

Sustainable Urban And Regional Infrastructure Development Technologies Applications And Management

This book deals with human factors research directed towards realizing and assessing sustainability in the built environment. It reports on advanced engineering methods for sustainable infrastructure design, as well as on assessments of the efficient methods and the social, environmental, and economic impact of various designs and projects. The book covers a range of topics, including the use of recycled materials in architecture, ergonomics in buildings and public design, sustainable design for smart cities, design for the aging population, industrial design, human scale in architecture, and many more. Based on the AHFE 2017 International Conference on Human Factors, Sustainable Urban Planning and Infrastructure, held on July 17–21, 2017, in Los Angeles, California, USA, this book, by showing different perspectives on sustainability and ergonomics, represents a useful source of information for designers in general, urban engineers, architects, infrastructure professionals, practitioners, public infrastructure owners, policy makers, government engineers and planners, as well as operations managers, and academics active in applied research.

“Green Stormwater Infrastructure for Sustainable Urban and Rural Development” offers some of the latest international scientific and practitioner findings around the adaptation of urban, rural and transportation infrastructures to climate change by sustainable water management. This book addresses the main gaps in the up-to-date literature and provides the reader with a holistic view, ranging from a strategic and multiscale planning, implementation and decision-making angle down to the engineering details for the design, construction, operation and maintenance of green stormwater techniques such as sustainable drainage systems (SuDS) and stormwater control measures (SCMs). This book is particularly recommended for a wide audience of readers, such as academics/researchers and students in the fields of architecture and landscaping, engineering, environmental and natural sciences, social and physical geography and urban and territorial planning. This book is also a resource for practitioners and professionals developing their work in architecture studios, engineering companies, local and regional authorities, water and environmental industries, infrastructure maintenance, regulators, planners, developers and legislators.

The collection includes selected, peer-reviewed papers from the 2nd International Conference on Civil Engineering and Transportation (ICCET 2012) held October 27-28, 2012 in Guilin, China. The 432 papers are grouped into the following chapters: Chapter 1: Architectural Design and its Theory, Chapter 2: Urban Planning and Design, Chapter 3: Sustainable City and Regional Development, Chapter 4: Building Materials and Processing Technology, Chapter 5: Renewable Energy and Building Energy Saving, Chapter 6: Building Ecological Environment, Chapter 7: Environmental Engineering and Environmental Protection, Chapter 8: Transportation Planning, Construction and Operation Organization, Chapter 9: ITS Theory and Applications, Chapter 10: Modern Logistics System Planning and Optimization, Chapter 11: Traffic Control and Information Technology, Chapter 12: Urban Transportation Planning and Management, Chapter 13: Vehicle Engineering.

Infrastructure Planning and Finance is a non-technical guide to the engineering, planning, and financing of major infrastructure 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

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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.

Green Stormwater Infrastructure for Sustainable Urban and Rural Development

The Politics of Urban Socio-Technical Futures

Sustainable Urban and Regional Infrastructure Development: Technologies, Applications and Management

Proceedings of the AHFE 2020 Virtual Conference on Human Factors in Architecture, Sustainable Urban Planning and Infrastructure, 16-20 July, 2020, USA

A Future

Sustainable Urban and Regional Infrastructure Development

Sustainable Stockholm

"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.

To maintain a healthy ecosystem for contemporary society, and for future generations, policies must be implemented to protect the environment. This can be achieved by consistent evaluation of new initiatives and strategies. Sustainable Development: Concepts, Methodologies, Tools, and Applications is a comprehensive source of scholarly information on the latest research for sustainability concerns across a multidisciplinary perspective. Highlighting a broad range of innovative topics such as renewable energy, urban development, and green technologies, this multi-volume book is ideally designed for academics, researchers, professionals, students, and practitioners interested in the preservation of the environment.

Sustainable and resilient critical infrastructure systems is an emerging paradigm in an evolving era of depleting assets in the midst of natural and man-made threats to provide a sustainable and high quality of life with optimized resources from social, economic, societal and environmental considerations. The increasing complexity and interconnectedness of civil and other interdependent infrastructure systems (electric power, energy, cyber-infrastructures, etc.) require inter- and multidisciplinary expertise required to engineer, monitor, and sustain these distributed large-scale complex adaptive infrastructure systems. This edited book is motivated by recent advances in simulation, modeling, sensing, communications/information, and intelligent and sustainable technologies that have resulted in the development of sophisticated methodologies and instruments to design, characterize, optimize, and evaluate critical

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infrastructure systems, their resilience, and their condition and the factors that cause their deterioration. Specific topics discussed in this book include, but are not limited to: optimal infrastructure investment allocation for sustainability, framework for manifestation of tacit critical infrastructure knowledge, interdependencies between energy and transportation systems for national long term planning, intelligent transportation infrastructure technologies, emergent research issues in infrastructure interdependence research, framework for assessing the resilience of infrastructure and economic systems, maintenance optimization for heterogeneous infrastructure systems, optimal emergency infrastructure inspection scheduling, and sustainable rehabilitation of deteriorated transportation infrastructure systems.

To best serve current and future generations, infrastructure needs to be resilient to the changing world while using limited resources in a sustainable manner. Research on and funding towards sustainability and resilience are growing rapidly, and significant research is being carried out at a number of institutions and centers worldwide. This handbook brings together current research on sustainable and resilient infrastructure and, in particular, stresses the fundamental nexus between sustainability and resilience. It aims to coalesce work from a large and diverse group of contributors across a wide range of disciplines including engineering, technology and informatics, urban planning, public policy, economics, and finance. Not only does it present a theoretical formulation of sustainability and resilience but it also demonstrates how these ideals can be realized in practice. This work will provide a reference text to students and scholars of a number of disciplines.

Green Infrastructure Benefits from the Landscape to the Urban Scale

Rethinking Sustainable Development

Dilemmas of Sustainable Urban Development

Technologies, Applications and Management

Planning, Development and Management of Sustainable Cities

Sustainable Practices: Concepts, Methodologies, Tools, and Applications

Planning and Design for Sustainable Urban Mobility

This book critically analyses the existing condition of cities in developing countries with special reference to planning and infrastructure networks in India. It provides an overview of the nature of opportunities presented by cities; major challenges that cities would face in future; and codifies the ways and means to transcend the challenges of contemporary urban growth and quality of urbanisation. It discusses key themes such as architecture of density, transformation of land-use zones to development zones, development of railway infrastructure, planning and design guidelines for bus rapid transit, and urban water planning and universal access to housing to create an enabling environment for deliberations and a better future for cities in the developing world. The book integrates insights from governance, planning, and design and highlights implications of spatial integration. It brings together current issues in Indian urbanisation, smart technologies used in building smart cities and high-rises, and urban and regional governance to explore forms of sustainable development planning that factor human needs. Accessible and topical, this book will be useful to scholars and researchers of urban studies, urban and city planning, development studies, sociology, public policy and administration, political

sociology, anthropology, architecture, geography, and economics, as well as to professionals, planners, policymakers, and non-governmental organisations.

Dilemmas of Sustainable Urban Development offers valuable insights into a difficult line of work whose practice inevitably requires a confrontation with fundamental conflicts between divergent goals, and therefore also demands difficult choices and compromises. With contributions from leading academics and expert practitioners, this book provides readers with diverse international case studies which highlight and examine the concrete challenges of practicing sustainable urban development. The examples in this book touch upon all aspects of sustainable urban development work, from City Hall to the local park. All of the cases unfold in their own specific contexts under particular circumstances—but from each one of them there are general lessons that can be used to inform practice. This book is essential reading for anyone who is active as a student, researcher, or practitioner in the field of urban development.

Sustainable Urban Futures in Africa provides a variety of conventional and emerging theoretical frameworks to inform understandings and responses to critical urban development issues such as urbanisation, climate change, housing/slum, informality, urban sprawl, urban ecosystem services and urban poverty, among others, within the context of the sustainable development goals (SDGs) in Africa. This book addresses topics including challenges to spatial urban development, how spatial planning is delivered, how different urbanisation variables influence the development of different forms of urban systems and settlements in Africa, how city authorities could use old and new methods of land administration to produce sustainable urban spaces in Africa, and the role of local activism is causing important changes in the built environment. Chapters are written by a diverse range of African scholars and practitioners in urban planning and policy design, environmental science and policy, sociology, agriculture, natural resources management, environmental law, and politics. Urban Africa has huge resource potential – both human and natural resources – that can stimulate sustainable development when effectively harnessed.

Sustainable Urban Futures in Africa provides support for the SDGs in urban Africa and will be of interest to students and researchers, professionals and policymakers, and readers of urban studies, spatial planning, geography, governance, and other social sciences.

Urban areas cover a small portion of the earth, yet they accommodate a majority of the world population and are associated with a majority of the global energy use and greenhouse gas emissions. These facts make cities the forefront of combating climate change, with transportation, buildings (residential and commercial), and electricity generation sectors being the foci of this effort due to their significant environmental footprints. Thus, improving the efficiency of these sectors can play an essential role in reducing the environmental footprint of urban districts. Coordinated design of infrastructure has shown to be an effective approach to create more sustainable urban

systems. Such coordination leads to integrated municipal supply systems (e.g., water and energy supply, and EV charging infrastructure) with improved overall performance when compared to the simple superposition of individual supply systems. This coordination can be most feasibly achieved at a neighborhood scale, i.e., 100-1000 adjacent buildings, where the supply and demand of the integrated infrastructure can be designed and optimized simultaneously. Since building mix largely determines the demand profile of urban neighborhoods, simultaneously optimizing the building mix and integrating infrastructure represents a potential opportunity for designing more sustainable urban districts. To investigate and understand this opportunity, this dissertation focuses on the design and optimization of the energy system (including EV charging infrastructure), wastewater treatment system, and building mix of urban neighborhoods. Typically, urban energy and water infrastructure systems are designed after the demands of the community are determined. At that late stage, improving the environmental and economic performance of the system is difficult. However, if the supply and demand of municipal services are optimized simultaneously, especially at the early stages of the design when such coordination is more feasible, the resulting urban system has proven to outperform the isolated design using several sustainability metrics. This dissertation proposes a novel method to design and optimize the hourly demand and supply of integrated energy and water system in an urban district for environmental and economic sustainability. The increasing electricity demand from the growing number of EVs on the road will impose pressure on local and regional electricity grids. Hence, considering the influence of EVs will be essential for designing future urban energy systems. This dissertation proposes a new method for integrating the design of energy system and building mix with the EV charging infrastructure in urban neighborhoods, and for optimizing these infrastructure systems for economic and environmental targets. The spatial configuration of urban infrastructure systems is essential in modeling the performance and minimizing the impacts of these systems, especially for the urban water and energy systems. However, integrating the design and optimization of the supply, demand, and network layout across multiple infrastructure systems at the neighborhood scale gives rise to highly complex optimization problems. Traditional optimization algorithms cannot properly explore the optimal solutions in the vast solution space of these problems in a reasonable amount of time. This dissertation develops a new method that facilitates concurrent optimization of the supply, demand, and spatial configuration of integrated infrastructure at a neighborhood scale for multiple objective functions. Keywords: Sustainable Urban Systems, Integrated Infrastructure, Water-Energy Nexus, EV Charging Infrastructure, Multiobjective Optimization, Mixed Integer Nonlinear Programming, Conditional Generative Adversarial Networks.

Breakthroughs in Research and Practice

Routledge Handbook of Sustainable and Resilient Infrastructure

Planning, Infrastructure, and Development
Towards Sustainable Urban Development
Transforming Cities with Transit
Climate, Pollution and Adaptation
Sustainable and Resilient Critical Infrastructure Systems

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.

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.

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. 'Transforming Cities with Transit' explores the complex process of transit and land-use integration and provides policy recommendations and implementation strategies for effective integration in rapidly growing cities in developing countries.

***A Smart and Sustainable Guide
Pathways to Urban Sustainability
Planning for Climate Change***

***Implementing Sustainable Urban Travel Policies National Peer Review: The Netherlands
Future Challenges in Evaluating and Managing Sustainable Development in the Built Environment
Advances in Human Factors in Architecture, Sustainable Urban Planning and Infrastructure
A Reader in Green Infrastructure and Sustainable Design for Resilient Cities***

"This book investigates the role of urban, regional and infrastructure planning in achieving sustainable urban and infrastructure development, providing insights into overcoming the consequences of unsustainable development"--Provided by publisher.

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The aim of this book is to bring together multidisciplinary research in the field of green infrastructure design, construction and ecology. The main core of the volume is constituted by contributions dealing with green infrastructure, vegetation science, nature-based solutions and sustainable urban development. The green infrastructure and its ecosystem services, indeed, are gaining space in both political agendas and academic research. However, the attention is focused on the services that nature is giving for free to and for human health and survival. What if we start to see things from another perspective? Our actions shall converge for instance to turn man-made environment like cities from heterotrophic to autotrophic ecosystems. From landscape ecology to urban and building design, like bricks of a wall, from the small scale to the bigger landscape scale via ecological networks and corridors, we should start answering these questions: what are the services that are we offering to Nature? What are we improving? How to implement our actions? This book contains three Open Access chapters, which are licensed under the terms of the Creative Commons Attribution 4.0 International License (CC BY 4.0). Developing an approach for sustainable planning framework in the Indian context is extremely complex due to the diversity in the urban and metropolitan regions in the country. Sustainable Urban Planning attempts to clarify the planning process and sets a broad framework of urban planning in the country. The book focuses on the planning reality of fundamental dimensions of sustainability and explains a work framework of the dynamics of sustainable planning in India. The present book clarifies the planning process to students, who are trying to work in the Indian context. It presents in three sections a set of interwoven discussions. Section one operates on the corpus of planning reality to disentangle the sutras of fundamental dimensions of sustainability and the interrelationship between these sutras to re-explain a working framework of the dynamics of sustainable planning in India. Section two expands on each of the dimensions, explaining their divergent parameters and their indispensable roles in the making of such a framework. Section three synthesizes all of them to form the framework itself.

This book explores urban futures in the making, as seen through the lens of urban infrastructure. The book describes how socio-technical arrangements of energy and water provision are being recast in continuing efforts towards realising 'sustainable' transformation of cities. It critically investigates how infrastructure comes to matter by analyzing the shifting capacities and entanglements of diverse actors with these systems, the various means they use to envision, enact and contest changes, and the wide-ranging social and political implications of emerging infrastructure transitions. Drawing on original research into urban infrastructure debates and projects in Stockholm and Paris, the author develops a novel conceptual framework for studying and acknowledging the active, vital role of infrastructure in constituting a material politics of urban transformation. Straddling the latest theoretical insights and empirical investigation of urban planning practice and socio-technical engineering of systems and flows, *Redeploying Urban Infrastructure* forges new, timely reflections and perspectives which will be of interest to the growing multidisciplinary community of scholars investigating infrastructure and to academics and practitioners with a concern for understanding the wider politics of urban futures.

Sustainable Urban Planning

Economic and Spatial Design Strategies

State of the World's Cities 2012/2013

Challenges and Opportunities for the United States

Sustainable food planning: evolving theory and practice

Resilient Sustainable Cities

Sustainable Urban Water Environment

Half the world's population is now urbanised and cities are assuming a larger role in debates about the security and

sustainability of the global food system. Hence, planning for sustainable food production and consumption is becoming an increasingly important issue for planners, policymakers, designers, farmers, suppliers, activists, business and scientists alike. The rapid growth of the food planning movement owes much to the unique multi-functional character of food systems. In the wider contexts of global climate change, resource depletion, a burgeoning world population, competing food production systems and diet-related public health concerns, new paradigms for urban and regional planning capable of supporting sustainable and equitable food systems are urgently needed. This book addresses this urgent need. By working at a range of scales and with a variety of practical and theoretical models, this book reviews and elaborates definitions of sustainable food systems, and begins to define ways of achieving them. Four different themes have been defined as entry-points into the discussion of 'sustainable food planning'. These are (1) urban food governance, (2) integrating health, environment and society, (3) urban agriculture (4) planning and design. 'This is an important compilation on a timely topic. It brings together the work of planners and designers from both sides of the Atlantic, and challenges us to think about how to create food systems that deliver healthy, just, and sustainable communities and vital places. The book moves dexterously between the grassroots and policy halls and draws valuable lessons for theory and practice.' Dr. Kami Pothukuchi, Department of Urban Studies & Planning, Wayne State University 'To address the problems of urban food production we need to look at the city in a completely different way. This timely book will act as an important source for those who have an ethical interest, not only in food, but in improving the quality and justice of life in our city communities.' Prof. Flora Samuel, School of Architecture, University of Sheffield and member of Royal Institute of British Architects Research and Development Committee 'This publication provides a lot of "food for thought", not just for persons professionally involved in the food sector and officials dealing with national food policies, but especially for local and regional authorities, urban planners and architects, NGOs and community based organisations, health and environmental officers and concerned consumers. Against the background of the growing awareness of the elevated social, health and ecological costs of the mainstream globalized agri-food system, this book analyses the emergence of a new vision and many initiatives that seek to reconnect (sustainable) production with (sustainable) consumption Hence, the book delivers what is promised in its title: it discusses new concepts related to food and sustainable urban/regional planning based on a critical review of innovative practices at various levels.' Ir. Henk de Zeeuw, Director RUA Foundation 'For those who work to address the future challenges facing city development, this book is a must. Why? Because today practitioners and professionals are being asked to understand urban food production within a social, economic and ecological context. This book shows us how these connections are being made. The chapters are accessible and fascinating and will help beginners and experts to deal with food

production in their everyday work.' Dr. Carlo W. Becker, bgmr Landscape Architects Berlin/Leipzig and Technical University Cottbus

The city is the home of prosperity. It is the place where human beings find satisfaction of basic needs and access to essential public goods. The city is also where ambitions, aspirations and other material and immaterial aspects of life are realized, providing contentment and happiness. It is a locus at which the prospects of prosperity and individual and collective well-being can be increased. However, when prosperity is restricted to some groups, when it is used to pursue specific interests, or when it is a justification for financial gains for the few to the detriment of the majority, the city becomes the arena where the right to shared prosperity is claimed and fought for. As people in the latter part of 2011 gathered in Cairo ' s Tahrir Square, in Madrid ' s Puerta del Sol, in front of London ' s St Paul ' s cathedral, or in New York ' s Zuccotti Park, they were not only demanding more equality and inclusion; they were also expressing the need for prosperity to be shared across all segments of society. What this new edition of State of the World ' s Cities shows is that prosperity for all has been compromised by a narrow focus on economic growth. UN-Habitat suggests a fresh approach to prosperity beyond the solely economic emphasis, including other vital dimensions such as quality of life, adequate infrastructures, equity and environmental sustainability. The Report proposes a new tool – the City Prosperity Index – together with a conceptual matrix, the Wheel of Prosperity, both of which are meant to assist decision makers to design clear policy interventions. The Report advocates for the need of cities to enhance the public realm, expand public goods and consolidate rights to the 'commons' for all as a way to expand prosperity. This comes in response to the observed trend of enclosing or restricting these goods and commons in enclaves of prosperity, or depleting them through unsustainable use. The Report maps out major policy steps to promote a new type of city – the city of the twenty-first century – that is a 'good', people-centred city. One that is capable of integrating the tangible and more intangible aspects of prosperity, and in the process shedding off the inefficient, unsustainable forms and functionalities of the city of the previous century. By doing this, UN-Habitat plays a pivotal role in ensuring that urban planning, legal, regulatory and institutional frameworks become instruments of prosperity and well-being.

This latest Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) will again form the standard reference for all those concerned with climate change and its consequences, including students, researchers and policy makers in environmental science, meteorology, climatology, biology, ecology, atmospheric chemistry and environmental policy.

Sustainable Stockholm provides a historical overview of Stockholm ' s environmental development, and also discusses a number of cross-disciplinary themes presenting the urban sustainability work behind Stockholm ' s unique position,

and importantly the question of how well Stockholm ' s practices can be exported and transposed to other places and contexts. By using the case of Stockholm as the pivot of discussions, Sustainable Stockholm investigates the core issues of sustainable urban environmental development and planning, in all their entanglements. The book shows how intersecting fields such as urban planning and architecture, traffic planning, land-use regulation, building, waste management, regional development, water management, infrastructure engineering—together and in combination—have contributed to making Stockholm Europe ' s "greenest" city.

Transit and Land-Use Integration for Sustainable Urban Development

Urban Services to Ecosystems

Global Report on Human Settlements 2013

Sustainable Development of Urban Infrastructure

National Peer Review: The Netherlands

Urban Policy in Germany Towards Sustainable Urban Development

Urban transport systems worldwide are faced by a multitude of challenges. Among the most visible of these are the traffic gridlocks experienced on city roads and highways all over the world. The prescribed solution to transport problems in most cities has thus been to build more infrastructures for cars, with a limited number of cities improving public transport systems in a sustainable manner. However, a number of challenges faced by urban transport systems - such as greenhouse gas emissions, noise and air pollution and road traffic accidents - do not necessarily get solved by the construction of new infrastructure. Planning and Design for Sustainable Urban Mobility argues that the development of sustainable urban transport systems requires a conceptual leap. The purpose of 'transportation' and 'mobility' is to gain access to destinations, activities, services and goods. Thus, access is the ultimate objective of transportation. As a result, urban planning and design should focus on how to bring people and places together, by creating cities that focus on accessibility, rather than simply increasing the length of urban transport infrastructure or increasing the movement of people or goods. Urban form and the functionality of the city are therefore a major focus of this report, which highlights the importance of integrated land-use and transport planning.

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This new report of the United Nations Human Settlements Programme (UN-Habitat), the world's leading authority on urban issues, provides some thought-provoking insights and policy recommendations on how to plan and design sustainable urban mobility systems. The Global Report on Human Settlements is the most authoritative and up-to-date global assessment of human settlements conditions and trends. Preceding issues of the report have addressed such topics as *Cities in a Globalizing World*, *The Challenge of Slums*, *Financing Urban Shelter*, *Enhancing Urban Safety and Security*, *Planning Sustainable Cities* and *Cities and Climate Change*.

For thousands of years, the underground has provided humans refuge, useful resources, physical support for surface structures, and a place for spiritual or artistic expression. More recently, many urban services have been placed underground. Over this time, humans have rarely considered how underground space can contribute to or be engineered to maximize its contribution to the sustainability of society. As human activities begin to change the planet and population struggle to maintain satisfactory standards of living, placing new infrastructure and related facilities underground may be the most successful way to encourage or support the redirection of urban development into sustainable patterns. Well maintained, resilient, and adequately performing underground infrastructure, therefore, becomes an essential part of sustainability, but much remains to be learned about improving the sustainability of underground infrastructure itself. At the request of the National Science Foundation (NSF), the National Research Council (NRC) conducted a study to consider sustainable underground development in the urban environment, to identify research needed to maximize opportunities for using underground space, and to enhance understanding among the public and technical communities of the role of underground engineering in urban sustainability. *Underground Engineering for Sustainable Urban Development* explains the findings of researchers and practitioners with expertise in geotechnical engineering, underground design and construction, trenchless technologies, risk assessment, visualization techniques for geotechnical applications, sustainable infrastructure development, life cycle assessment, infrastructure policy and planning, and fire prevention, safety and ventilation in the underground. This report is

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intended to inform a future research track and will be of interest to a broad audience including those in the private and public sectors engaged in urban and facility planning and design, underground construction, and safety and security.

"This reference explores some of the most recent developments in sustainability, delving into topics beyond environmental science to cover issues of sustainable economic, political, and social development"--Provided by publisher.

this report is an evaluation of Dutch urban travel policy that is based on the findings of an ECMT team of peer experts during their study visit to the Netherlands in June 1999. The Sustainable City XI

Proceedings of the AHFE 2017 International Conference on Human Factors, Sustainable Urban Planning and Infrastructure, July 17-21, 2017, The Westin Bonaventure Hotel, Los Angeles, California, USA

Climate Change 2014: Mitigation of Climate Change

Sustainable Infrastructure for Cities and Societies

Exploring Urban Sustainability in Europe's Greenest City

Simulation, Modeling, and Intelligent Engineering

Future of Cities

This book shows for the first time how green infrastructure can work in an African urban context. On one level it provides a major rethinking of the role of infrastructure in urban society since the creation of networked infrastructure in the early twentieth century. On another, it explores the changing paradigms of urban development through the fundamental question of how decisions are made. With a focus on Africa's fast-growing secondary towns, where 70 per cent of the urban population live, the book explains how urban infrastructure provides the key to the relationship between economic development and social equity, through the mediation of natural resources. Adopting this view enables investment to be channelled more effectively to provide the engine for economic growth, while providing equitable services for all residents. At the same time, the mediation of resource flows integrates the metabolism of the city into the wider ecosystem. This vision leads to a new way of thinking about infrastructure, giving clear definition to

the concept of green infrastructure. On the basis of research gathered throughout an extensive career, John Abbott draws in particular from his experience in Ethiopia to demonstrate the ways in which infrastructure needs to respond to the economies, societies and natural environments of twenty-first century urban Africa.

Future Challenges in Sustainable Development within the Built Environment stimulates and reinterprets the demands of Responsible and Sustainable Development in the Built Environment for future action and development. It examines the methods of evaluation, the use of technology, the creation of new models and the role of human factors for examining and developing the subject over the next twenty years.

This book discusses the concept and practice of a smart metropolitan region, and how smart cities promote healthy economic and spatial development. It highlights how smart metropolitan regional development can energize, reorganize and transform the legacy economy into a smart economy; how it can help embrace Information and Communications Technology (ICT); and how it can foster a shared economy. In addition, it outlines how the five pillars of the third industrial revolution can be achieved by smart communities.

In addition, the book draws on 16 in-depth city case studies from ten countries to explore the state of the art regarding the smart economy in smart cities – and to apply the lessons learned to shape smart metropolitan economic and spatial development.

This book presents human factors research focused on achieving and assessing sustainability in the built environment and architecture. It reports on advanced engineering methods for architecture and design, and on assessments of the social, environmental, and economic impacts of various designs and projects. The book covers a broad range of practical studies relating to ergonomic design and assessment of public and private places, urban ecological constructions, and urban planning for smart city.

Further topics include green area planning, environmentally-responsive architecture, and conservation and adaptation of vernacular architectures in modern design. Based on the AHFE 2020 Virtual Conference on Human Factors in Architecture, Sustainable Urban Planning and Infrastructure, held on July 16–20, 2020, this book offers a wealth of perspectives on sustainability and ergonomics in architecture and urban planning. As such, it

represents a timely source of inspiration for designers, architects, urban planners, as well as civil and environmental engineers, and other professionals, including policy-makers, seeking for developing sustainable buildings and infrastructure.

Advances in Human Factors, Sustainable Urban Planning and Infrastructure

Prosperity of Cities

Redeploying Urban Infrastructure

Sustainable Infrastructure: Breakthroughs in Research and Practice

Urban Management, Engineering, and Design

Design and Optimization of Integrated Water, Energy, and Transportation Infrastructure for Urban Sustainability

Smart Metropolitan Regional Development

Sustainable Urban and Regional Infrastructure Development: Technologies, Applications and Management
Technologies, Applications and Management IGI Global

This book analyses steps taken by Germany to revitalize city centres against the background of features specific to Germany: its federal system, the unification process, and its polycentric urban pattern.

This multi-disciplinary book provides practical solutions for safeguarding the sustainability of the urban water environment. Firstly, the importance of the urban water environment is highlighted and the major problems urban water bodies face are

The central role of infrastructure to cities, and in particular their sustainability, is essential for proper planning and design since most energy and materials are themselves consumed by or through infrastructures. Moreover, infrastructures of all types affect matters of economic and social equity, due to access that they provide or prevent. Sustainable Infrastructure for Cities and Societies shows how fundamental planning, design, finance, and governance principles can be adapted for sustainable infrastructure to provide solutions to make cities significantly more sustainable. By providing a contemporary overview on infrastructure, cities, planning, economies, and sustainability, the book addresses how to plan, design, finance, and manage infrastructure in ways that reduce consumption and harmful impacts while maintaining and improving life quality. It considers the interrelationships between the economic, political, societal, and institutional frameworks, providing an integrative approach including livability and sustainability, principles and practice, and planning and design. It further translates these approaches that professionals, policymakers, and leaders can use. This approach gives the book wide appeal for students, researchers, and practitioners hoping to build a more sustainable world.

A View from Practice

Green Infrastructure for Sustainable Urban Development in Africa

Working Group III Contribution to the IPCC Fifth Assessment Report

Designing Sustainable Urban Futures : Concepts and Practices from Different Countries

Infrastructure Planning and Finance

Sustainable Development: Concepts, Methodologies, Tools, and Applications

Concepts, Methodologies, Tools, and Applications

Cities have experienced an unprecedented rate of growth in the last decade. More than half the world's population lives in urban areas, with the U.S. percentage at 80 percent. Cities have captured more than 80 percent of the globe's economic activity and offered social mobility and economic prosperity to millions by clustering creative, innovative, and educated individuals and organizations. Clustering populations, however, can compound both positive and negative conditions, with many modern urban areas experiencing growing inequality, debility, and environmental degradation. The spread and continued growth of urban areas presents a number of concerns for a sustainable future, particularly if cities cannot adequately address the rise of poverty, hunger, resource consumption, and biodiversity loss in their borders. Intended as a comparative illustration of the types of urban sustainability pathways and subsequent lessons learned existing in urban areas, this study examines specific examples that cut across geographies and scales and that feature a range of urban sustainability challenges and opportunities for collaborative learning across metropolitan regions. It focuses on nine cities across the United States and Canada (Los Angeles, CA, New York City, NY, Philadelphia, PA, Pittsburgh, PA, Grand Rapids, MI, Flint, MI, Cedar Rapids, IA, Chattanooga, TN, and Vancouver, Canada), chosen to represent a variety of metropolitan regions, with consideration given to city size, proximity to coastal and other waterways, susceptibility to hazards, primary industry, and several other factors.

Covering the proceedings of the 11th International Conference on Urban Regeneration and Sustainability held in Alicante, Spain, this volume addresses the multidisciplinary 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 the earth's population live in cities and the process of urbanisation still continues to generate problems originating 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 standard of living. The process faces a number of challenges related to reducing pollution and improving main transportation and infrastructure systems. These challenges can 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, nevertheless they represent a productive ground for architects, engineers, city planners, and social and political scientists able to conceive new ideas and time them according to technological

advances and human requirements. The Sustainable City XI follows a succession of very successful international conferences and covers the following fields: Urban planning and design; Urban 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; Socio-economic and political considerations; Cultural quarters and interventions; Waterfront development; Case studies – sustainable practices; Architectural issues; Cultural heritage issues; Appropriate technologies for smart cities; Planning for resilience; Disaster and emergency response; Urban safety and security; Waste management; Urban infrastructure and Urban metabolism.

The continued growth of any nation depends largely on the development of their built infrastructures and communities. By creating stable infrastructures, countries can more easily thrive in competitive international markets. Sustainable Infrastructure:

Breakthroughs in Research and Practice examines sustainable development through the lens of transportation, waste management, land use planning, and governance. Highlighting a range of topics such as sustainable development, transportation planning, and regional and urban infrastructure planning, this publication is an ideal reference source for engineers, planners, government officials, developers, policymakers, legislators, researchers, academicians, and graduate-level students seeking current research on the latest trends in sustainable infrastructure.

Underground Engineering for Sustainable Urban Development

Sustainable Urban Futures in Africa