

1st Global

GEOTECHNICAL AND WATER RESOURCE ENGINEERING SUMMIT

September 18-19, 2017 Hong Kong

Numerical simulation of water demand in the Lobo watershed in the context of climate change (Central-West Côte d'Ivoire)

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The decline in rainfall in recent decades and the resulting decrease in surface water supplies have penalized many water-related development projects in the Lobo watershed. Due to the increased demand for water in this basin, there is now a problem of adequacy between available resources and current needs. The study was conducted using the Water Assessment and Planning (WEAP) model, which integrates several dimensions: Between water requirements and water supplies and between quantity and quality. Two scenarios were analyzed in this study: The possible increase in the population growth rate and the impact of hydraulic and hydro-agricultural developments on the dynamics of the basin. The results obtained indicate that the basin's water requirements amount to 45.67 million m³ in 2010. The annual supply deficit is 30.97 million m³. The total demand for the basin is 32.2%. This rate is not due to a shortage of resources but to a critical lack of hydraulic works. By 2025, estimates of the evolution of water demand for all uses in the basin forecast a 103.6% increase in the high population growth scenario. If the envisaged development strategies are implemented, the water supply from dam reinforcement with an annual flow of 15 million m³ will increase the coverage from 32.2% to 75%.

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