Infrastructure Planning For Sustainable Cities

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Infrastructure Planning and Finance IWA Publishing
Planning Sustainable Cities: An infrastructure-based approach provides an analytical framework for urban sustainability, focusing on the services and performance of infrastructure systems. The book approaches infrastructure as a series of systems that function in synergy and are directly linked with urban planning. This method streamlines and guides the planning process, while still highlighting detail, each infrastructure system is decoded in four "system levels". The levels organize the processes, highlight connections between entities and decode the high-level planning and decision making process affecting infrastructure. For each system level strategic objectives of planning are determined. The objectives correspond to the five focus areas of the Zofnass program: Quality of life, Natural World, Climate and Risk, Resource Allocation, Leadership. Developed through the Zofnass Program at the Harvard Graduate School of Design, this approach integrates the key infrastructure systems of Energy, Landscape, Transportation, Waste, Water, Information and Food and explores their synergies through land use planning, engineering, economics and policy. The size and complexity of infrastructure systems means that multiple stakeholders facing their own challenges and agendas are involved in planning; this book creates a common, collaborative platform between public authorities, planners, and engineers. It is an essential resource

for those seeking Envision Sustainability Professionals accreditation.

Urban Planning for City Leaders Springer

Questions of how the design of cities can respond to the challenge of climate change dominate the thoughts of urban planners and designers across the U.S. and Canada. With admirable clarity, Patrick Condon responds to these questions. He addresses transportation, housing equity, job distribution, economic development, and ecological systems issues and synthesizes his knowledge and research into a simple-to-understand set of urban design recommendations. No other book so clearly connects the form of our cities to their ecological, economic, and social consequences. No other book takes on this breadth of complex and contentious issues and distills them down to such convincing and practical solutions.

Drawdown Rowman & Littlefield

This publication reviews recent urban planning practices and approaches, discusses constraints and conflicts therein, and identifies innovative approaches that are more responsive to current challenges of urbanization. It notes that traditional approaches to urban planning (particularly in developing countries) have largely failed to promote equitable, efficient and sustainable human settlements and to address twenty-first century challenges, including rapid urbanization, shrinking cities and aging, climate change and related disasters, urban sprawl and unplanned peri-urbanization, as well as urbanization of poverty and informality. It concludes that new approaches to planning can only be meaningful, and have a greater chance of succeeding, if they effectively address all of these challenges, are participatory and inclusive, as well as linked to contextual socio-political processes.--Publisher's description

Mega-Projects Routledge

This useful guide provides an essential introduction to green infrastructure for planners, landscape architects, engineers and environmentalists.

Urban Engineering for Sustainability CRC Press

Urbanization is occurring at an unprecedented rate; by 2050 three quarters of the world’s people will live in urban environments. The cars we drive, products we consume, houses we live in and technology we use will all determine how sustainable our cities will be. Bridging the increasing divide between cross-disciplinary academic insights and the latest practical innovations, Resilient Sustainable Cities provides an integrated approach for long term future planning within the context of the city as a whole system. In the next 30 years cities will face their biggest challenges yet, as a result of long term, or ‘slow burn’ issues: population growth will stretch to the breaking point urban infrastructure and service capacity; resource scarcity, such as peak oil; potable water and food security, will dramatically change what we consume and how; environmental pressures will change how we live and where and; shifting demographic preferences will exacerbate urban pressures. Cities can’t keep doing what they’ve always done and cope – we need to change current urban development to achieve resilient, sustainable cities. Resilient Sustainable Cities provides practical and conceptual insights for practitioners, researchers and students on how to deliver cities which are resilient to ‘slow burn’ issues and achieve sustainability. The book is organized around

three overarching themes: pathways to the future innovation to deliver the future leadership and governance issues The book includes a variety of perspectives conveyed through international case studies and examples of cities that have transformed for a sustainable future, exploring their successes and failures to ensure that readers are left with ideas on how to turn their city into a resilient sustainable city for the future.

Planning Sustainable Cities CRC Press

A sustainable city has been defined in many ways. Yet, the most common understanding is a vision of the city that is able to meet the needs of the present without compromising the ability of future generations to meet their own needs. Central to this vision are two ideas: cities should meet social needs, especially of the poor, and not exceed the ability of the global environment to meet needs. After Sustainable Cities critically reviews what has happened to these priorities and asks whether these social commitments have been abandoned in a period of austerity governance and climate change and replaced by a darker and unfair city. This book provides the first comprehensive and comparative analysis of the new eco-logics reshaping conventional sustainable cities discourse and environmental priorities of cities in both the global north and south. The dominant discourse on sustainable cities, with a commitment to intergenerational equity, social justice and global responsibility, has come under increasing pressure. Under conditions of global ecological change, international financial and economic crisis and austerity governance new eco-logics are entering the urban sustainability lexicon – climate change, green growth, smart growth, resilience and vulnerability, ecological security. This book explores how these new eco-logics reshape our understanding of equity, justice and global responsibility, and how these more technologically and economically driven themes resonate and dissonate with conventional sustainable cities discourse. This book provides a warning that a more technologically driven and narrowly constructed economic agenda is driving ecological policy and weakening previous commitment to social justice and equity. After Sustainable Cities brings together leading researchers to provide a critical examination of these new logics and identity what sort of city is now emerging, as well as consider the longer-term implication on sustainable cities research and policy.

Cities of the Future Routledge

We hear the term “sustainability” everywhere today. In the context of city management, the term often refers to environmental concerns, both locally and globally. Managing the Sustainable City examines not only how cities can prepare to weather the local effects of climate change, but also how urban centers can sustain themselves through other modern management challenges, including budgeting and finance, human resource management, public safety, and infrastructure. This clearly written and engaging new textbook provides a comprehensive overview of urban administration today, exploring the unique demographics of cities, local government political structures, intergovernmental relations, and the full range of service delivery areas for which cities are ever more responsible. Throughout the book, two important components of city management today—the use of technology and measuring performance for accountability—are highlighted, along with

NASPAA accreditation standards and competencies. Particular attention is paid to incorporating Urban Administration standards to provide students using the text will have a thorough understanding of: The ethics of local government management The roles and relationships among local and elected/appointed government officials, as well as what makes local institutions different from other institutions Strategies for engaging citizens in local governance The complexities of intergovernmental and network relationships to develop skills in collaborative governance How to manage local government financial resources as well as human resources Public service values such as accountability, transparency, efficiency, effectiveness, ethical behavior, and equity and emphasized throughout the text, and discussion questions, exercises, and "career pathways" highlighting successful public servants in a variety of city management roles are included in each chapter. Managing the Sustainable City is an ideal textbook for students of public administration, public policy, and public affairs interested in learning how cities can be sustainable—in their management, their policies, and their interactions with their citizens—as well as in preparing for and managing the impacts of climate change.

Green Infrastructure CRC Press

This book emphasizes new ways of designing for a sustainable city and urban environment. From several angles the future of our urbanism is illuminated. From a philosophical point of view, the city is seen as an organism, following complex ecosystemic principles, shining light on indigenous perspectives to become beneficial for sustainable design and core questions are asked whether current architectural practice is really sustainable. Simultaneously concrete practices are presented for cities in transformation, focusing on green infrastructure, smart city principles and health.

Designing Sustainable Cities WIT Press

A textbook that introduces integrated, sustainable design of urban infrastructures, drawing on civil engineering, environmental engineering, urban planning, electrical engineering, mechanical engineering, and computer science. This textbook introduces urban infrastructure from an engineering perspective, with an emphasis on sustainability. Bringing together both fundamental principles and practical knowledge from civil engineering, environmental engineering, urban planning, electrical engineering, mechanical engineering, and computer science, the book transcends disciplinary boundaries by viewing urban infrastructures as integrated networks. The text devotes a chapter to each of five engineering systems—electricity, water, transportation, buildings, and solid waste—covering such topics as fundamentals, demand, management, technology, and analytical models. Other chapters present a formal definition of sustainability; discuss population forecasting techniques; offer a history of urban planning, from the Neolithic era to Kevin Lynch and Jane Jacobs; define and discuss urban metabolism and infrastructure integration, reviewing system interdependencies; and describe approaches to urban design that draw on complexity theory, algorithmic models, and machine learning. Throughout, a hypothetical city state, Civitas, is used to explain and illustrate the concepts covered. Each chapter includes working examples and problem sets. An appendix offers tables, diagrams, and conversion factors.

The book can be used in advanced undergraduate and graduate courses in civil engineering and as a reference for practitioners. It can also be helpful in preparation for the Fundamentals of Engineering (FE) and Principles and Practice of Engineering (PE) exams.

Resilience-Oriented Urban Planning Cambridge Scholars Publishing

Achieving urban sustainability is amongst the most pressing issues facing planners and governments. This book is the first to provide a cohesive analysis of sustainable urban development and to examine the processes by which change in how urban areas are built can be achieved. The author looks at how sustainable urban development can be delivered on the ground through a comprehensive analysis of the different modes of governing for new urban development. Governing for Sustainable Urban Development: considers a range of policy tools that influence urban development and that constitute different modes of governing provides an innovative conceptual emphasis on learning within governing processes draws on a wide range of existing research, policy and literature together with case study material focussing on London is above all concerned with demonstrating how sustainable urban development can be delivered in practice. This title be essential reading for students, academics and professionals in planning, urban design and architecture world-wide working to achieve sustainability.

Sustainable Cities Routledge

"This book aims to bridge the gap in the current literature by addressing the overall problems present in major infrastructure in society, and the technologies that may be applied to overcome these problems"--Provided by publisher.

Green Infrastructure Planning Routledge

Alternative Urban Futures challenges existing models of urban development and promotes alternative paradigms, processes, and technologies designed to fulfill human needs and limit the harmful impacts of human activities on the environment. The book focuses on how planners and policy makers can develop and manage essential urban infrastructures in ways that support sustainable development in the areas of waste management, water supply and management, energy production and use, building design and construction, land-use, transportation, and food systems. Each chapter features case studies that provide concrete examples of how ecologically and socially responsible urban and sustainable development planning and policy approaches have been successfully implemented in cities around the world. The book is especially effective in its emphasis on recently published statistics and writing supporting new planning and policy recommendations. Each chapter ends with a summary, accompanied by a list of questions that can be addressed with information provided in the text.

Sustainable Urban and Regional Infrastructure Development: Technologies, Applications and Management Rowman & Littlefield

The concept of ‘sustainable urban development’ has been pushed to the forefront of policymaking and politics as the world wakes up to the impacts of climate change and the destructive effects of the Anthropocene. Climate change has emerged to be one of the biggest challenges faced by our planet today, threatening both built and natural systems with long-term consequences, which may be irreversible. While there is a vast body of literature on

sustainability and sustainable urban development, there is currently limited focus on how to cohesively bring together the vital issues of the planning, development, and management of sustainable cities. Moreover, it has been widely stated that current practices and lifestyles cannot continue if we are to leave a healthy living planet to not only the next generation, but also to the generations beyond. The current global school strikes for climate action (known as Fridays for Future) evidences this. The book advocates the view that the focus needs to rest on ways in which our cities and industries can become green enough to avoid urban ecocide. This book fills a gap in the literature by bringing together issues related to the planning, development, and management of cities and focusing on a triple-bottom-line approach to sustainability.

Performance Metrics for Sustainable Cities Springer Nature This volume examines the applicability of landscape urbanism theory in contemporary landscape architecture practice by bringing together ecology and architecture in the built environment. Using participatory planning of green infrastructure and application of nature-based solutions to address urban challenges, landscape urbanism seeks to reintroduce critical connections between natural and urban systems. In light of ongoing developments in landscape architecture, the goal is a paradigm shift towards a landscape that restores and rehabilitates urban ecosystems. Nine contributions examine a wide range of successful cases of designing livable and resilient cities in different geographical contexts, from the United States of America to Australia and Japan, and through several European cities in Italy, Portugal, Estonia, and Greece. While some chapters attempt to conceptualize the interconnections between cities and nature, others clearly have an empirical focus. Efforts such as the use of ornamental helophyte plants in bioretention ponds to reduce and treat stormwater runoff, the recovery of a poorly constructed urban waterway or participatory approaches for optimizing the location of green stormwater infrastructure and examining the environmental justice issue of equative availability and accessibility to public open spaces make these innovations explicit. Thus, this volume contributes to the sustainable cities goal of the United Nations.

Landscape Urbanism and Green Infrastructure Routledge Infrastructure Planning and Finance is a non-technical guide to the engineering, planning, and financing of major infrastucture projects in the United States, providing both step-by-step guidance, and a broad overview of the technical, political, and economic challenges of creating lasting infrastructure in the 21st Century. Infrastructure Planning and Finance is designed for the local practitioner or student who wants to learn the basics of how to develop an infrastructure plan, a program, or an individual infrastructure project. A team of authors with experience in public works, planning, and city government explain the history and economic environment of infrastructure and capital planning, addressing common tools like the comprehensive plan, sustainability plans, and local regulations. The book guides readers through the preparation and development of comprehensive plans and infrastructure projects, and through major funding mechanisms, from bonds, user fees, and impact fees to privatization and competition. The rest of the book describes the individual infrastructure systems: their elements,

current issues and a 'how-to-do-it' section that covers the system and the comprehensive plan, development regulations and how it can be financed. Innovations such as decentralization, green and blue-green technologies are described as well as local policy actions to achieve a more sustainable city are also addressed. Chapters include water, wastewater, solid waste, streets, transportation, airports, ports, community facilities, parks, schools, energy and telecommunications. Attention is given to how local policies can ensure a sustainable and climate friendly infrastructure system, and how planning for them can be integrated across disciplines.

Managing the Sustainable City Routledge

This book provides an overview of the large and interdisciplinary literature on the substance and process of urban climate change planning and design, using the most important articles from the last 15 years to engage readers in understanding problems and finding solutions to this increasingly critical issue. The Reader’s particular focus is how the impacts of climate change can be addressed in urban and suburban environments—what actions can be taken, as well as the need for and the process of climate planning. Both reducing greenhouse gas emissions as well as adapting to future climate are explored. Many of the emerging best practices in this field involve improving the green infrastructure of the city and region—providing better on-site stormwater management, more urban greening to address excess heat, zoning for regional patterns of open space and public transportation corridors, and similar actions. These actions may also improve current public health and livability in cities, bringing benefits now and into the future. This Reader is innovative in bringing climate adaptation and green infrastructure together, encouraging a more hopeful perspective on the great challenge of climate change by exploring both the problems of climate change and local solutions.

Smart Sustainable Cities of the Future Routledge

As global warming advances, regions around the world are engaging in revolutionary sustainability planning - but with social equity as an afterthought. California is at the cutting edge of this movement, not only because its regulations actively reduce greenhouse gas emissions, but also because its pioneering environmental regulation, market innovation, and Left Coast politics show how to blend the "three Es" of sustainability--environment, economy, and equity. Planning Sustainable Cities and Regions is the first book to explain what this grand experiment tells us about the most just path moving forward for cities and regions across the globe. The book offers chapters about neighbourhoods, the economy, and poverty, using stories from practice to help solve puzzles posed by academic research. Based on the most recent demographic and economic trends, it overturns conventional ideas about how to build more livable places and vibrant economies that offer opportunity to all. This thought-provoking book provides a framework to deal with the new inequities created by the movement for more livable - and expensive - cities, so that our best plans for sustainability are promoting more equitable development as well. This book will appeal to students of urban studies, urban planning and sustainability as well as policymakers, planning practitioners, and sustainability advocates around the world.

Sustainable Urbanism and Beyond MIT Press

As cities become increasingly congested, current transport patterns are unsustainable: heavy in energy use, high in economic and environmental cost, and exacerbating inequity between those who can access high-speed travel and those who cannot. Good urban planning develops human-scale cities and encourages modes such as bicycles, increased zones exclusive to pedestrians within cities, and changed fiscal policies to incentivize public over private transport. Equally, it requires good engineering design to manage road use. Sustainable Approaches to Urban Transport brings together contributions from leading international experts in urban planning, transport, and governance who suggest changes to make our cities more sustainable in the face of climate change. All professionals working in transport and engineering and planning students will find an overview of a broad field in this interdisciplinary collection of essays.

Green Infrastructure Penguin

Containing the proceedings of the 9th International Conference on Urban Regeneration and Sustainability this book addresses the multi-disciplinary aspects of urban planning; a result of the increasing size of cities; the amount of resources and services required and the complexity of modern society. Most of earth's population now lives in cities and the process of urbanisation still continues generating many problems deriving from the drift of the population towards them. These problems can be resolved by cities becoming efficient habitats, saving resources in a way that improves the quality and standard of living. The process however, faces a number of major challenges, related to reducing pollution, improving main transportation and infrastructure systems. New urban solutions are required to optimise the use of space and energy resources leading to improvements in the environment, i.e. reduction in air, water and soil pollution as well as efficient ways to deal with waste generation. These challenges contribute to the development of social and economic imbalances and require the development of new solutions. Large cities are probably the most complex mechanisms to manage. However, despite such complexity they represent a fertile ground for architects, engineers, city planners, social and political scientists, and other professionals able to conceive new ideas and time them according to technological advances and human requirements. The challenge of planning sustainable cities lies in considering their dynamics, the exchange of energy and matter, and the function and maintenance of ordered structures directly or indirectly, supplied and maintained by natural systems. Topics covered include: Urban strategies; Planning, development and management; Urban conservation and regeneration; The community and the city; Eco-town planning; Landscape planning and design; Environmental management; Sustainable energy and the city; Transportation; Quality of life; Waterfront development; Case studies; Architectural issues; Cultural heritage issues; Intelligent environment and emerging technologies; Planning for risk; Disaster and emergency response; Safety and security; Waste management; Infrastructure and society; Urban metabolism.

Planning for Climate Change MDPI

Infrastructure Planning and Finance is a non-technical guide to the engineering, planning, and financing of major infrastucture projects in the United States, providing both step-by-step

guidance, and a broad overview of the technical, political, and economic challenges of creating lasting infrastructure in the 21st Century. Infrastructure Planning and Finance is designed for the local practitioner or student who wants to learn the basics of how to develop an infrastructure plan, a program, or an individual infrastructure project. A team of authors with experience in public works, planning, and city government explain the history and economic environment of infrastructure and capital planning, addressing common tools like the comprehensive plan, sustainability plans, and local regulations. The book guides readers through the preparation and development of comprehensive plans and infrastructure projects, and through major funding mechanisms, from bonds, user fees, and impact fees to privatization and competition. The rest of the book describes the individual infrastructure systems: their elements, current issues and a 'how-to-do-it' section that covers the system and the comprehensive plan, development regulations and how it can be financed. Innovations such as decentralization, green and blue-green technologies are described as well as local policy actions to achieve a more sustainable city are also addressed. Chapters include water, wastewater, solid waste, streets, transportation, airports, ports, community facilities, parks, schools, energy and telecommunications. Attention is given to how local policies can ensure a sustainable and climate friendly infrastructure system, and how planning for them can be integrated across disciplines.