

Limpopo September 2009 Physical Sciences Paper1 Memo

In this book, contributions from several experts specializing in the area of flood risk management are assembled into a single volume. Application and testing of numerical and statistical models that can simulate the complex reality along with effective flood management strategies that are being implemented in various nations are presented. This collection of topics will provide an update to the reader as to the state of the art in this important technical field.

Natural resource governance is central to the outcomes of biodiversity conservation efforts and to patterns of economic development, particularly in resource-dependent rural communities. The institutional arrangements that define natural resource governance are outcomes of political processes, whereby numerous groups with often-divergent interests negotiate for access to and control over resources. These political processes determine the outcomes of resource governance reform efforts, such as widespread attempts to decentralize or devolve greater tenure over land and resources to local communities. This volume examines the political dynamics of natural resource governance processes through a range of comparative case studies across east and southern Africa. These cases include both local and national settings, and examine issues such as land rights, tourism development, wildlife conservation, participatory forest management, and the impacts of climate change, and are drawn from both academics and field practitioners working across the region. Published with IUCN, The Bradley Fund for the Environment, SASUSG and Norwegian Ministry of Foreign Affairs

This Intergovernmental Panel on Climate Change Special Report (IPCC-SREX) explores the challenge of understanding and managing the risks of climate extremes to advance climate change adaptation. Extreme weather and climate events, interacting with exposed and vulnerable human and natural systems, can lead to disasters. Changes in the frequency and severity of the physical events affect disaster risk, but so do the spatially diverse and temporally dynamic patterns of exposure and vulnerability. Some types of extreme weather and climate events have increased in frequency or magnitude, but populations and assets at risk have also increased, with consequences for disaster risk. Opportunities for managing risks of weather- and climate-related disasters exist or can be developed at any scale, local to international. Prepared following strict IPCC procedures, SREX is an invaluable assessment for anyone interested in climate extremes, environmental disasters and adaptation to climate change, including policymakers, the private sector and academic researchers.

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Conventional wisdom says that the world is heading for a major water crisis. By 2050, global population will increase from 7 billion to a staggering 9.5 billion and the demands this will place on food and water systems will inevitably push river basins over the edge. The findings from this book present a different picture. While it is convenient to visualize an inevitable global water and food crisis in which increasing demands result in increasing poverty, food insecurity and conflict, the reality is far more nuanced and revolves around the politics of equitable and sustainable development of resources. The first part of this book provides detailed insight into conditions of water flows within nine river basins. In the second part, authors summarize and re-analyze the outcome of the nine basins, providing a coherent global picture of water, water productivity and development. They assess the impacts of variations of these attributes on development and approaches for poverty alleviation, and explore the institutional factors that support or obstruct change. How people will manage river systems while protecting vital

ecosystem functions will make the difference between catastrophe and survival. As Prof Asit Biswas points out, "... the world is facing a water crisis not because of physical scarcity of water but because of poor management practices in nearly all countries of the world." The book is based on the four years (2006-2010) of extensive research into the state of ten of the world's major river basins carried out under the CGIAR Challenge Program for Water and Food's Basin Focal Project. This book was published as a special issue of *Water International*. Major changes in policy and management, across the entire agricultural production chain, will be needed to ensure the best use of available water resources in meeting growing demands for food and other agricultural products. This new volume in the successful *History of Water Series* focuses on the African continent to address this key issue. Humanity has its roots in Africa and many of our food systems developed there. All types of agricultural production are present and the sheer size of the continent offers wide ecological variation from extreme desert to dense rainforest. Drawing together leading international contributors from a wide variety of disciplines *Water and Food* offers new insights into the evolution of food systems, from early hunter gatherers to the global challenges of the modern world.

"This paper evaluates the emerging green economy in South Africa, using ideas from the concept of sustainable rural livelihoods, which are intimately connected to ecological services many developing countries. It finds that African communities and governments are prioritising green economy for job creation, poverty alleviation and reducing inequalities, while addressing global environmental concerns. What remains problematic, however, is how these objectives are to be achieved. The paper argues that one of the key challenges in South Africa is the gap between policy and implementation of sustainable development, the Millennium Development Goals and other globally driven initiatives. The paper emphasises that green economy policy needs to consider poverty reduction and women's empowerment in order to promote rural sustainable development" -- Publisher description.

Traditional methods for addressing conflict and healing have been largely replaced in elite settings by modern approaches. Rather than old and new complementing one another, bias is present. New is widely perceived as better among elite institutions, even when research indicates otherwise. Within the realm of international development, the need for cost-effective, sustainable, and successful methods of healing must be explored. *Natural Healing as Conflict Resolution* is an essential reference book that examines and addresses systemic bias towards natural healing methods and explores the mutually beneficial relationships of natural healing through human and non-human life forms in the context of resolving conflict. It illustrates not only the more obvious biological/physiological benefits of complementary approaches, but also the spiritual, emotional, and psychological benefits of integrating natural means of healing to resolve conflict. As such, the book acknowledges the effectiveness and articulates the benefits of traditional indigenous healing methods and how they can be used in complementary, mutually beneficial ways with modern practices. Highlighting emerging topics that include ecopsychology, parapsychology, and holistic medicine, this book is ideal for conflict resolution practitioners, psychologists, trauma counselors, veterans associations, pet therapists, nature organizations, academics, scientists, eco-architects and designers, international development policymakers, peacebuilding institutions, natural and traditional healers, alternative/integrative medicine practitioners,

spiritualists, researchers, and students.

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Water, Food and Poverty in River Basins Defining the Limits Routledge

Climate change impacts upon the world's poorest most heavily. It is therefore essential that international development initiatives focus on improving the ability of developing countries to adapt to the effects of climate change. This book, a product of research by the JICA-RI (Research Institute of the Japan International Cooperation Agency), examines climate change adaptation from the perspective of development cooperation in order to provide useful lessons for those engaged in research, policy and practice in this vital area. In this book the editors have brought together a wide range of case studies from across Africa and Asia, covering urban and rural areas and different sectors including water, agriculture and disaster management, in order to examine the following:

- o high-resolution climate change projection in Asia and how this can be used in planning appropriate adaptation responses
- o in-depth case studies of climate change projections, social, economic and environmental impact and vulnerability assessment and adaptation in rural Thailand and urban Philippines
- o cases across Africa for which climate data is less readily available and alternative approaches need to be adopted
- o the current situation amongst international donors
- o emerging issues caused by climate change

In the introductory section, the editors draw together the full implications from the case studies to discuss how international communities can support adaptation in developing countries and to give an assessment of bilateral projects. They reflect on the lessons learned and offer recommendations for future research and international development cooperation.

South Africa is renowned for its wildlife and environmental conservation in iconic national parks such as the Kruger, one of the world's first formal protected areas. However, this is the first book to thoroughly analyse and explain the interesting and changing scientific research that has been accomplished in South Africa's national parks during the twentieth century. Providing a fascinating and thorough

historical narrative based on an extensive range of sources, this text details the evolution of traditional natural history pursuits to modern conservation science in South Africa, covering all research areas of conservation biology and all the national parks around the country. It reveals the interaction between the international context, government, learning institutions and the public that has shaped the present conservation arena. A complex story that will interest and inform not only those involved in conservation science of South Africa, but worldwide.

Comparative Environmental Regionalism focuses on environmental governance as a key issue of analysis to provide an important new conceptualisation of 'region' and regional power. Examining both interregionalism and regional integration, the book goes beyond the traditional study of micro-regions within the EU to examine regions and regional institutions across Asia, Africa and the Americas. The focus on forms of governance allows a consideration of the variety of processes and mechanisms developed to deal with collective issues in addition to formal institutional cooperation. Using globally based case studies, Comparative Environmental Regionalism will be of interest to students and scholars of environmental and regional politics, and international relations.

A heavy backlog of gaseous, liquid, and solid pollution has resulted from a lack of development in pollution control. Because of this, a need for a collection of original research in water and wastewater treatment, industrial waste management, and soil and ground water pollution exists. Advanced Treatment Techniques for Industrial Wastewater is an innovative collection of research that covers the different aspects of environmental engineering in water and wastewater treatment processes as well as the different techniques and systems for pollution management. Highlighting a range of topics such as agriculture pollution, hazardous waste management, and sewage farming, this book is an important reference for environmental engineers, waste authorities, solid waste management companies, landfill operators, legislators, environmentalists, and academicians seeking research on waste management.

This Africa Water Atlas is a visual account of Africa's endowment and use of water resources, revealed through 224 maps and 104 satellite images as well as some 500 graphics, hundreds of compelling photos plus a brief profile of the water situation in every country. These visual elements vividly illustrate a succinct narrative describing and analysing Africa's water issues and exemplifying them through the judicious use of case studies. The Atlas tells the paradoxical story of a continent with adequate renewable water resources, but unequal access because the water is either abundant or scarce depending on the season or the place. It explores the opportunities to develop Africa's untapped water resources and human capacities to deliver safe drinking water and sanitation services to achieve the water-related Millennium Development Goals, as well as hydropower and irrigation services that help support livelihoods and boost economic development.

This book explores the nexus between natural resources ownership and the right to development in Africa. The right to sovereignty over natural resources and the right to

development are recognised and protected in an extensive framework of international, regional and domestic instruments. They guarantee people's entitlement to fully and freely utilise their natural resources as a means of subsistence and for economic, social and cultural development. Yet, despite the abundance of natural resources in Africa a majority of the people on the continent remain largely impoverished. This book articulates the central argument that to achieve the right to development in Africa requires appropriate governance of the continent's natural resources to which the people of Africa are guaranteed sovereign ownership. With case study illustrations from Zimbabwe, Ghana, Ethiopia and the Democratic Republic of Congo, chapters explore the normative measures, specific guarantees and community entitlements to natural resources for the realisation of the right to development. The book will be an invaluable guide to scholars and postgraduate students of Natural Resources, Development and African studies as well as policymakers and practitioners in these areas.

Motivation makes all the difference. And what's more motivating than the expectation of success? The instructions are clear and to the point, so students can quickly get down to writing practice in these 64-page worktexts. Helpful prompts pack the worktext lesson pages including illustrations, examples, and sample responses. Sample Content: book and movie reviews, travelogue, a character sketch, fashions.

Nature Conservation in Southern Africa. *Morality and Marginality: Towards Sentient Conservation?* proposes ways to study linkages between the marginality, subjectivity and agency of both human and animals, promoting a new approach to conservation referred to as 'sentient conservation'.

Covers topical issues for Africa's development, economics and politics of climate change, water management, public service delivery, and delivering aid. The authors argue that these issues should be included in the post-MDG paradigm and add an important voice to recent moves by academics and practitioners to engage with each other.

Food Security, Poverty and Nutrition Policy Analysis: Statistical Methods and Applications, Third Edition combines statistical data analysis and computer literacy, applying the results to develop policy alternatives through a series of statistical methods for real world food insecurity, malnutrition and poverty problems. The book presents the latest uses of statistical methods for policy analysis using the open source statistical environment R, in addition to having the original Stata files and applications. A new chapter on obesity brings in new datasets for analysis to effectively demonstrate the use of such data for addressing policy issues. Finally, program evaluation methods which can be directly applied to the data on food security, nutrition, poverty indicators and causal factors are included. This unique, real-world data takes the reader through a "hands-on" approach toward econometric practice whereby they can also test the effects of policy and program interventions. Further, this is the first book to explore actual data with STATA and R statistical packages that also provides a line-by-line guide to the programming and interpretation of results. Provides a fully revised and updated tome on the latest technology, assessment advances and policy insights surrounding food security Combines case-studies with data-based analysis Includes self-contained, downloadable datasets, statistical appendices, computer programs, and interpretations of the results for policy applications

This book conducts a holistic analysis of climate change perceptions, vulnerabilities,

impacts, and adaptation, based on the primary household-data collected from the Chepang community residing in the rural Mid-Hills of Nepal. Socio-economic and demographic data from the household survey is integrated with meteorological and spatial data to conduct an integrated analysis. Quantitative analysis is also supplemented by qualitative information. Given the context of ongoing climate change, the livelihoods issues of a highly marginalized Chepang community form the center-point of analysis. The book demonstrates that balanced assets possession is a prerequisite to strengthen the adaptive capacity of the households. Furthermore, the ability of translating adaptive capacity into adaptation actions is determined by the households' ability to correctly perceive the changes and their access to various assets. The book recommends to ensure the availability of non-farm livelihood opportunities along with access to formal/vocational education and skill development training as these are the key factors contributing to reduce the vulnerability. The book concludes that mainstreaming of climate change into development efforts is a must for sustainable development.

The introduction of transfrontier conservation areas (TFCAs) in southern Africa was based on an enchanting promise: simultaneously contributing to global biodiversity conservation initiatives, regional peace and integration, and the sustainable socio-economic development of rural communities. Cross-border collaboration and eco-tourism became seen as the vehicles of this promise, which would enhance regional peace and stability along the way. However, as these highly political projects take shape, conservation and development policymaking progressively shifts from the national to regional and global arenas, and the peoples most affected by TFCA formation tend to disappear from view. This book focuses on the forgotten people displaced by, or living on the edge of, protected wildlife areas. It moves beyond the grand 'enchanting promise' of conservation and development across frontiers, and unfounded notions of TFCAs as integrated social-ecological systems. Peoples' dependency on natural resources – the specific combination of crop cultivation, livestock keeping and natural resource harvesting activities – varies enormously along the conservation frontier, as does their reliance on resources on the other side of the conservation boundary. Hence, the studies in this book move from the dream of eco-tourism-fuelled development supporting nature conservation and people towards the local realities facing marginalized people, living adjacent to protected areas in environments often poorly suited to agriculture.

The impacts of climate change are beginning to be felt throughout the world, yet there is no clear explanation as to how these changes will alter our future. The research being conducted within the geospatial science field is pivotal to understanding the effects the global environment is experiencing. The Handbook of Research on Geospatial Science and Technologies is an essential scholarly reference source that evaluates the current methodologies and trends in geospatial science, and how these insights provide society with more efficient and effective ways to manage natural resources. Featuring discussions on relevant topics such as cartography, geographical information systems, remotely sensed data, and sustainability management, this publication is an informative resource for all academicians, students, scientists, and researchers that are interested in emerging developments within geospatial science. This book, which contains a collection of review articles as well as focus on evidence-

based policy making, will serve as a valuable resource not just for all postgraduate students conducting research using systems analysis thinking but also for policy makers. To our knowledge, a book of this nature which also has a strong African focus is currently not available. The book examines environmental and socio-economic risks with the aim of providing an analytical foundation for the management and governance of natural resources, disasters, addressing climate change, and easing the technological and ecological transitions to sustainability. It provides scientific and strategic analysis to better understand the dynamics of future energy transitions, their main driving forces, enabling factors, barriers, as well as their consequences for the social, economic and environmental dimensions of human wellbeing. Science-based policy advice is achieved through an integrated assessment and modeling of how to simultaneously address the major energy policy challenges in the areas of environment (climate change and air pollution), energy poverty (or access to affordable and clean energy for the poor), energy security and reliability. It also aims to improve our understanding of ecosystems and their management in today's changing world—in particular, the current state of ecosystems, and their ecological thresholds and buffering capacities. It provides support for policy makers in developing rational, realistic and science-based regional, national and global strategies for the production of fuel, food and fibre that sustain ecosystem services and safeguard food security. Finally, it addresses the human development dimension of global change based on comprehensive studies on the changing size and composition of human populations around the world by analyzing both their impacts and the differential vulnerabilities by age, gender and level of education.

Ecosystem Management and Sustainability analyzes myriad human-initiated processes and tools developed to foster sustainable natural resource use, preservation, and restoration. It also examines how humans interact with plant, marine, and animal life in both natural and human-altered environments. Experts explain the complex ecosystem relationships that result from invasive species, roads, fencing, and even our homes by addressing topics such as fire and groundwater management, disturbance, and ecosystem resilience. Because most people in the 21st century live in urban environments, the volume pays special attention to the ecology of cities, with detailed coverage on topics ranging from urban agriculture to landscape architecture. The volume focuses on how ecosystems across the world can be restored, maintained, and used productively and sustainably.

The Role of Functional Food Security in Global Health presents a collective approach to food security through the use of functional foods as a strategy to prevent under nutrition and related diseases. This approach reflects the views of the Food and Agriculture Organization of the United Nations, the World Health Organization, the World Heart Federation and the American Heart Association who advise Mediterranean, Paleolithic, plant food based diets, and European vegetarian diets for the prevention of cardiovascular disease. In addition, the book also emphasizes the inclusion of spices, herbs and millets, as well as animal foods. This book will be a great resource to the food industry as it presents the most efficient ways to use technology to manufacture slowly absorbed, micronutrient rich functional foods by blending foods that are rich in healthy nutrients. Provides greater knowledge on functional food security Highlights the necessary changes to the western diet that are needed to achieve food security

Explains the utility and necessity of functional food security in the prevention of noncommunicable diseases Presents policy changes in food production for farmers and the larger food industry Offers suggestions on what can be done to enhance functional food production while simultaneously decreasing production costs

This book constitutes the refereed post-conference proceedings of the 8th IFIP WG 5.14 International Conference on Computer and Computing Technologies in Agriculture, CCTA 2014, held in Beijing, China, in September 2014. The 81 revised papers included in this volume were carefully selected from 216 submissions. They cover a wide range of interesting theories and applications of information technology in agriculture, including intelligent sensing, monitoring and automatic control technology; key technology and models of the Internet of things; intelligent technology for agricultural equipment; computer vision; computer graphics and virtual reality; computer simulation, optimization and modeling; cloud computing and agricultural applications; agricultural big data; decision support systems and expert systems; 3s technology and precision agriculture; quality and safety of agricultural products: detection and tracing technology; and agricultural electronic commerce technology.

Sustaining and strengthening local livelihoods is one of the most fundamental challenges faced by post-conflict countries. By degrading the natural resources that are essential to livelihoods and by significantly hindering access to those resources, conflict can wreak havoc on the ability of war-torn populations to survive and recover. This book explores how natural resource management initiatives in more than twenty countries and territories have supported livelihoods and facilitated post-conflict peacebuilding. Case studies and analyses identify lessons and opportunities for the more effective design of interventions to support the livelihoods that depend on natural resources – from land to agriculture, forestry, fisheries, and protected areas. The book also explores larger questions about how to structure livelihoods assistance as part of a coherent, integrated approach to post-conflict redevelopment. Livelihoods and Natural Resources in Post-Conflict Peacebuilding is part of a global initiative to identify and analyze lessons in post-conflict peacebuilding and natural resource management. The project has generated six books of case studies and analyses, with contributions from practitioners, policy makers, and researchers. Other books in this series address high value resources, land, water, assessing and restoring natural resources, and governance.

This book captures ground-breaking attempts to utilise culture in territorial development and regeneration processes in the context of South Africa and our 'new normal' brought by COVID-19, the fourth industrial revolution, and climate change the world over. The importance of culture in rural-urban revitalisation has been underestimated in South Africa and the African continent at large. Despite some cultural initiatives that are still at developmental stages in big cities, such as Johannesburg, eThekweni and Cape Town, there is concern about the absence of sustainable policies and plans to support culture, creativity, and indigenous knowledge at national and municipal levels. Showcasing alternative strategies for making culture central to development, this book discusses opportunities to shift culture and indigenous knowledge from the peripheries and place them at the epicentre of sustainable development and the mainstream of

cultural planning, which can then be applied in the contexts of Africa and the Global South. Governmental institutions, research councils, civil society organisations, private sector, and higher education institutions come together in a joint effort to explain the nexus between culture, economic development, rural-urban linkages, grassroots and technological innovations. Culture and Rural-Urban Revitalization in South Africa is an ideal read for those interested in rural and urban planning, cultural policy, indigenous knowledge and smart rural village model.

Droughts occur in arid and semi-arid areas of the world, but also in humid areas, and can develop over short periods (flash drought) or longer periods (seasons/decades). Even though progress has been made, it remains difficult to adequately characterize, monitor, forecast and manage droughts, due to their multi-faceted nature. Usually, drought does

Humans, Other Beings and the Environment is an ethnographic study of the possibilities for the mutual, symbiotic co-existence of human beings, a unique species of forest insects and natural forests. The result of extensive fieldwork conducted over a period of thirteen months, the book highlights the continuum among humans, wild insects and environmental conservation outcomes in a specific environment of southeastern Norumedzo in rural Zimbabwe. In this respect, it describes interactions and relationships between humans, other beings and the natural forests to demonstrate how some aspects of the emerging body of literature in the posthumanities and relational ontologies can work to grasp the collaborative interactional space for different social actors in the cosmos, through which cognitive and knowledge communities can be extended. Furthermore, the book raises critical questions for conservation sciences, political ecology and environmental anthropology, as it demonstrates the extent of relevance and application of the Norumedzo conservation case study, with particular regard to conservational problems and asymmetrical relations between humans and other beings in other scenarios in Zimbabwe and beyond.

Complicating many assumptions about knowledge production, nature and culture, the book offers independent and critical insights into the interpretation of modernist science, posthumanist ideas and indigenous epistemologies, and relates these to existing studies. As such, it will be of interest not only to anthropologists, but also to political scientists, environmentalists and policy makers in Zimbabwe, southern Africa and beyond.

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.

Water Conservation and Wastewater Treatment in BRICS Nations: Technologies, Challenges, Strategies, and Policies addresses issues of water resources—including combined sewer system overflows—assessing effects on

water quality standards and protecting surface and sub-surface potable water from the intrusion of saline water due to sea level rise. The book's chapters incorporate both policies and practical aspects and serve as baseline information for future adaption plans in BRICS nations. Users will find detailed important information that is ideal for policymakers, water management specialists, BRICS nation undergraduate or university students, teachers and researchers. Presents tools and techniques that can be used to preserve water resources, including groundwater and surface water Provides geophysical methods to quantitatively monitor physical earth processes associated with water resources, such as contaminant transport and ecological and climate change investigations and monitoring Includes desalination techniques which can solve the issue of scarce drinking water

This action packed reader-gripping book is a grueling harsh journey of Zimbabweans who cross borders into South Africa illegally, in search of greener pastures. Their worst nightmare is not only the crocodile infested river Limpopo that they cross, but also what they locally call Amagumaguma, a notorious gang of thieves and contract slayers who prey on the little possessions they migrate with, rape or sodomize them and ruthlessly butcher the vulnerable in order to sell their body parts to local witchdoctors and those afar. These grisly murderers have laid into graves many lives! The ill-fated border jumpers also have to contend with vicious, ravenous predators like lions, leopards and hyenas and other such carnivores in search of easy prey. Brutal soldiers vigilantly guarding these borders for trespassers also add to their woes. Of course, these law-breaking border-jumpers have those who help them out. For a fee of a thousand five hundred rands or two hundred American dollars, the Malayisha (cross-border taxi drivers) transport them from various parts of Zimbabwe to the Beit-Bridge border post, where they are handed over to the Impisi (escorts) at secluded rendezvous outside the border posts. These Impisi are paid by the Malayisha to escort their passengers without passports, across river Limpopo right up to near Musina in South Africa where they pick them up again and take them to Johannesburg. The border jumpers however risk all these predators that hunt down anything that moves throughout the night. In the novel, we meet Themba Khumalo who had always wanted to go to the lucrative South Africa but did not have Malayisha's fees until when his father died, he inherited two of his father's donkeys and gave them to a local Malayisha as payment in kind, for the fees to take him to Johannesburg. What he did not know was that where he was going, the familiar became mysterious and the unfamiliar, gruesome and bizarre indeed! It was a place of delusion and paradox with a very thin line between life and death, as too many predatory eyes were fixed on the prey!

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