

Contribution of remote sensing and geophysics to water-drilling implementation in Kong (northeastern Côte d'Ivoire)

Kouassi Eric-Germain Kouakou^{1,*}, Abe Parfait Sombo², Diaratou Keita³

¹*Département de Géosciences, UFR des Sciences biologiques, Université Péléforo Gon Coulibaly de Korhogo, BP 1328 Korhogo, Côte d'Ivoire;* ²*UFR en Environnement, Université Jean Lorougnon Guédé de Daloa, , BP 150 Daloa, Côte d'Ivoire;* ³*Office National de l'Eau Potable, 04 BP 42 Abidjan 04, Côte d'Ivoire*

*E-mail: ericgermainkouassi@gmail.com

The need to refer to groundwater for the drinking water supply of cities has made it imperative to search for structures leading to high flows (more than 10 m³/h) in the crystalline formations of Kong. With the support of the National Office of Drinking Water (ONEP), two sites have been studied. The following methods have been implemented: 1) Remote sensing for mapping of lineaments that are assimilated to bedrock faults; 2) geomorphology and geophysics, which have focused on the analysis of the surface state of the preselected sites, their characterization, and the selection of borehole locations. The statistical processing of the map of lineaments obtained shows three main directions N130°-140°, N50°-60° and N30°-40°. The geophysical work allowed to reinforce the knowledge of the geological structure of the basement by the confirmation of the lineaments of direction N47°, N77° and N147°, the identification of fractures oriented N50°, N126° and N70° and by the characterization of fracturing zones favorable to the presence of crack aquifers. Drilling on the fracture N50° gave a flow rate of 16 m³/h with productive fractures at 24, 25, 28, 69, and 71 m depth, respectively. This has helped to overcome the water supply problem in Kong.

Keywords: fracture, remote sensing, drilling, lineaments, geophysics, Kong