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Recycling of Plastics, Metals, and Their Composites - R.A. Ilyas 2021-12-28

Having a solid understanding of materials recycling is of high importance, especially due to the growing use of composites in many industries and increasingly strict legislation and concerns about the disposal of composites in landfills or by incineration. *Recycling of Plastics, Metals, and Their Composites* provides a comprehensive review of the recycling of waste polymers and metal composites. It provides the latest advances and covers the fundamentals of recycled polymers and metal composites, such as preparation, morphology, and physical, mechanical, thermal, and flame-retardancy properties. FEATURES Offers a state-of-the-art review of the recycling of polymer composites and metal composites for sustainability Describes a life-cycle analysis to help readers understand the true potential value and market for these recycled materials Details potential applications of recycled polymer and metal composites Includes the performance of natural fiber-reinforced recycled thermoplastic polymer composites under aging conditions and the recycling of multi-material plastics Covers recycling technologies, opportunities, and challenges for polymer-matrix composites This book targets technical professionals in the metal and polymer industries as well as researchers, scientists, and advanced students. It is also of interest to decision makers at material suppliers, recycled metal and polymer product manufacturers, and governmental agencies working with recycled metal and polymer composites.

Transition to Guardianship: The Indian Navy 1991-2000 - Vice Admiral GM Hiranandani

Blood Donor Selection - World Health Organization 2013

The WHO guidelines on assessing donor suitability for blood donation have been developed to assist blood transfusion services in countries that are establishing or strengthening national systems for the selection of blood donors. They are designed for use by policy makers in national blood programmes in ministries of health, national advisory bodies such as national blood commissions or councils, and blood transfusion services.

LIMIT STATE DESIGN OF REINFORCED CONCRETE - P. C. VARGHESE 2008-09-23

This substantially revised second edition takes into account the provisions of the revised Indian Code of practice for Plain and Reinforced Concrete IS 456 : 2000. It also provides additional data on detailing of steel to make the book more useful to practicing engineers. The chapter on Limit State of Durability for Environment has been completely revised and the new provisions of the code such as those for design for shear in reinforced concrete, rules for shearing main steel in slabs, lateral steel in columns, and stirrups in beams have been explained in detail in the new edition. This comprehensive and systematically organized book is intended for undergraduate students of Civil Engineering, covering the first course on Reinforced Concrete Design and as a reference for the practicing engineers. Besides covering IS 456 : 2000, the book also deals with the British and US Codes. Advanced topics of IS 456 : 2000 have been discussed in the companion volume *Advanced Reinforced Concrete Design* (also published by Prentice-Hall of India). The two books together cover all the topics in IS 456 : 2000 and many other topics which are so important in modern methods of design of reinforced concrete.

Limit State Design of Reinforced Concrete - B. C. Punmia 2007

Sweeteners and Sugar Alternatives in Food Technology - Kay O'Donnell 2012-07-13

This book provides a comprehensive and accessible source of information on all types of sweeteners and functional ingredients, enabling manufacturers to produce low sugar versions of all types of foods that not only taste and perform as well as sugar-based products, but also offer consumer benefits such as calorie reduction, dental health benefits, digestive health benefits and improvements in long term disease risk through strategies such as dietary glycaemic control. Now in a revised and updated new edition which contains seven new chapters, part I of this volume addresses relevant digestive and dental health issues as well as nutritional considerations. Part II covers non-nutritive, high-potency sweeteners and, in addition to established sweeteners, includes information to meet the growing interest in naturally occurring sweeteners. Part III deals with the bulk sweeteners which have now been used in foods for over 20 years and are well established both in food products and in the minds of consumers. In addition to the "traditional" polyol bulk sweeteners, newer products such as isomaltulose are discussed. These are seen to offer many of the advantages of polyols (for example regarding dental health and low glycaemic response) without the laxative side effects if consumed in large quantity. Part IV provides information on the sweeteners which do not fit into the above groups but which nevertheless may offer interesting sweetening opportunities to the product developer. Finally, Part V examines bulking agents and multifunctional ingredients which can be beneficially used in combination with all types of sweeteners and sugars.

Finite Element Modelling of Composite Materials and Structures - F L Matthews 2000-10-27

Finite element modelling of composite materials and structures provides an introduction to a technique which is increasingly being used as an analytical tool for composite materials. The text is presented in four parts: Part one sets the scene and reviews the fundamentals of composite materials together with the basic nature of FRP and its constituents. Two-dimensional stress-strain is covered, as is laminated plated theory and its limitations. Part two reviews the basic principles of FE analysis, starting with underlying theoretical issues and going on to show how elements are derived, a model is generated and results are processed. Part three builds on the basics of FE analysis and considers the particular issues that arise in applying finite elements to composites, especially to the layered nature of the material. Part four deals with the application of FE to FRP composites, presenting analytical models alongside FE representations. Specific issues addressed include interlaminar stresses, fracture delamination, joints and fatigue. This book is invaluable for students of materials science and engineering, and for engineers and others wishing to expand their knowledge of structural analysis. Covers important work on finite element analysis of composite material performance Based on material developed for an MSc course at Imperial College, London, UK Covers particular problems such as holes, free edges with FE results compared with experimental data and classical analysis

Modern Indian Theatre - Nandi Bhatia 2011

Since the late nineteenth century, theatre has played a significant role in shaping social and political awareness in India. It has served to raise concerns in post-Independence India as well. *Modern Indian Theatre: A Reader* brings together writings that speak to the historical contexts from which theatrical practices emerged—colonization, socio-cultural suppression and appropriation, intercultural transformations brought about by the impact of the colonial forces, and acute critical engagement with socio-political issues

brought about by the hopes and failures of Independence. The volume addresses pertinent questions like how drama influences social change, the response of drama to the emergence and domination of mass media and the proliferation and influence of western media in India, and how mediations of gender, class, and caste influence drama, its language, forms, and aesthetics. The Introduction by Nandi Bhatia provides a comprehensive understanding of the interface between Indian theatre and 'modernity'.

Nuclear Physics - S. B. Patel 1991

Dr. S. B. Patel is Professor of Physics, Bombay University. He has taught physics for more than twenty years at the B. Sc. and M.Sc levels at Ramnarain Ruia College, Bombay. He earned his Ph. D in Nuclear Physics from Tifr-Bombay University in 1976. Later he was involved in post-doctoral research at the Lawrence Berkeley Laboratory, California. His field of specialization is nuclear spectroscopy.

Design of Steel Structures (By Limit State Method As Per IS: 800 2007) - S.S. Bhavikatti 2009

So far working stress method was used for the design of steel structures. Nowadays whole world is going for the limit state method which is more rational. Indian national code IS:800 for the design of steel structures was revised in the year 2007 incorporating limit state method. This book is aimed at training the students in using IS: 800 2007 for designing steel structures by limit state method. The author has explained the provisions of code in simple language and illustrated the design procedure with a large number of problems. It is hoped that all universities will soon adopt design of steel structures as per IS: 2007 and this book will serve as a good textbook. A sincere effort has been made to present design procedure using simple language, neat sketches and solved problems.

Earthquake Resistant Design of Structures - Shashikant K. Duggal 2013-05

Earthquake-resistant Design of Structures 2e is designed for undergraduate students of civil engineering.

Steels - Robert William Ken Honeycombe 1996

Industrially Important Fungi for Sustainable Development - Ahmed M. Abdel-Azeem 2021-06-18

Fungi are an understudied, biotechnologically valuable group of organisms. Due to their immense range of habitats, and the consequent need to compete against a diverse array of other fungi, bacteria, and animals, fungi have developed numerous survival mechanisms. However, besides their major basic positive role in the cycling of minerals, organic matter and mobilizing insoluble nutrients, fungi have other beneficial impacts: they are considered good sources of food and active agents for a number of industrial processes involving fermentation mechanisms as in the bread, wine and beer industry. A number of fungi also produce biologically important metabolites such as enzymes, vitamins, antibiotics and several products of important pharmaceutical use; still others are involved in the production of single cell proteins. The economic value of these marked positive activities has been estimated as approximating to trillions of US dollars. The unique attributes of fungi thus herald great promise for their application in biotechnology and industry. Since ancient Egyptians mentioned in their medical prescriptions how they can use green molds in curing wounds as the obvious historical uses of penicillin, fungi can be grown with relative ease, making production at scale viable. The search for fungal biodiversity, and the construction of a living fungi collection, both have incredible economic potential in locating organisms with novel industrial uses that will lead to novel products. Fungi have provided the world with penicillin, lovastatin, and other globally significant medicines, and they remain an untapped resource with enormous industrial potential. Volume 1 of Industrially Important Fungi for Sustainable Development provides an overview to understanding fungal diversity from diverse habitats and their industrial application for future sustainability. It encompasses current advanced knowledge of fungal communities and their potential biotechnological applications in industry and allied sectors. The book will be useful to scientists, researchers, and students of microbiology, biotechnology, agriculture, molecular biology, and environmental biology.

Electronic Devices And Circuits - J. B. Gupta 2009

Environmental Science And Engineering (anna University) - Anubha Kaushik 2006

Environmental Science And Engineering Pertain To A Systematic Analysis Of The Natural And Man-Made World Encompassing Various Scientific, Economic, Social And Ethical Aspects. Human Impacts Leading To Large-Scale Degradation Of The Environment Have Aroused Global Concern On Environmental Issues In

The Recent Years. The Apex Court Has Hence, Issued Directive To Impart Environmental Literacy To All. In This Book The Fundamental Concepts Of Environmental Science And Engineering Have Been Introduced And Analyzed In A Simple Manner Strictly As Per The Anna University Iind And Iiird Semester Syllabus. Besides The Undergraduate Students Of All Disciplines The Book Will Also Be Useful For Those Appearing In Various Competitive Exams Since Environmental Issues Now Find A Focus In Most Of Such Examinations. The Contents Of The Book Will Be Of Interest To All Educationists, Planners And Policy Makers. Key Features Of The Book Include A Simple And Holistic Approach With Illustrations, Tables And Specific Case Studies Mainly In The Indian Context. The Basic Terminologies Have Been Defined In The Text While Introducing The Topics And Some Useful Terms Mentioned In The Text Have Been Explained In The Glossary For An Easy Grasp By Students Of All Disciplines.

Cashmere, Kashmir that was - S. Sapru 2006

Original Inhabitants Now Living As Refugees In Their Own Land This Is The Plight Of Kashmiri Pandits Now. This Book Describes The Life, Customs And Traditions Of The Half-A-Million People Of This Community, And Their March From Medieval Times Into The Modern Age.

Forestry in Karnataka – a Journey of 150 Years - DIPAK SARMAH 2019-03-04

The book traces the history of forestry since the middle of the 19th century in the erstwhile territorial units that constitute the present state of Karnataka, in India. It provides glimpses of the forest policy and management of the British Indian government which had laid the foundations of scientific forestry in the Indian subcontinent. A chronological account of the development of national forest policies, plans, and strategies in post-independent India has also been given in the context of their impact on forest management in the states. The book dwells comprehensively on multifarious aspects of forestry including the challenges faced by a forester in a situation of increasing demand and shrinking forest. It highlights the strengths and weaknesses of the forest administration and recommends strategies to protect the remaining natural forest and to increase the tree cover everywhere to effectively confront the specter of environmental catastrophes facing the planet earth. The book has brought out the inseparable and intrinsic relationship of mutual interdependence between forest and water – two of the most important natural resources on which the future of mankind depends, and calls for urgent action. With detailed data, analysis, and inferences derived with an open mind, the book forms a reference document for the present and future foresters. Problems of the forestry sector in the developing world are similar. Although the book focuses on the forestry scenario in Karnataka, lessons learned and strategies recommended for forest conservation are relevant across a larger landscape, with similar challenges and problems.

Design of Reinforced Concrete - Jack C. McCormac 2005

Publisher Description

R.C.C. Designs (Reinforced Concrete Structures) - B. C. Punmia 2012-04-01

R.C.C Design & Drawing - Neelam Sharma (M.E.) 2009

Structural Concrete - M. Nadim Hassoun 2012-05

Emphasizing a conceptual understanding of concrete design and analysis, this revised and updated edition builds the student's understanding by presenting design methods in an easy to understand manner supported with the use of numerous examples and problems. Written in intuitive, easy-to-understand language, it includes SI unit examples in all chapters, equivalent conversion factors from US customary to SI throughout the book, and SI unit design tables. In addition, the coverage has been completely updated to reflect the latest ACI 318-11 code.

The Other Kashmir - Kulbhushan Warikoo 2014

Deals with the historical, cultural, geopolitical, strategic, socio-economic and political perspectives on the entire Karakoram-Himalayan region. The book is based on papers contributed by area specialists and experts from the region - Gilgit-Baltistan, Mirpur-Muzaffarabad and Indian State of Jammu and Kashmir - and academics and strategic analysts.

Uses of Industrial Minerals, Rocks and Freshwater - Kaulir Kisor Chatterjee 2009

This book discusses the uses of minerals. Today over 3,000 minerals have been reported and named of

which 1800-2000 have been studied and described fully. We are able to gainfully use only around 100 or so minerals. Of course, none of these 'usable' minerals can be consumed as such by the people. They can neither be eaten, nor worn, nor fought with. They have to be converted to various products that can be used by them for living their material lives. Through interactions amongst different minerals, innumerable materials are turned out for fulfilling our material needs. And though there are some uni-product minerals, the majority of the minerals are the ones each of which eventually yields a multiplicity of final consumable products. However, in today's fast developing world, there is always a multiple choice available for technologies and grades of input materials. So, technology and input materials can be chosen to suit any grade of a mineral that is available in nature. The only constraints are the market price and the cost of mining the mineral. The cost always has to be less than the market price, the vagaries of which limit the range of flexibility regarding the specifications of grade. But, even if these specifications are not flexible enough at some point of time, the principles underlying the specifications remain valid all the time. And those principles, rather than the specifications, are emphasised in this outstanding book.

Reinforced Concrete - Dr. H. J. Shah 2008-01-01

This volume elucidates the designs of various types of foundation and structures like retaining walls, water tanks, various types of slabs, multi-storied buildings formwork, detaining of reinforcements and elements of prestressed concrete, based on latest Indian standards mainly using Limit State Method. A complete multi-storeyed building design example is also included.

Design of Prestressed Concrete - Nilson 1987-04-13

Reinforced Concrete Design - W.H. Mosley 2012-04-10

The purpose of this text is to provide a straightforward introduction to the principles and methods of design for concrete structures. The theory and practice described are of fundamental nature and will be of use internationally.

Workshop Practice Manual - K Venkata Reddy 2016-02

Worksheets are included to act as observation book for taking readings. Tips on practical application of the tools and instruments are given. Adages found in each page are unique for motivation and personality development of the students. Illustrations of the tools used in various sections of workshop are provided.

The Design of Prestressed Concrete Bridges - Robert Benaim 2007-12-06

Examining the fundamental differences between design and analysis, Robert Benaim explores the close relationship between aesthetic and technical creativity and the importance of the intuitive, more imaginative qualities of design that every designer should employ when designing a structure. Aiding designers of concrete bridges in developing an intuitive understanding of structural action, this book encourages innovation and the development of engineering architecture. Simple, relevant calculation techniques that should precede any detailed analysis are summarized. Construction methods used to build concrete bridge decks and substructures are detailed and direct guidance on the choice and the sizing of different types of concrete bridge deck is given. In addition guidance is provided on solving recurring difficult problems of detailed design and realistic examples of the design process are provided. This book enables concrete bridge designers to broaden their scope in design and provides an analysis of the necessary calculations and methods.

DESIGN OF CONCRETE STRUCTURES - J. N. BANDYOPADHYAY 2008-07-07

This text primarily analyses different methods of design of concrete structures as per IS 456: 2000 (Plain and Reinforced Concrete—Indian Standard Code of Practice, 4th revision, Bureau of Indian Standards). It gives greater emphasis on the limit state method so as to illustrate the acceptable limits for the safety and serviceability requirements of structures. Besides dealing with yield line analysis for slabs, the book explains the working stress method and its use for designing reinforced concrete tension members, theory of redistribution of moments, and earthquake resistant design of structures. This well-structured book develops an effective understanding of the theory through numerous solved problems, presenting step-by-step calculations. The use of SP-16 (Design Aids for Reinforced Concrete to IS: 456-1978) has also been explained in solving the problems. KEY FEATURES : Instructional Objectives at the beginning of the chapter highlight important concepts. Summary at the end of the chapter to help student revise key points.

Sixty-nine solved illustrative examples presenting step-by-step calculations. Chapter-end exercises to test student's understanding of the concepts. Forty Tests to enable students to gauge their preparedness for actual exams. This comprehensive text is suitable for undergraduate students of civil engineering and architecture. It can also be useful to professional engineers.

Reinforced Concrete Design - S. U. Pillai 1988-01-01

A Million Thoughts - Om Swami 2016-11-16

Steel Structures - N. Subramanian 2011-02-03

Design of Steel Structures is designed to meet the requirements of undergraduate students of civil and structural engineering. This book will also prove useful for postgraduate students and serve as an invaluable reference for practicing engineers unfamiliar with the limit state design of steel structures. The book provides an extensive coverage of the design of steel structures in accordance with the latest code of practice for general construction in steel (IS 800: 2007). The book is based on the modern limit state approach to design and covers topics such as properties of steel, types of steel structures, important areas of structural steel technology, bolted connections, welded connections, design of trusses, design of plate girders, and design of beam columns. Each chapter features solved examples, review questions, and practice problems as well as ample illustrations to supplement the text.

Reinforced Concrete - B.S. Choo 2018-10-08

This new edition of a highly practical text gives a detailed presentation of the design of common reinforced concrete structures to limit state theory in accordance with BS 8110.

Corrosion in Reinforced Concrete Structures - H Böhni 2005-01-20

Reinforced concrete has the potential to be very durable and capable of withstanding a variety of adverse environmental conditions. However, failures in the structures do still occur as a result of premature reinforcement corrosion. In this authoritative book the fundamental aspects of this complex process are analysed; focusing on corrosion of the reinforcing steel, and looking particularly, at new scientific and technological developments. Monitoring techniques, including the newly developed online-monitoring, are examined, as well as the numerical methods used to simulate corrosion and perform parameter studies. The influence of composition and microstructure of concrete on corrosion behaviour is explored. The second half of the book, which deals with corrosion prevention methods, starts with a discussion on stainless steels as reinforcement materials. There are comprehensive reviews of the use of surface treatments and coatings, of the application of corrosion inhibitors and of the application of electrochemical techniques. In each case the necessary scientific fundamentals are explained and practical instances of use are looked at. This is an invaluable guide for engineers, materials scientists and researchers in the field of structural concrete. Fundamental aspects of corrosion in concrete are analysed in detail. Explores how to minimise the effects of corrosion in concrete. Invaluable guide for engineers, materials scientists and researchers in the field of structural concrete.

Plant Gravitropism - Elison B. Blancaflor 2022-10-14

This updated and expanded edition explores key methodologies to study the fascinating phenomenon of how plants readjust their growth toward gravity. In addition to the protocols delivering broad applications for gaining insight into other plant physiological processes, this new volume also focuses on techniques involving plants in space or the use of microgravity analogs to study plant biological phenomenon. Written for the highly successful Methods in Molecular Biology series, chapters include introductions to their respective topics, lists of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and tips on troubleshooting and avoiding known pitfalls. Authoritative and cutting-edge, *Plant Gravitropism: Methods and Protocols*, Second Edition serves as an ideal guide for researchers studying the cellular, molecular, and biochemical networks that plants use to translate environmental stimuli into a growth response.

The Prion Protein - Jorg Tatzelt 2010

A conformational transition of the cellular prion protein (PrPC) into an aberrantly folded isoform designated scrapie prion protein (PrPSc) is the hallmark of a variety of neurodegenerative disorders collectively called

prion diseases. They include Creutzfeldt-Jakob disease and Gerstmann-Sträussler-Scheinker syndrome in humans, scrapie in sheep, bovine spongiform encephalopathy (BSE) in cattle and chronic wasting disease (CWD) in free-ranging deer. In contrast to the deadly properties of misfolded PrP, PrPC seems to possess a neuroprotective activity. More-over, animal models indicated that the stress-protective activity of PrPC and the neurotoxic effects of PrPSc are somehow interconnected. In this timely book, leading scientists in the field have come together to highlight the apparently incongruous activities of different PrP conformers. The articles outline current research on cellular pathways implicated in the formation and signaling of neurotoxic and physiological PrP isoforms and delineate future research direction. Topics covered include the physiological activity of PrPC and its possible role as a neurotrophic factor, the finding that aberrant PrP conformers can cause neurodegeneration in the absence of infectious prion propagation, the requirement of the GPI anchor of PrPC for the neurotoxic effects of scrapie prions, the pathways implicated in the formation and neurotoxic properties of cytosolically localized PrP, the impact of metal ions on the processing of PrP, and the role of autophagy in the propagation and clearance of PrPSc. The book is fully illustrated and chapters include comprehensive reference sections. Essential reading for scientists involved in prion research.

Design of Structural Elements - Chanakya Arya 2009-05-07

This third edition of a popular textbook is a concise single-volume introduction to the design of structural elements in concrete, steel, timber, masonry, and composites. It provides design principles and guidance in line with both British Standards and Eurocodes, current as of late 2007. Topics discussed include the philosophy of design, basic structural concepts, and material properties. After an introduction and overview of structural design, the book is conveniently divided into sections based on British Standards and Eurocodes.

Perspectives in Environmental Studies - Anubha Kaushik 2006

Environmental Studies pertain to a systematic analysis of the natural and man-made world encompassing various scientific, economic, social and ethical aspects. Human impacts leading to large scale degradation of the environment have aroused global concern on environmental issues in the recent years. The apex court has hence, issued directive to impart environmental literacy to all. In this book the fundamental concepts of environmental studies have been introduced and analysed in a simple manner strictly as per the module syllabus designed by the U.G.C. for undergraduate courses in science, humanities, engineering, medicine, pharmacy, commerce, management and law. Besides the undergraduate students of all disciplines the book will also be useful for those appearing in various competitive exams since environmental issues now find a focus in most of such examinations. The contents of the book will be of interest to all educationists, planners and policy makers. Key features of the book include a simple and holistic approach with illustrations, tables and specific case studies mainly in the Indian context. The basic terminologies have been defined in the text while introducing the topics and some useful terms mentioned in the text have been explained in the glossary for an easy grasp by students of all disciplines.

Nutrition and Eye Health - John Lawrenson 2020-01-03

Blindness and visual impairment impact significantly on an individual's physical and mental well-being. Loss of vision is a global health problem, with approximately 250 million of the world's population currently living with vision loss, of which 36 million are classified as blind. Visual impairment is more frequent in the elderly, with cataract and age-related macular degeneration (AMD) accounting for over 50% of cases globally. Oxidative stress has been strongly implicated in the pathogenesis of both conditions, and consequently the role of nutritional factors, in particular carotenoids and micronutrient antioxidants, have been investigated as possible preventative or therapeutic strategies. Dry eye syndrome (DES) is one of the most common ophthalmic conditions in the world. DES occurs where the eye does not produce enough tears and/or the tears evaporate too quickly leading to discomfort and varying degrees of visual disturbance. There has recently been a great deal of interest in the potential for oral or topical supplementation with essential fatty acids (EFAs), specifically omega-3 and omega-6 fatty acids, as an adjunct to conventional treatments for DES. The objective of this Special Issue on 'Nutrition and Eye Health' is to publish papers describing the role of nutrition in maintaining eye health and the use of nutritional interventions to prevent or treat ocular disease. A particular (but not exclusive) emphasis will be on papers (reviews and/or clinical or experimental studies) relating to cataract, AMD and DES.

Enhancing the Climate Resilience of Africa's Infrastructure - Raffaello Cervigni 2015-09-01

To sustain Africa's growth, and accelerate the eradication of extreme poverty, investment in infrastructure is fundamental. In 2010, the Africa Infrastructure Country Diagnostic found that to enable Africa to fill its infrastructure gap, some US\$ 93 billion per year for the next decade will need to be invested. The Program for Infrastructure Development in Africa (PIDA), endorsed in 2012 by the continent's Heads of State and Government, lays out an ambitious long-term plan for closing Africa's infrastructure including trough step increases in hydroelectric power generation and water storage capacity. Much of this investment will support the construction of long-lived infrastructure (e.g. dams, power stations, irrigation canals), which may be vulnerable to changes in climatic patterns, the direction and magnitude of which remain significantly uncertain. Enhancing the Climate Resilience of Africa 's Infrastructure evaluates -using for the first time a single consistent methodology and the state-of-the-arte climate scenarios-, the impacts of climate change on hydro-power and irrigation expansion plans in Africa's main rivers basins (Niger, Senegal, Volta, Congo, Nile, Zambezi, Orange); and outlines an approach to reduce climate risks through suitable adjustments to the planning and design process. The book finds that failure to integrate climate change in the planning and design of power and water infrastructure could entail, in scenarios of drying climate conditions, losses of hydropower revenues between 5% and 60% (depending on the basin); and increases in consumer expenditure for energy up to 3 times the corresponding baseline values. In in wet climate scenarios, business-as-usual infrastructure development could lead to foregone revenues in the range of 15% to 130% of the baseline, to the extent that the larger volume of precipitation is not used to expand the production of hydropower. Despite the large uncertainty on whether drier or wetter conditions will prevail in the future in Africa, the book finds that by modifying existing investment plans to explicitly handle the risk of large climate swings, can cut in half or more the cost that would accrue by building infrastructure on the basis of the climate of the past.