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Nile River Basin

Hydrology, Climate and Water Use

 Springer

Foreword

The River Nile Water is the lifeblood for 180 million people who live in the river basin. Nile water supports hydropower, agriculture, navigation, and a multitude of ecosystem services all essential for economic growth, poverty reduction, and stability in the region. The region has the potential for rapid growth, and many individuals, communities, companies, and countries have high hopes that the Nile waters can support growth and prosperity. While the future expectation of what the Nile can deliver to its people is extremely high, in fact the resource is limited, and there is a real danger that ill-planned development can lead to degradation and conflict. Underpinning good planning and development is knowledge about the hydrology of the Nile system. While there has been millions spent on development, and there are large plans for more development, it is surprising how little basic data and analysis is readily available, especially data for the upstream countries in the basin. For historic reasons, Egypt and Sudan possess a wealth of knowledge about the Nile waters and its use. This is not true for upstream countries who have tapped very little of the Nile River water resource, but who are looking to gain more benefits from the Nile in the future. Information in the book plays an important role to bridge this gap. There is a wealth of new modeling and information techniques that can really help build a better picture of water resources in the region. This book makes an advance in bringing these techniques to bear on the Nile basin. The book covers a range of biophysical issues important for the Nile basin. For example, fundamental to water management are the water budgets of the major lakes in the region which are revisited in this book. Ultimately rain is the source of water for the Nile River basin, yet the knowledge of historic, let alone real time rainfall across the huge basin is scant. Satellite rainfall estimation provides some exciting opportunities to fill in this void, and there is a great opportunity for their application in planning and real time management as the book reveals. Ultimately many decisions are made in a watershed context, and GIS and remote sensing provide the spatial tools needed for communities and countries to explore options for development. Climate variability and climate change are major unknowns in the region, but people have to contend with climate variability in their day to day lives. Chapters in the book shed light on basic processes and provide tools which are useful to better analyze and understand the implications of climate change and climate variability. v vi Foreword Ultimately decisions have to be made about the allocation of Nile waters amongst different users, and different countries. While it can be argued that these decisions are largely political, science has an important role in informing better ways to serve all, to highlight tradeoffs that need to be made, and to minimize negative consequences. Making better water decisions requires better knowledge of water availability, how water is accessed now, what is the productivity of its use, environmental flows, and the implications of future demands and development scenarios. The book, Nile River Basin: Hydrology, Climate and Water Use represents an important milestone for work on Nile waters. It is an important reference for professionals, policy makers, practitioners, researchers and students who are required to find solutions for the people dependent on Nile waters, and their children. It provides a critical resource for the people managing this transboundary river, and thus the people dependent on its water. It is an important milestone for those addressing one of the most pressing challenges of our time, water scarcity.

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