainland China, Hong Kong and Taiwan), India and Thailand.²⁴ In these studies, Asia is not seen on its own merits alone, but as part of the developing world.

Increasingly, however, there appears to be greater interest by scholars (that increasingly includes Asian authors either working alone or in collaboration with Western authors) who look at eco-cities or eco-friendly projects either from the Asian perspective or dwelling on Asian examples.

²³Zetter, Roger and Georgia Butina Watson (ed.) (2008). *Designing Sustainable Cities in the Developing World*. Aldershot, England: Ashgate Publishing.

²⁴Jenks, Mike and Rod Burgess (2000). *Compact Cities: Sustainable Urban Forms for Developing Countries*. London: Spon Press; Steven A. Moore examines alternative routes to the sustainable city by conducting in-depth study into three cities, namely Austin (Texas), Curitiba (Brazil) and Frankfurt (Germany). No Asian city is mentioned in his study. See Moore, Steven A. (2007). *Alternative Routes to the Sustainable City*. Lanham: Lexington Books; and, Myers Garth Andrew takes a critical look at the issues of refuse disposal and sustainable development in three cities, namely, Dar es Salaam (Tanzania), Zanzibar (Tanzania) and Lusaka (Zambia). See Myers, Garth Andrew (2005). *Disposable Cities: Garbage Governance and Sustainable Development in Urban Africa*. Aldershot: Ashgate Publishing.

Most of such literature tends to focus either on the strategic significance of building sustainable cities in Asia or on examples (or best practices) in the more prominent developing countries such as mainland China (covering case studies on the mainland and Hong Kong)²⁵ and India.²⁶ Such growing interest can be attributed to the large and growing population in the urban areas in these two countries which will have significant environmental implications. In addition, while discussing Asia, it is worth noting that countries like Japan and to some extent South Korea have been at the forefront of building eco-cities and have vast experience and insights to share on this topic.²⁷ And as pointed out earlier, Singapore is another country that had at a very early stage of its independence realised the importance of incorporating the green agenda into its city planning.²⁸

The papers in this collection are intended to enrich the existing literature on this topic from the Asian perspective by highlighting case studies of eco-cities or eco-friendly practices carried out by the important developing countries in Southeast Asia like Indonesia, Malaysia, Thailand and the Philippines in addition to the more well-known ones like China, Japan and Singapore. The purpose is to provide an understanding of

²⁵Pitts, Adrian and Liao Hanwen (2009). *Sustainable Olympic Design and Urban Development*. New York: Taylor and Francis; Day, Kristen A (ed.) (2005). *China's Environment and the Challenge of Sustainable Development*. Armonk: M.E. Sharpe; and, Schaik, Leon Van (2003). *Ecocells: Landscapes and Masterplans*. Chichester, West Sussex, England: Wiley-Academy.

²⁶Prasad, Archana (ed.) (2008). *Environment, Development and Society in Contemporary India: An Introduction*. Delhi: Macmillan; Pachauri Rajendra (2007). *Coping with Climate Change: Is Development in India and the World Sustainable*. Canberra: Research School of Pacific and Asian Studies, Australian National University; Bhatnagar Amitabh (2007). *Successful Experiments in Rural Development/Livelihoods: Sage and Sound Recipes*. Bhopal: Madhya Pradesh Rural Livelihoods Project, State Livelihoods Forum and Zenith Books International; Chattopadhyay, Srikumar, and Franke, Richard W. (2006). *Striving for Sustainability: Environmental Stress and Democratic Initiatives in Kerala*. New Delhi: Concept Publishing; and, Ray, Binayak (1996). *India: Sustainable Development and Good Governance Issues*. New Delhi: Atlantic Publishers.

²⁷Sorensen, Andre and Carolin Funck (ed.) (2007). *Living Cities in Japan: Citizens' Movements, Machizukuri and Local Environments*. New York: Routledge; and, Tamagawa, Hidenori (2006). *Sustainable Cities: Japanese Perspectives on Physical and Social Structures*. New York: United Nations University Press.

²⁸Wong, Tai-Chee, Belinda Yuen and Charles Goldblum (2008). *Spatial Planning for a Sustainable Singapore*. Netherlands: Springer, in association with the Singapore Institute of Planners; Ooi, Giok Ling (2005). *Sustainability and Cities: Concept and Assessment*. Singapore: World Scientific; and, Ruby, Ilka and Andreas Ruby (ed.) (2008). *Urban Transformation*. Berlin: Ruby Press.

the current state of play in building eco-cities or undertaking eco-friendly projects in these countries. The papers highlight the role of various actors such as governments (including central and local), interests groups, local communities and even individuals in this effort. More importantly, the challenges of embarking on such efforts are mentioned as well as the actions needed to address these challenges. The papers indicate that building eco-cities or undertaking eco-city projects are wrought with difficulties and is a process that has to be constantly monitored and even micro-managed to achieve the desired outcomes. Rather than be discouraged by the harsh realities on the ground, such case studies should provide useful references or pointers to proponents of the green agenda to push even stoically ahead by being aware of the challenges they may encounter on the ground.

The first two chapters mainly focus on the theoretical evolution of the concepts and key ideas of eco-cities, their rationale and the urgency to find a more sustainable way forward. In Chapter 1, Hidefumi IMURA provides a strategic overview of urbanisation in Asia and then discusses the objectives and goals of eco-city in the 21st century as well as the policies and measures to achieve them. He observes that although the term eco-city emerged towards the end of the 1980s, the ideas associated with such a term had existed for years. He argues that the meaning of eco-city has changed in line with the expanding breadth of environmental issues as well as changing priorities in the international and national environment policy. In Chapter 2, William S.W. LIM highlights three critically interdependent perspectives. These are the escalating global climatic crisis and the urgency to find a sustainable way forward; the global financial turmoil and the necessity of a new development model, one that is less resource intensive and generates less waste; and, the uniqueness of Asian cities because of their “chaotic order, pluralistic richness and unintentional complexity”. Lim is ardently confident that Asian cities will be able to find their own unique and attractive model of preserving their urban landscape by tastefully combining features of the old and new which is likely to be different from the “universalistic assumptions of Eurocentric modernity”.

The other chapters adopt a more specific focus by examining examples of eco-cities or eco-friendly projects being undertaken, their achievements and challenges encountered, and the way forward. In Chapter 3, besides a brief overview of the rationale, key ideas and features of eco-cities, LYE Liang Fook and CHEN Gang highlight three interesting case studies, i.e., the on-going Masdar Eco-city or Masdar Initiative in Abu Dhabi, the failed Huangbaiyu Eco-village in Liaoning in China and the on-going

Sino-Singapore Tianjin Eco-city in China. The purpose of highlighting these three examples is to show three different possible models of building eco-cities or eco-friendly projects. Each has its advantages and challenges. The authors also suggest possible ways of tackling these challenges.

In Chapter 4, POW Choon-Piew and Harvey NEO undertakes a critical review of the literature on eco-city (and related notions of urban sustainability and ecological modernisation). They are of the view that the concept remains somewhat elusive and controversial. To substantiate their point, they dwell at length on Shanghai's Dongtan Eco-city project to highlight the relevance and challenges of translating the eco-city concept in China. This project which had received strong endorsement from the British and Chinese governments and which was touted as China's first sustainable eco-city seemed to have run aground.

In Chapter 5, Rujiroj Anambutr explores policies and projects related to the concept of eco-city in Thailand and focuses on their achievements and challenges. While the author finds that the concept is generally recognised and well received by various levels of society, the implementation is still lagging behind. In particular, he examines the philosophy of sufficiency first propounded by Thailand's revered king (King Rama IX) in 1972 which is Thailand's version of balancing development needs with other considerations. He discusses the successes and challenges of implementing this philosophy and ends on the optimistic note that the concept of eco-city "is still thriving in Thailand".

In Chapter 6, Suraya A. AFIFF observes a tendency for state actors to collaborate with business interests to the total disregard of public or individual interests in the name of implementing eco-friendly projects. By examining the politics behind the use of open green spaces in Jakarta, Bandung and Malang, Suraya shows that city administrations sometimes allow private businesses to gain access to the development of green spaces even though such actions are against planning regulations. She stresses the need to take on board the voices of the less influential so that the benefits of eco-friendly projects can be more evenly distributed and not just confined to the rich and powerful.

In Chapter 7, WANG Tao and SHAO Lei highlights the realities, particularly the challenges of implementing eco-cities in China. While there are a few key ministries and agencies that oversee national programmes related to sustainable urban development, they are not the main actors. In their examination of two projects (one in Nanjing and the other in Xi'an), the authors argue that the local governments actually play key roles in

the making and implementation of the urban plans. They suggest ways of improving the present incoherent and fragmented approach to urban sustainable development.

In Chapter 8, Hardev Kaur and Mizan Hitam discuss the various sustainable initiatives undertaken by the Malaysian government as part of a comprehensive approach to address the environmental challenges posed by rapid urbanisation. These initiatives include Local Agenda 21 (a community programme for sustainable development), Putrajaya (a model city for sustainable development)) and low-carbon cities in the Iskandar Development Region in Johor. Despite the challenges encountered in carrying out these initiatives, Kuar argues that the green agenda is here to stay due to the combined efforts by various government agencies and local authorities, and active and effective participation at the neighbourhood level involving various stakeholders.

In Chapter 9, Marife BALLESTEROS observes that while the Philippines government seems to have a clear-cut and convincing strategy for achieving economic growth and environmental protection, the implementation phase of its ecological initiatives can be found wanting. Focusing on the development of the Quezon City Central Business District, Marife highlights the institutional factors that impede the development of the green agenda in the district. They include political considerations at the national and local levels that can significantly distort the incentive systems, the poor enforcement of property rights, and the inefficient land administration and management.

Towards Urgent and Practical Action

This book is compiled against the backdrop of heightened awareness and increasing calls for the international community to do more to fight climate change and global warming before it is too late. At the international level, and most recently at the Group of Eight (G8) Leaders' Meeting with other leaders of emerging economies in L'Aquila (Italy) in July 2009, the leaders recognised the scientific view on the need to keep global temperature rise below two degrees Celsius above pre-industrial levels. They also agreed on a global long-term goal of reducing global emissions by at least 50% by 2050 and, as part of this, on an 80% or more reduction goal for developed countries by 2050. These positive outcomes have laid a good foundation for a viable climate deal that is expected to replace the Kyoto Protocol

which will expire in 2012. More, however, needs to be done to establish interim targets for emission cuts in the run-up to 2050 for both developed and developing countries alike.

At the regional level, ASEAN and their regional partners have set sustainable development of cities, energy conservation and emission reduction as among the most important topics on their agenda. At the 10th ASEAN Ministerial Meeting on Haze held in Siem Reap (Cambodia) in March 2003, ASEAN Environment Ministers endorsed the Regional Environmental Sustainability Cities Programme (RESCP) that paved the way for the setting Group on Environmentally Sustainable Cities (AWGESC) with Singapore as the chair to drive the RESCP. At a workshop in Singapore in December 2003, the AWGESC developed the Framework on Environmentally Sustainable Cities that mapped out the vision, principles and scope under the RESCP. It identifies the goals, objectives, strategies and activities/programmes for environmental issues, with Clean Air, Clean Water and Clean Land being the focus areas. Altogether, 24 ASEAN cities including Putrajaya, Bangkok, Quezon, Balikpapan and Singapore have been participating in the RESCP. At the 13th ASEAN Summit in November 2007, the ten member countries signed the *ASEAN Declaration on Environmental Sustainability* in Singapore with commitments made in the three main areas of environmental protection and management, responding to climate change and conservation of natural resources. At the same venue, ASEAN, together with its six regional partners (China, India, Japan, Korea, Australia and New Zealand) at the Third East Asia Summit (EAS), passed the landmark *Singapore Declaration on Climate Change, Energy and the Environment* that reaffirmed “the need to take an effective approach to the interrelated challenges of climate change, energy security and other environmental and health issues, in the context of sustainable development.”

The articles in this book is the result of a workshop organised by the East Asian Institute of the National University of Singapore to foster discussion and share experience on existing practices on eco-cities or eco-friendly projects among scholars and practitioners in the region. Held in Singapore on February 27, 2009, the title of the workshop was *Towards a Liveable and Sustainable Urban Environment: Eco-Cities in East Asia* on February 27, 2009 in Singapore.

The ultimate purpose of this book is to strengthen the call for more action to put into practice the many good ideas, concepts, suggestions and experiences that are already out there. More concerted action by all

including countries, non-governmental organisations, businesses and even the individual, can together make a difference in ensuring that the world as we know today will continue to be there for our future generations to enjoy. We all have to do our part now.