# GROUNDWATER QUALITY ANALYSIS REPORT

## Kandal - Leuk Daek - Sandar (82F)

Sandar is located in the district of Leuk Daek. The population of this commune is approximately 3818 (2004). Groundwater sample collection occurred in September 2006 and consisted of the sampling of 20 tube wells throughout the commune. The attached figure presents the location of Sandar within Kandal as well as groundwater sample locations and exceedances of health-impacting contaminants (when applicable).

### Groundwater Quality Rating

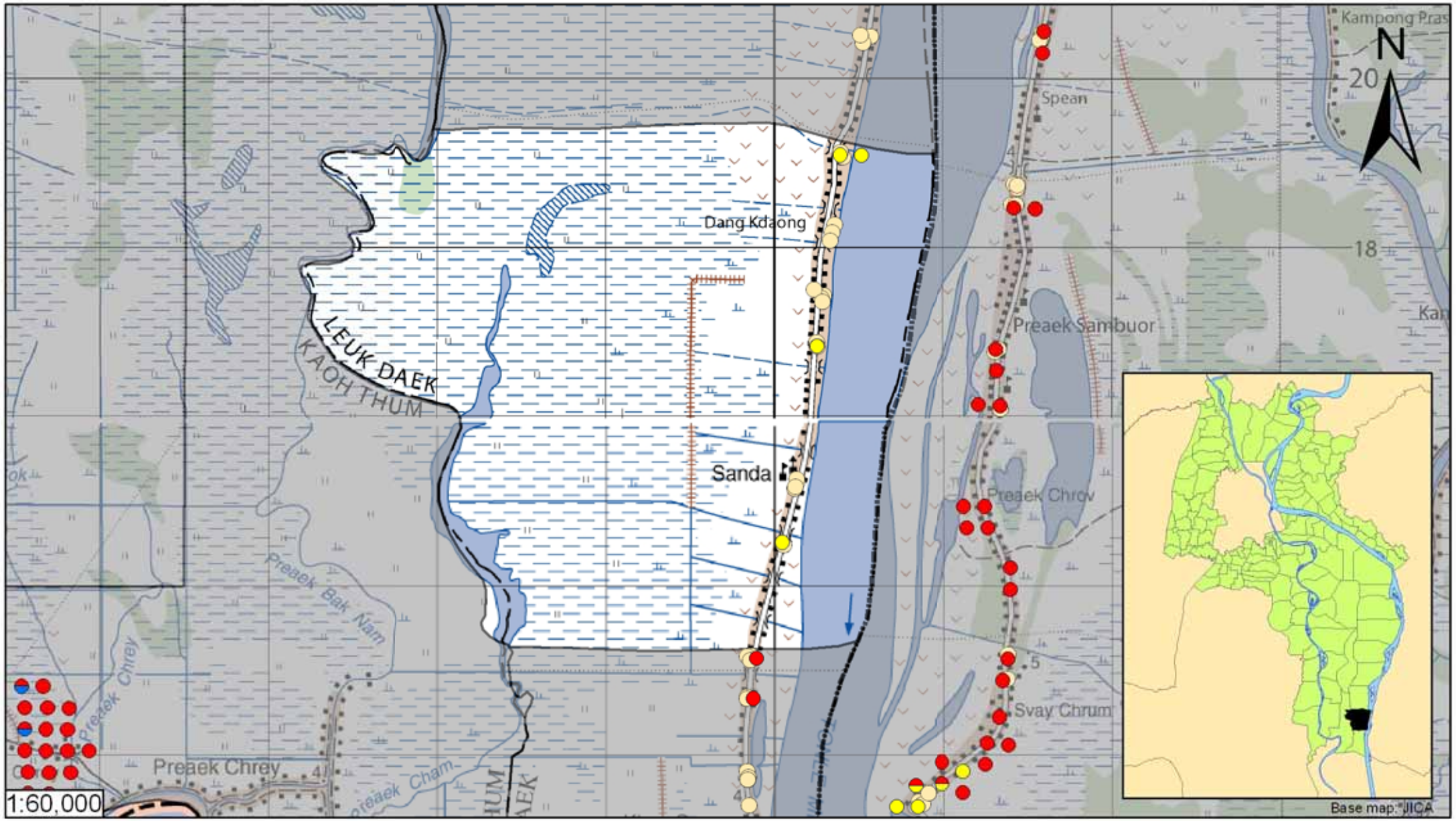
The groundwater quality rating for Sandar is 82F. Therefore, the general safety of deep aquifer groundwater is very good and the aesthetic quality of the water is poor, according to the contaminants measured and samples collected. The following two sections describe all major health and aesthetic contaminants that exceeded drinking water standards in at least one sample within the commune.

### Contaminants of Potential Concern – Health

Fluoride - Elevated concentrations of Fluoride were observed within the commune. The estimated probability of encountering unacceptable concentrations of Fluoride (>1.5 mg/L) in tube wells is 16%, based on the observed data. At concentrations greater than 1.5 mg/L, Fluoride can cause dental fluorosis and at concentrations greater than 4 mg/L, skeletal fluorosis can occur.

### Contaminants of Potential Concern – Aesthetic

Iron - Elevated concentrations of Iron were observed within the commune. The estimated probability of encountering potentially unacceptable concentrations of Iron (>1 mg/L) in tube wells is 98%, based on the observed data. At elevated concentrations, Iron causes water to be cloudy and unpleasant to drink. An odor may also be encountered at high concentrations. Iron can also stain laundry, food (can cause discoloration of cooked rice), and leave deposits. Aeration allows oxygen to enter the water and react with Iron to form a compound which is insoluble in water. The newly formed solids will slowly settle to the bottom or can be removed more rapidly by filtration. Performing these procedures may reduce the concentration of Iron in water but follow-up testing is recommended to ensure water quality standards are met.




No Exceedance

Arsenic

Manganese

Fluoride

Nitrate

Provincial Boundary

Commune Boundary

Locations exceeding the Cambodian water quality standards for major health-impacting contaminants have been colour-coded and arranged such that they do not overlap.

# Tube Well Sample Locations and Health-Based Exceedances

*Sandar - Leuk Daek - Kandal - Cambodia*

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