



## Attempts to Answer on the Origin of the High Nitrates Concentrations in Groundwaters of the Sourou Valley in Burkina Faso

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### ABSTRACT

Within the framework of the contract of Sourou River, a survey of the groundwater quality was performed through 7 campaigns of water sampling and analysis from 2006 till 2012. The water samples resulted from 23 drillings and 9 wells located in the Sourou Valley. Among the analyzed physico-chemical parameters, the nitrates concentrations observed were worrisome. Out of 32 water sources, 14 (44%) supplied a nitrates content superior to the WHO threshold value for drinking water (50 mg NO<sub>3</sub>/L). Very high concentrations, superior to 500 mg NO<sub>3</sub>/L with a peak in 860 mg/L, were observed. Given the important variations observed from a sampling point to another, a generalized contamination of the total aquifer was not possible. An individual diagnosis allowed to identify the possible causes of this degradation. Several sources of contamination, in connection with the anthropological activities, were observed near the water facilities (drillings/wells): animal and human wild defecation, presence of nontight latrines, solid waste, wastewater discharges. It is also advisable to wonder about the impact of the dynamite use for digging wells, this one being able to leave nitrates in the water. With regard to the intensive use of water from the strongly contaminated wells and drillings by the rural populations of Sourou, implementing protection areas within which would be eliminated the sources of contamination in addition to health education among populations could improve the situation. Care should also be taken in the use of nitrates explosives for digging new wells or drillings.

### KEYWORDS

Burkina Faso; Sourou; Groundwaters; Nitrates; Pollution

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