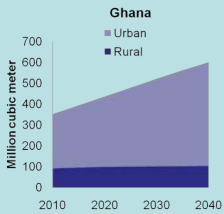


## Water Demand in the Volta River Basin

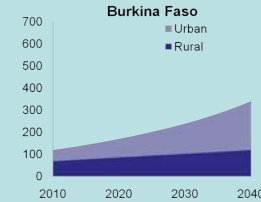
Dr. Anik Bhaduri, Dr. Nicostrato Perez, Dr. Bruno Barbier and Patricia Aidam (GLOWA Volta Project), Zentrum für Entwicklungsforschung/ Center for Development Research, University of Bonn, www.glowa-volta.de

### Domestic Water Demand

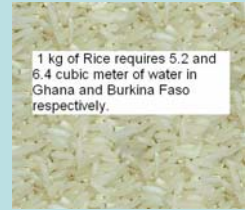
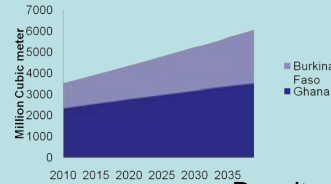


Average water consumption by region and season in the Volta basin

Regions	Rainy Season	Dry Season
Ashanti	36.03	30.24
Brong Ahafo	36.22	22.23
Eastern	35.88	25.92
Northern	30.67	20.73
Upper East	24.38	22.75
Upper West	17.69	16.39
Volta	47.2	34.49

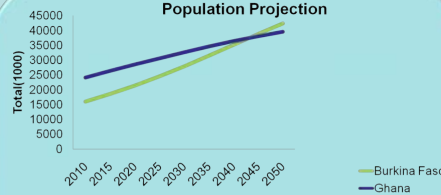


### Agricultural Water Demand



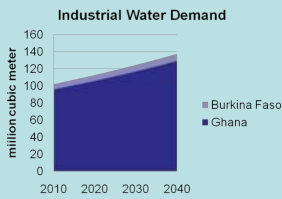
Despite the limited extent of irrigated agriculture within the Volta basin, irrigation is nevertheless the dominant source of consumptive demand for water resources. By 2040 irrigation water demand in the basin is projected to increase to 6 cubic km .

### Population Projection



Currently, population is growing at the rate of 2 % and 3 % per annum in Ghana and Burkina Faso respectively. Population is regarded as the major driver for the future increase in water demand in the Basin.

### Industrial Water Demand



Since independence, Ghana has sought economic development through its industrial and mining sectors. Water is used mainly to generate cheap hydropower to fuel industrial growth. In the past, majority of the power was consumed by the Valco aluminum smelter. In the future, rapid industrialization would further increase the demand for water mainly in Ghana .

### Water Demand for Hydropower



Although average rain in the Volta basin is ample, the spatial and temporal variability make it an unreliable resource for agricultural purposes. Without a reliable water supply, investments in agriculture are risky or not profitable. The surface water resources needed for irrigation development show a high sensitivity with respect to rainfall and, probably, land surface characteristics. Burkina Faso and northern Ghana stand in competition for water resources with the urbanized society of southern Ghana (Van de Giesen Nick et al. 2001).

A central challenge to planners and managers within the Volta basin is to identify policies that meet the agricultural water demand, while ensuring that sufficient water resources are available for other vital uses. To allocate water efficiently among competing uses and facilitate policy makers and stakeholders to analyze the implications of agricultural, water and hydropower policies on water allocation, the GLOWA-Volta Project has developed an integrated hydro-economic water allocation model (M<sup>3</sup>WATER). The model is appropriate in evaluating the efficacy of the policies of the countries -in the Basin with respect to social benefit and opportunity cost.