

CPWF POLICY BRIEF

How Water and Agriculture Support Livelihoods in the Volta

The CPWF Volta Basin Focal Project project team was led by Institut de Recherche pour le Développement (IRD, France) with collaborating scientists from the International Water Management Institute (IWMI) - Ghana, CSIR Water Research Institute - Ghana, Université de Ouagadougou, Institute of Statistical, Social and Economic Research-Ghana, Institut de Recherches en Sciences de la Santé (IRSS)- Ouagadougou, Institut National des Sciences de la Société (INSS) - Ouagadougou, WorldFish Centre - Egypt, and International Centre for Tropical Agriculture (CIAT).

A RIVER BASIN UNDER PRESSURE

The Volta basin lies predominantly in Ghana and Burkina Faso, with small areas in Benin, Côte d'Ivoire, Mali and Togo. These countries rank amongst the poorest in the world. The Volta basin is inhabited by 19 million people, 70 per cent of whom are rural. However by 2050, when the population is expected to be 50-60 million, the ratio of rural-to-urban populations will have decreased dramatically.

Poverty remains strongly rural and increases from south to north. Economies are reliant on agriculture. Among the different activities in the basin, the cash crop farmers are less poor than the subsistence farmers. Rural poverty occurs because of low agricultural productivity, limited market access and price variability. The main forces of change are a combination of demographic shifts, increasing urbanization, and climate change impacts.

HOW WATER AVAILABILITY AND ITS STORAGE AFFECT THE POOR

Lack of access to potable water is a recognized cause of poverty, with its important relation to health and manpower. The proportion of households using poor quality water is close to 50 per cent in both Ghana and Burkina Faso.

Water related diseases severely affect the poor. The main water related diseases in the basin are malaria, schistosomiasis (bilharzia), onchocercosis (river blindness), trypanosomiasis and diarrhea from unsafe domestic water. Malaria covers the whole basin, with a 100 per cent prevalence in the central part of the basin. The cost of malaria in Ghana hits poor households hardest.

Less than 10 per cent of the average total rainfall ends up in the river, making river discharge, and those who depend on it, highly sensitive to variations in annual rainfall. Although a large number of small- and medium-size reservoirs have been developed for small scale irrigation, groundwater resources are poorly quantified and seem underexploited.

Lake Volta plays a key role in the economy of Ghana but flows and revenues from hydro-electricity are less than were anticipated. Low in-flows seem to be a consequence of long-term variations in annual rainfall. The much smaller Bagré and Kompienga reservoirs are important in Burkina Faso for hydropower and irrigation.

IMPROVING WATER PRODUCTIVITY NOW

The Volta basin crosses four agro-ecological zones, with rainfall varying between 500-1100 mm/year. Highly variable rainfall during the growing season presents problems of short season droughts, even where total rainfall appears adequate. Most people in the basin rely on rainfed cropping for livelihood. The main crops follow the distributions of rainfall and soil type: from north to south, millet, sorghum maize, cotton, cassava, yam, plantain and cocoa.

Yields—and hence water productivity—are low; often 10 per cent or less of potential. Rainfed cropping occupies only a small part of the available land; about 14 per cent of the basin area. The low yields result from farmers' risk avoidance strategies, which are connected to uncertainties about water availability (variability of rainfall), poor and degraded soils with no or low input of fertilizers, and lack of labour availability or work efficiency.

Nearly 85 per cent of the basin demonstrate possibilities for grazing cover. Irrigation is still very little developed in the basin, covering less than 0.5 per cent of the cultivated area.

This low productivity, coupled with limited market access, price variability and insecure land tenure worsen the effects of poverty in the basin.

A RESEARCH OUTCOME YOU CAN USE

Improvements in the rainfed systems coupled with investment in fertilizers and small-scale irrigation provide the main opportunity for development. Other positive measures include improvements in infrastructure, access to land, access to agricultural water and access to affordable micro-credit.

Small reservoirs require careful monitoring management to prevent impacts of reduced flow into hydro-electric projects but these risks seem moderate compared to possible changes in annual rainfall. Groundwater resources should be assessed as a possible tool for extensive development of small-scale irrigation. Contributions from fisheries and livestock are not fully understood and need careful socio-economic appraisal.

The basin states have a limited ability to implement and enforce policies and reforms at the local level. Social control is highly



fragmented, and policy implementation, if sincerely attempted at all, takes place in a context of multiple foci of power and multiple institutions.

In the Volta basin, the duality between the legal state and the traditional kingdoms impacts everyday life and a number of social determinants such as land tenure and access to water. The new Volta Basin Authority is a main stakeholder for basin wide and transnational matters.

Institutional development is therefore key to assist development, which in turn depends on strong political will.

FOR MORE INFORMATION

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The CPWF website:
www.waterandfood.org

The 2nd International Forum on Water and Food web portal:
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