



INTEGRATED WATER RESEARCH IN THE GLOWA VOLTA PROJECT

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The Volta Basin covers 400,000 km² of the West African savanna. The river feeds Lake Volta, that provides over 95% of the electricity in Ghana and has the largest surface of any man-made lake in the world. The rural population (per capita income US\$600/year) increasingly turns to small scale irrigation development to improve the returns on their agricultural activities and reduce dependence on the highly variable rainfall. The irrigation development stands in direct competition with the hydropower generation that drives development in the more urbanized South.

The GLOWA Volta Projects seeks to develop a Decision Support System (DSS) for the management of water resources in the basin under changing global and regional conditions. The DSS is built upon a scientific analysis of all factors that affect water supply and demand. To understand all aspects of the hydrological cycle in the Volta Basin one needs to take physical (atmosphere, land, water) as well as social aspects (population, economic development, institutions) into account. The major scientific challenge of the GLOWA Volta Project is the integrated analysis of the bio-physical and socio-economic factors that affect the hydrological cycle in the Volta Basin.

The presentation introduces the GLOWA Volta Project, focusing on activities that integrate different disciplines. Specifically, we present three sets of activities: (1) the coupling between meteorology and hydrology, (2) development of a Common Sampling Frame for the collection of socio-economic and bio-physical data, and (3) a water use optimization model that incorporates economy, hydrology, and institutional analysis. Finally, we look at recent initiatives in the basin that link science, stakeholders, and policy makers.