



Tropentag, October 9-11, 2007, Witzenhausen

“Utilisation of diversity in land use systems:  
Sustainable and organic approaches to meet human needs”

## Hydrogeological and Socio-Legal Aspects of Groundwater for Household Provision in the Volta River Basin

NICOLA MARTIN<sup>1</sup>, IRIT EGUAVOEN<sup>2</sup>, JEAN-PIERRE SANDWIDI<sup>3</sup>, ALEXANDRE SESSOUMA<sup>4</sup>

<sup>1</sup>*Federal Institute for Geoscience and Natural Resources (BGR), Africa Section, Germany*

<sup>2</sup>*University of Bonn, Center for Development Research (ZEF), Political and Cultural Change, Germany*

<sup>3</sup>*University of Bonn, Center for Development Research (ZEF), Ecology and Natural Resource Management, Germany*

<sup>4</sup>*German Development Service (DED), Civil Society, Cameroon*

### Abstract

In the semi-arid North of the Volta River basin the main source of water supply to rural households is groundwater tapped by hand dug wells and boreholes. Household water security depends on the hydrogeological and climatic conditions determining groundwater availability, but also on the way access and use of the resource are regulated. This study discusses groundwater availability and socio-legal aspects of household water use in two small sub-catchments, the Atankwidi catchment in northern Ghana and the Kompienga catchment in Burkina Faso, based on the following questions:

- (1) How sustainable is the use of available groundwater resources?
- (2) How do socio-legal factors affect household water security?

Hydrogeological assessment suggests that there is still a large potential to increase extraction of groundwater as a safe source for drinking. However, household water security is not yet reached in all communities, because access to groundwater is limited by institutional conditions. Although the natural and socio-cultural framework is very similar in both catchments, national drinking water programmes in the two countries regulate resource planning and household water provision differently. In Ghana, a number of institutional changes resulted from the implementation of the National Community Water and Sanitation Program. This was sometimes in conflict with previous local water right regimes and reduced the flexibility of communities to choose their water source. In Burkina Faso, the acquisition of boreholes and their access definition were highly politicized and shaped by local power struggles. The paper traces how these different conditions affect household water security in the two catchments.

**Keywords:** Groundwater, household supply, Volta River basin, water security