Vulnerability and resilience of communities in the Kayanga-Anambe basin to water risks: issues, challenges and prospects for sustainable water management (VOQUALISE Project) (Oral)

Cheikh Faye[1]*, Manuela Grippa[2], Sidy Diéye [3] , Elimane Abdoul Fall [4]

[1] *Assane Seck University of Ziguinchor , Ziguinchor , Senegal*
[2] *Geosciences Environnement Toulouse, Toulouse, France*
[3] *Cheikh Anta Diop University of Dakar, Dakar, Senegal*
[4] *Directorate of Resource Management and Planning Water , Dakar, Senegal*

**Corresponding author: email@example.com*

ABSTRACT

The study on water management in the Kayanga-Anambé basin , in Upper Casamance, focuses on the vulnerability and resilience of rural communities to water risks in a context of climate change, population growth, and inadequate infrastructure. The survey, conducted among 278 households in the municipalities of Diaobé-Kabendou and Kandiaye, reveals a predominantly male population (57.2%), primarily engaged in agriculture (81.7%), with low levels of education (42.8%), and a strong dependence on natural resources.

Access to water relies primarily on wells (82%), with predominant use for agriculture (77.3%) and domestic needs (74.1%). However, numerous challenges exist: limited access to safe drinking water (86%), water quality problems (turbidity at 85.6%), frequent droughts (83.8%), and water-use conflicts (62.2%). These factors contribute to high vulnerability, with an overall vulnerability index of 0.58. The most critical dimensions of this vulnerability are institutional (0.79) and social (0.64), characterized by the absence of clear public policies (89.6%), local committees (88.1%), and awareness programs (84.5%).

The study also reveals a medium to high level of resilience among cooperatives and economic interest groups (EIGs), with scores ranging from 25 to 41 out of 56. Households are adopting adaptation strategies such as modifying agricultural calendars, water storage, and crop diversification. However, gaps persist in risk governance, investments in resilient infrastructure, and monitoring and evaluation mechanisms.

Qualitative interviews confirm an awareness of climate change (floods, irregular rainfall) and its differentiated impacts across various groups (farmers, herders, women). Priority solutions identified by the population include strengthening cooperation among stakeholders (95%), education on water management (69%), and the rehabilitation of water infrastructure, such as retention basins, boreholes, and irrigation systems.

In conclusion, sustainable water management in the Kayanga-Anambé basin requires an integrated approach combining institutional strengthening, infrastructure improvement, support for local capacities, and consideration of gender dynamics. Community engagement is a major asset for building resilience to climate and water risks.

Keywords: Water management , Vulnerability Water , Changes Climate , Resilience community , watershed, hydraulic infrastructure .