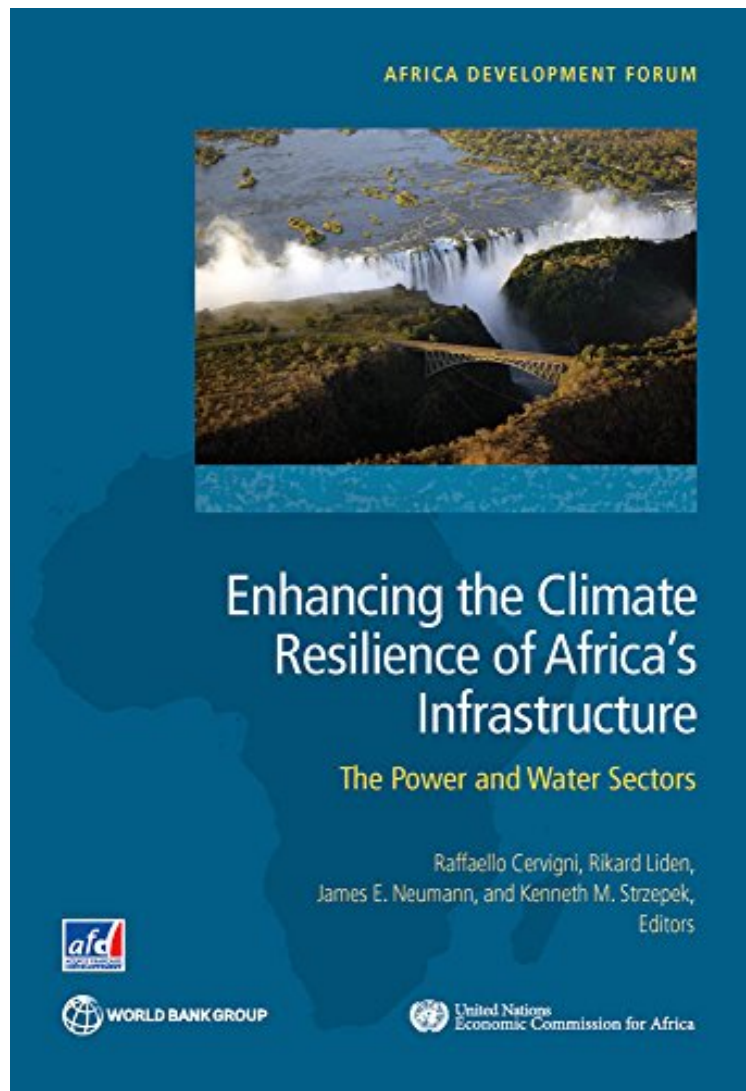


[E-BOOK] Enhancing the Climate Resilience of Africa's Infrastructure: The Power and Water Sectors (Africa Development Forum)

Enhancing the Climate Resilience of Africa's Infrastructure: The Power and Water Sectors (Africa Development Forum)

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From World Bank Publications : Enhancing the Climate Resilience of Africa's Infrastructure: The Power and Water Sectors (Africa Development Forum) before purchasing it in order to gage whether or not it would be worth my time, and all praised Enhancing the Climate Resilience of Africa's Infrastructure: The Power and Water Sectors (Africa Development Forum):

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 through 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-art 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 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.

It is well established that the energy systems of the future will need to reduce their carbon footprint in order to mitigate climate change. This book sheds new light on a less understood but equally important issue, namely that energy systems need to become more resilient to climate shifts. Hydropower in particular, which holds great potential to close Africa's energy access gap, is vulnerable to climate change. In this first-of-a-kind analysis, the resulting effects on the energy systems are analyzed in a tractable and systematic manner, including multiscale uncertainty across systems and implications for decision making. This book provides crucial insights to support development, investment financing, and robust engineering design in the face of a changing climate. --Carlo Carraro, Vice-Chair of the Working Group III and Member of the Bureau of the Intergovernmental Panel on Climate Change (IPCC) Uncertainty about future climate conditions adds a whole new level of complexity to decisions about major infrastructure investments. This book describes a thoughtful, understandable approach to integrating information about uncertain futures into investment decisions for major hydropower and irrigation projects in Africa. The analysis will help decision makers manage the risk that future conditions could be either wetter or drier than historical averages. The book explores in detail the consequences of many options, but also explains the important role of values and perspectives on risk, time preference, and physical versus economic performance. --Chris Field, Chair of the Working Group II and Member of the Bureau of the Intergovernmental Panel on Climate Change (IPCC) There is broad agreement that climate change will have large impacts on developing countries, and that adequate funding will be needed for them to adapt. However, how developing countries should adapt, and thus how scarce adaptation funds can be optimized, has remained elusive, particularly in complex domains such as infrastructure development. This is a powerful book, which for the first time gets to the heart of the issue of how long-lived investments should be planned, designed, and implemented, taking climate change into account. A must-read for all those who are working on water, power, and adaptation to climate change. --Andrew Steer, President of the World Resources Institute