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Toward More Sustainable Infrastructure Sustainable Infrastructure for Cities and Societies Sustainable Infrastructure Sustainable Infrastructure Investment Sustainable Infrastructure: Breakthroughs in Research and Practice Sustainable Infrastructure Handbook on Green Infrastructure Postcrisis Growth and Development Sustainable Buildings (Delivering Sustainable Infrastructure Series) Green Finance and Investment Green Infrastructure in the Decade for Delivery Assessing Institutional Investment Green Infrastructure Green Infrastructure Planning Infrastructure Sustainability and Design Digital Cities Roadmap Advances in Human Factors and Sustainable Infrastructure Unlocking Private Investment in Sustainable Infrastructure in Asia Sustainable Infrastructure for Cities and Societies Earthquakes and Sustainable Infrastructure The Lean Sustainable Supply Chain Planning for Climate Change Sustainable and Resilient Critical Infrastructure Systems Lifelines Advances in Human Factors, Sustainable Urban Planning and Infrastructure Recent Developments in Sustainable Infrastructure Green Infrastructure for Sustainable Urban Development in Africa Sustainable Infrastructure Advances in Human Factors, Sustainable Urban Planning and Infrastructure Routledge Handbook of Sustainable and Resilient Infrastructure CIGOS 2019, Innovation for Sustainable Infrastructure Nature-Based Solutions for More Sustainable Cities Green Finance and Investment Sustainable Infrastructure for Low-Carbon Development in Central Asia and the Caucasus Hotspot Analysis and Needs Assessment Project Management and BIM for Sustainable Modern Cities Improving the Landscape for Sustainable Infrastructure Financing Building Sustainable Cities of the Future Beyond the Gap Closing the Gap Sustainable Infrastructure Development A framework for a green infrastructure planning approach in the Gauteng City-Region Sustainable Infrastructure, Delivered Nationally, for the Best, by the Best : Recommendations for Incorporating Sustainability Into Wade Trim's Business Strategy Sustainable Infrastructure for Low-carbon Development in the EU Eastern Partnership

As more factors, perspectives, and metrics are incorporated into the planning and building process, the roles of engineers and designers are increasingly being fused together. Sustainable Infrastructure explores this trend with in-depth look at sustainable engineering practices in an urban design as it involves watershed master-planning, green building, optimizing water reuse, reclaiming urban spaces, green streets initiatives, and sustainable master-planning. This complete guide provides guidance on the role creative thinking and collaborative team-building play in meeting solutions needed to affect a sustainable transformation of the built environment. In Closing the Gap: Sustainable Infrastructure to Save the World, you'll learn about one of the foremost challenges of our time: the global infrastructure gap. You'll learn about persisting shortfalls in access to energy, water, and transportation services and the ways this continues to drive poverty and inequality all across the world. Readers will discover how investments in sustainable infrastructure can reverse these trends while building resilience to global challenges of climate change, pandemics, and conflict. Moreover, you'll discover the massive opportunity facing our world to invest in sustainable development and bring about a more prosperous future for us all. Inside, readers find stories about the devastating effects of climate change in India, population growth and urbanization in sub-Saharan Africa, and resource-driven conflicts in the Middle East. You'll hear from some of the world's foremost experts on the potential to move massive amounts of private capital into infrastructure projects in the Global South. You'll learn about successful efforts to

deliver renewable energy in the unlikeliest of places and the profound effects of infrastructure on sustainable growth and development. This is a book that not only organizes the complex world of sustainability but encourages readers to take action to make the world a better place. Post-crisis Growth and Development lays the groundwork for setting development priorities and advances the discussion among the G20, and non-G20 countries on development policy in infrastructure, trade, food security, financial inclusion, and Millennium Development Goals (MDGs), as they relate to strong, sustainable, and balanced global growth. This book discusses 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 2018 International Conference on Human Factors, Sustainable Urban Planning and Infrastructure, held on July 21–25, 2018, in Orlando, Florida, USA, it offers various perspectives on sustainability and ergonomics. As such, it is a valuable reference resource for designers, urban engineers, architects, infrastructure professionals, public infrastructure owners, policy makers, government engineers and planners, as well as operations managers and academics active in urban and infrastructure research. This title provides comprehensive new best practices for building sustainable, 'green and lean' supply chains, from one of the field's most respected experts. As the population, economy and urban built environment in the Gauteng City-Region (GCR) expand, government is increasingly under pressure to provide urban infrastructure to support growth. It is increasingly important that this infrastructure is sustainable, minimising the negative environmental impacts often associated with traditional forms of urban development. Green Infrastructure (GI) is the interconnected set of natural and man-made ecological systems, green spaces and other landscape features that provide services and strategic functions in the same way as traditional infrastructure. In harnessing the benefits of ecosystem services, GI has emerged as a more efficient, cost effective and sustainable alternative – and sometimes accompanying approach – to conventional forms of infrastructure. Despite international evidence demonstrating how GI can be used as an alternative to, or in tandem with, traditional infrastructure, the GI approach has so far gained only limited traction in the GCR. In 2013 the GCRO published the State of Green Infrastructure in the GCR report. The report established the principles that underpin GI, used available data to map the extent of GI networks in the region, assessed to what extent municipalities were aware of and applying a GI approach, and demonstrated a possible way to value GI in local government financial systems. The conclusions of the State of Green Infrastructure report were used to guide the next phase of GCRO’s research in support of the adoption of GI approach – a phase focused on better understanding the opportunities for implementing GI in planning and infrastructure development programmes and on addressing some of the challenges associated with shifts towards this approach. A framework for a green infrastructure planning approach in the Gauteng City-Region, GCRO’s fourth Research Report, builds on the foundations laid in the State of Green Infrastructure report. It assembles expert inputs and reflections from collaborative stakeholder discussions in what was known as the Green Infrastructure CityLab to illustrate important considerations for the development of a GI planning approach in the Gauteng City-Region (GCR). The report is divided into three broad sections. Part A introduces the theoretical underpinnings of a GI approach and builds an argument for the importance of incorporating GI into planning and infrastructure development in the GCR. Part B presents three pieces written by external experts. They consider how GI and ecosystem services can be valued by municipalities, and how so-called ‘grey-green’ infrastructure design solutions can be implemented in the GCR. Part C reflects on the

stakeholder engagement process that has been undertaken, primarily through the GI CityLab, to deepen understanding of how GI can be embedded in municipal practice. Based on these research findings, this report concludes with a strategy for GCRO's next phase of work in its ongoing Green Assets and Infrastructure Project. Infrastructure—electricity, telecommunications, roads, water, and sanitation—are central to people's lives. Without it, they cannot make a living, stay healthy, and maintain a good quality of life. Access to basic infrastructure is also a key driver of economic development. This report lays out a framework for understanding infrastructure resilience - the ability of infrastructure systems to function and meet users' needs during and after a natural hazard. It focuses on four infrastructure systems that are essential to economic activity and people's well-being: power systems, including the generation, transmission, and distribution of electricity; water and sanitation—especially water utilities; transport systems—multiple modes such as road, rail, waterway, and airports, and multiple scales, including urban transit and rural access; and telecommunications, including telephone and Internet connections. This report analyses planned infrastructure projects, decision-making frameworks related to infrastructure development and strategic planning documents in the six countries of the EU Eastern Partnership: Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine. It compares current investment flows with countries' national development objectives to identify misalignments and provides policy-makers with recommendations to improve the integration of climate change and other environmental concerns into infrastructure development decision-making processes. The report presents a comprehensive overview of infrastructure investment, primarily in the transport and energy sectors, throughout the region and identifies the risks and opportunities emerging from current investment patterns. This book draws upon the expertise of academic researchers, urban planners and architects to explore the challenge of building the sustainable cities of the future. It addresses this challenge by considering current cities and those of the near future, and creates a picture of the sustainable city from the bottom up. Individual chapters cover topics such as transport, energy supply, sustainable urbanism and promoting social equality in large infrastructure projects. Real-world examples are presented to illustrate how systems thinking is used to integrate different components of a city so as to ensure that the whole is more sustainable than its parts. Written in an accessible style, this book is intended for general readers as much as it is for students and researchers interested in sustainable cities and related topics. It is also ideal for urban planners seeking best-practice guidelines for sustainable urban development. 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. This book presents the select proceedings of the International Conference on Sustainable Infrastructure Development: Innovations and Advances (SIDIA 2020). The book addresses the issues of optimal resource allocation and utilization, construction cost minimization, budget optimization for infrastructure development in hilly terrain as well as plains, to ensure quality and safety with minimal environmental impact. The topics covered include planning, design and construction of sustainable infrastructure projects, policy and practices to be considered for the comprehensive development which is socially inclusive specifically in developing nations, transportation engineering and management which is performance-based and emerging economical models for partnerships, environment engineering and management for

ascertaining the best methods for environmental impacts assessment to capture the true indirect costs of a infrastructure project, geotechnical and water resource engineering using new developments, and utilizing the various technological impacts for ensuring disaster preparedness of any region. This book can prove to be useful for beginners, researchers, and professionals interested in the latest advances and innovations in sustainable infrastructure development. This book presents selected articles from the 5th International Conference on Geotechnics, Civil Engineering Works and Structures, held in Ha Noi, focusing on the theme “Innovation for Sustainable Infrastructure”, aiming to not only raise awareness of the vital importance of sustainability in infrastructure development but to also highlight the essential roles of innovation and technology in planning and building sustainable infrastructure. It provides an international platform for researchers, practitioners, policymakers and entrepreneurs to present their recent advances and to exchange knowledge and experience on various topics related to the theme of “Innovation for Sustainable Infrastructure”. This book comprises select peer-reviewed proceedings of the International Conference on Recent Developments in Sustainable Infrastructure (ICRDSI) 2019. The topics span over all major disciplines of civil engineering with regard to sustainable development of infrastructure and innovation in construction materials, especially concrete. The book covers numerical and analytical studies on various topics such as composite and sandwiched structures, green building, groundwater modeling, rainwater harvesting, soil dynamics, seismic resistance and control of structures, waste management, structural health monitoring, and geo-environmental engineering. This book will be useful for students, researchers and professionals working in sustainable technologies in civil engineering. Building green is not only imperative to achieve global climate and development commitments in this “decade for delivery”, but will also be critical to sustain socio-economic development during the COVID-19 recovery. Private investment in particular is needed to bridge the infrastructure investment gap, given institutional investors’ large pools of long-term capital. 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. DIGITAL CITIES ROADMAP This book details applications of technology to efficient digital city infrastructure and its planning, including smart buildings. Rapid urbanization, demographic changes, environmental changes, and new technologies are changing the views of urban leaders on sustainability, as well as creating and providing public services to tackle these new dynamics. Sustainable development is an objective by which the processes of planning, implementing projects, and development is aimed at meeting the needs of modern communities without compromising the potential of future generations. The advent of Smart Cities is the answer to these problems. Digital Cities Roadmap provides an in-depth analysis of design technologies that lay a solid foundation for sustainable buildings. The book also highlights smart automation technologies that help save energy, as well as various

performance indicators needed to make construction easier. The book aims to create a strong research community, to have a deep understanding and the latest knowledge in the field of energy and comfort, to offer solid ideas in the nearby future for sustainable and resilient buildings. These buildings will help the city grow as a smart city. The smart city has also a focus on low energy consumption, renewable energy, and a small carbon footprint. Audience The information provided in this book will be of value to researchers, academicians and industry professionals interested in IoT-based architecture and sustainable buildings, energy efficiency and various tools and methods used to develop green technologies for construction in smart cities. Sustainable Buildings considers the universal principles of sustainable buildings, and moves on to explain the main building physics principles. It looks at applicable technologies, then goes on to discuss important, international case studies. 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 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. This report analyses planned infrastructure projects, decision-making frameworks related to infrastructure development and strategic planning documents in eight countries in Central Asia and the Caucasus: Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Tajikistan, Turkmenistan and Uzbekistan. Beyond the Gap: How Countries Can Afford the Infrastructure They Need while Protecting the Planet aims to shift the debate regarding investment needs away from a simple focus on spending more and toward a focus on spending better on the right objectives, using relevant metrics. It does so by offering a careful and systematic approach to estimating the funding needs to close the service gaps in water and sanitation, transportation, electricity, irrigation, and flood protection. Exploring thousands of scenarios, this report finds that funding needs depend on the service goals and policy choices of low- and middle-income countries and could range anywhere from 2 percent to 8 percent of GDP per year by 2030. Beyond the Gap also identifies a policy mix that will enable countries to achieve key international goals—universal access to water, sanitation, and electricity; greater mobility; improved food security; better protection from floods; and eventual full decarbonization—while limiting spending on new infrastructure to 4.5 percent of GDP per year. Importantly, the exploration of thousands of scenarios shows that infrastructure investment paths compatible with full decarbonization in the second half of the century need not cost more than more-polluting alternatives. Investment needs remain at 2 percent to 8 percent of GDP even when only the decarbonized scenarios are examined. The actual amount depends on the quality and quantity of services targeted, the timing of investments, construction costs, and complementary

policies. Finally, investing in infrastructure is not enough; maintaining it also matters. Improving services requires much more than capital expenditure. Ensuring a steady flow of resources for operations and maintenance is a necessary condition for success. Good maintenance also generates substantial savings by reducing the total life-cycle cost of transport and water and sanitation infrastructure by more than 50 percent. This volume presents innovative work on innovative methods, tools and practices aimed at supporting the transition of Asian and Middle Eastern cities and regions towards a more smart and sustainable dimension. The role of the built and urban environment are becoming more pronounced in Asia and Middle East as the regions continues to experience rapid increase in population and urbanisation, which have only led to an increase in environmental degradation but also rise in energy consumption and emissions. Individual chapters covers timely topics such as sustainable infrastructure, transportation, renewable energy, water and methods supporting an innovative and sustainable development of urban areas. Real-world examples are presented to highlight recent developments and advancements in design, construction and transportation infrastructures. The volume is based on the best contributions to the 2nd GeoMEast International Congress and Exhibition on Sustainable Civil Infrastructures, Egypt 2018 – The official international congress of the Soil-Structure Interaction Group in Egypt (SSIGE). As more factors, perspectives, and metrics are incorporated into the planning and building process, the roles of engineers and designers are increasingly being fused together. Sustainable Infrastructure explores this trend with in-depth look at sustainable engineering practices in an urban design as it involves watershed master-planning, green building, optimizing water reuse, reclaiming urban spaces, green streets initiatives, and sustainable master-planning. This complete guide provides guidance on the role creative thinking and collaborative team-building play in meeting solutions needed to affect a sustainable transformation of the built environment. "As Wade Trim approaches the final months of its five-year strategic plan, Vision 2022, the company must consider how to prepare for the next stage of company growth. With new workplace expectations solidified during the COVID-19 pandemic and changing severe weather patterns dependent on federal and local support for reliable infrastructure, Wade Trim must consider implementing sustainability throughout all areas of its next business plan. This project uses mixed methods research to analyze employee perceptions about corporate sustainability and assesses the most strategic ways to implement sustainability more holistically at Wade Trim through human resource and project management tools. A survey circulated to the entire company in 2021 established a baseline understanding of employee engagement around sustainability. Based on the data collected through this survey and an overview of industry trends, this report presents two major recommendations for a more sustainable Wade Trim. " -- Executive Summary Earthquakes and Sustainable Infrastructure: Neodeterministic (NDSHA) Approach Guarantees Prevention Rather Than Cure communicates in one comprehensive volume the state-of-the-art scientific knowledge on earthquakes and related risks. Earthquakes occur in a seemingly random way and, in some cases, it is possible to trace seismicity back to the concept of deterministic chaos. Therefore, seismicity can be explained by a deterministic mechanism that arises as a result of various convection movements in the Earth’s mantle, expressed in the modern movement of lithospheric plates fueled by tidal forces. Consequently, to move from a perspective focused on the response to emergencies to a new perspective based on prevention and sustainability, it is necessary to follow this neodeterministic approach (NDSHA) to guarantee prevention, saving lives and infrastructure. This book describes in a complete and consistent way an effective explanation to complex structures, systems, and components, and prescribes solutions to practical challenges. It reflects the scientific novelty and promises a feasible, workable, theoretical and applicative attitude. Earthquakes and Sustainable Infrastructure serves a “commentary role” for developers and designers of critical infrastructure and unique installations. Commentary-like roles follow standard, where there is

no standard. Mega-installations embody/potentiate risks; nonetheless, lack a comprehensive classic standard. Every compound is unique, one of its kind, and differs from others even of similar function. There is no justification to elaborate a common standard for unique entities. On the other hand, these specific installations, for example, NPPs, Naval Ports, Suez Canal, HazMat production sites, and nuclear waste deposits, impose security and safety challenges to people and the environment. The book offers a benchmark for entrepreneurs, designers, constructors, and operators on how to compile diverse relevant information on site-effects and integrate it into the best-educated guess to keep safe and secure, people and environment. The authors are eager to convey the entire information and explanations to our readers, without missing either accurate information or explanations. That is achieved by “miniaturization,” as much is possible, not minimization. So far, the neodeterministic method has been successfully applied in numerous metropolitan areas and regions such as Delhi (India), Beijing (China), Naples (Italy), Algiers (Algeria), Cairo (Egypt), Santiago de Cuba (Cuba), Thessaloniki (Greece), South-East Asia (2004), Tohoku, Japan (2011), Albania (2019), Bangladesh, Iran, Sumatra, Ecuador, and elsewhere. Earthquakes and Sustainable Infrastructure includes case studies from these areas, as well as suggested applications to other seismically active areas around the globe. NDSHA approaches confirm/validate that science is looming to warn. Concurrently, leaders and practitioners have to learn to use rectified science in favor of peoples' safety. State-of-the-art science does have the know-how to reduce casualties and structural damage from potential catastrophes to a bearable incident. The only book to cover earthquake prediction and preparation from a neo-deterministic (NDSHA) approach Includes case studies from metropolitan areas where the neo-deterministic method has been successfully applied Editors and authors include top experts in academia, disaster prevention, and preparedness management You're overseeing a large-scale project, but you're not an engineering or construction specialist, and so you need an overview of the related sustainability concerns and processes. To introduce you to the main issues, experts from the fields of engineering, planning, public health, environmental design, architecture, and landscape architecture review current sustainable large-scale projects, the roles team members hold, and design approaches, including alternative development and financing structures. They also discuss the challenges and opportunities of sustainability within infrastructural systems, such as those for energy, water, and waste, so that you know what's possible. And best of all, they present here for the first time the Zofnass Environmental Evaluation Methodology guidelines, which will help you and your team improve infrastructure design, engineering, and construction. 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. 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. With more than half of the world's population now

living in urban areas, it is vitally important that towns and cities are healthy places to live. The principal aim of this book is to synthesize the disparate literature on the use of vegetation in the built environment and its multifunctional benefits to humans. The author reviews issues such as: contact with wildlife and its immediate and long-term effects on psychological and physical wellbeing; the role of vegetation in removing health-damaging pollutants from the air; green roofs and green walls, which provide insulation, reduce energy use and decrease the carbon footprint of buildings; and structural vegetation such as street trees, providing shading and air circulation whilst also helping to stop flash-floods through surface drainage. Examples are used throughout to illustrate the practical use of vegetation to improve the urban environment and deliver ecosystem services. Whilst the underlying theme is the value of biodiversity, the emphasis is less on existing high-value green spaces (such as nature reserves, parks and gardens), than on the sealed surfaces of urban areas (building surfaces, roads, car parks, plazas, etc.). The book shows how these, and the spaces they encapsulate, can be modified to meet current and future environmental challenges including climate change. The value of existing green space is also covered to provide a comprehensive textbook of international relevance. 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 2016 International Conference on Human Factors and Sustainable Infrastructure, held on July 27-31, 2016, in Walt Disney World®, Florida, 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. This book provides examples and suggestions for readers to understand how public investment decisions for sustainable infrastructure are made. Through detailed analysis of public investment in infrastructure over the last few decades in the United States, the United Kingdom, and Finland, the author explores how the decision-making processes for major public works spending, many of them requiring quite rigorous and detailed computational methodologies, can result in plans that underserve large portions of the population, are inequitable, and fail to efficiently preserve public property. Beginning with some of the commonly offered explanations for the slow pace of investment and repair in a supposedly prosperous society facing serious environmental challenges, the book then explores media’s role in shaping the public-at-large’s understanding of the situation and the unimaginative solutions put forward by politicians. It continues with some case studies of infrastructure investment, or lack thereof, including an exploration of competing uses for government funds. It concludes with some suggestions. It is aimed at a large readership of professionals, students, and policy makers in political science, urban planning, and civil engineering. 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. Toward More Sustainable Infrastructure: Project Evaluation for Planners and Engineers provides readers a framework for understanding and evaluating infrastructure projects to improve their performance and sustainability, taking into account not only the financial and economic issues, but also the social and environmental impacts that affect the sustainability of infrastructure. Based on a course designed developed by the author over ten years at M.I.T., this text demonstrates how to apply the basic methods of engineering economics in evaluating major infrastructure projects and also demonstrates how these same techniques can be useful with many routine business and personal decisions. It introduces students to project management, system performance, concepts of sustainability, methods of engineering economics, and provides numerous case studies, examples, and exercises based upon real world problems. This text fills a void in the education of many planners and engineering students, namely an understanding of why major infrastructure projects are undertaken, how they are structured and evaluated, and how they are financed. Toward More Sustainable Infrastructure: Project Evaluation for Planners and Engineers prepares readers to evaluate projects based upon an appreciation of the needs of society, the potential for sustainable development, and recognition of the problems that may result from poorly conceived or poorly implemented projects and programs. 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. Sustainable Infrastructure: Principles into Practice is a practical and accessible handbook which addresses the key principles of sustainability for engineers and built environment professionals, it outlines the critical changes needed to deliver more sustainable solutions and offers techniques to embed these changes as best practice in order to deliver high quality, economical and sustainable infrastructure across tile globe. With many years of engineering knowledge and practical experience between them, the authors identify key sustainability issues in engineering and a set of common principles which can be applied across all types of infrastructure at each stage of a project, from planning and development through to the implementation, in-use and end-of life phases. The book provides readers with a set of tools to help define, test and measure sustainable encouraging them to be champions of change and take full advantage of sustainable opportunities. Sustainable Infrastructure: Principles into Practice provides readers with: A comprehensive set of fundamental principles and tools to guide engineering decision making for - sustainable infrastructure delivery, Real life case studies and practical examples from across the world including the UK, Europe, Africa and tie USA. An understanding of the concepts and current debates around the need for sustainability: Advice on what questions to ask and when at each stage of project delivery. Sustainable Infrastructure: Principles into Practice serves as an introduction to subsequent volumes in the Delivering Sustainable Infrastructure series which apply these principles to sector-specific contexts, including water, transport and buildings. Book jacket. This report examines how to promote sustainable

infrastructure investment. It discusses data needs for infrastructure investment and the current environment, social and governance (ESG) approaches before offering policy recommendations to help ensure that investors are better equipped to make investment decisions related to infrastructure assets. Nature-Based Solutions for More Sustainable Cities makes a clear case of performances, impacts, and benefits generated by NBS in cities providing a comprehensive framework approach to understand the real and full potential of NBS at the urban level. Green infrastructure encompasses many features in the built environment. It is widely recognised as a valuable resource in our towns and cities and it is therefore crucial to understand, create, protect and manage this resource. This Handbook sets the context for green infrastructure as a means to make urban environments more resilient, sustainable, liveable and equitable. Including state-of-the-art reviews that summarise the existing knowledge as well as research findings, this Handbook provides current evidence for the beneficial impact of green infrastructure on health, environmental quality and the economy. It discusses the planning and design of green infrastructure as a strategic network down to the individual features in a neighbourhood and looks at the process of green infrastructure implementation, emphasising the importance of collaboration across multiple professions and sectors. This comprehensive volume operates at multiple spatial scales, from strategic networks at the regional level to individual features in neighbourhoods, with international case studies used throughout to illustrate key examples of good practice. This collection of expert contributions will be invaluable to students and academics in the fields of planning, urban studies and geography. Practitioners and policy-makers will also find the policy discussion and examples enlightening. What is green infrastructure? Why should we develop it? Who uses it? And what socioeconomic and ecological value does it provide? This useful guide provides an essential introduction to green infrastructure for planners, landscape architects, engineers, and environmentalists keen to understand how we can use landscape principles to deliver more sustainable urban planning. Using multiple examples from practice in the UK, Europe, North America, and Asia, the book illustrates how good policy ideas and innovative planning practice can help create more sustainable and ecologically focused urban landscapes. 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. Investment in infrastructure is essential for promoting economic growth, and while countries in Asia have enjoyed higher rates of gross domestic product growth in recent years, the region remains severely deficient in the scale and quality of sustainable infrastructure. Moreover, population growth and climate change continue to put increasing pressure on the need for strategic and farsighted development, calling for policy makers to reevaluate infrastructure governance to ensure sustainable economic growth. Currently, in developing Asia, most investment in infrastructure comes from the public sector. However, with growing fiscal deficits and other budgetary constraints, it is essential to develop alternative sources of investment for infrastructure projects. This presents

opportunities to tap into the private sector, which can play an instrumental role in minimizing the funding gap through the development of stronger, more transparent public–private partnerships (PPPs) and incentivizing sustainable infrastructure investment. This book provides a scholarly discussion on the importance of PPPs and approaches to unlock private participation in infrastructure investment based on lessons from across Asia. Among the proposed schemes are government tax incentives, development-based land value capture strategy under PPP land pooling, Viability Gap Funds, Project Development Facilities, and other guarantees. The book aims to assess the impacts and future of sustainable infrastructure investments and examines the role of governments in mobilizing financial resources and new models for unlocking private investment in sustainable infrastructure. This book consists of fifteen original chapters on the experiences of the Central Asia Regional Economic Cooperation (CAREC) and a few other cases for promoting private investment in sustainable infrastructure. The fact that not much has been published previously on this theme makes this book a welcome and timely addition to the much needed knowledge on this subject.