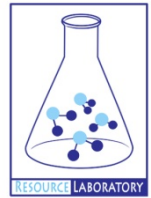




GROUNDWATER QUALITY ANALYSIS REPORT

Prey Veng - Sithor Kandal - Chrey Khmum (80F)



Chrey Khmum is located in the district of Sithor Kandal. The population of this commune is approximately 5200 (2004). Groundwater sample collection occurred in December 2007 and consisted of the sampling of 20 tube wells throughout the commune. The attached figure presents the location of Chrey Khmum within Prey Veng as well as groundwater sample locations and exceedances of health-impacting contaminants (when applicable).

Groundwater Quality Rating

The groundwater quality rating for Chrey Khmum is 80F. Therefore, the general safety of deep aquifer groundwater is 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

Nitrate - Elevated concentrations of Nitrate were observed within the commune. The estimated probability of encountering unacceptable concentrations of Nitrate (>50 mg/L) in tube wells is 16%, based on the observed data. Short-term exposure to elevated concentrations can cause blue-baby syndrome in infants.

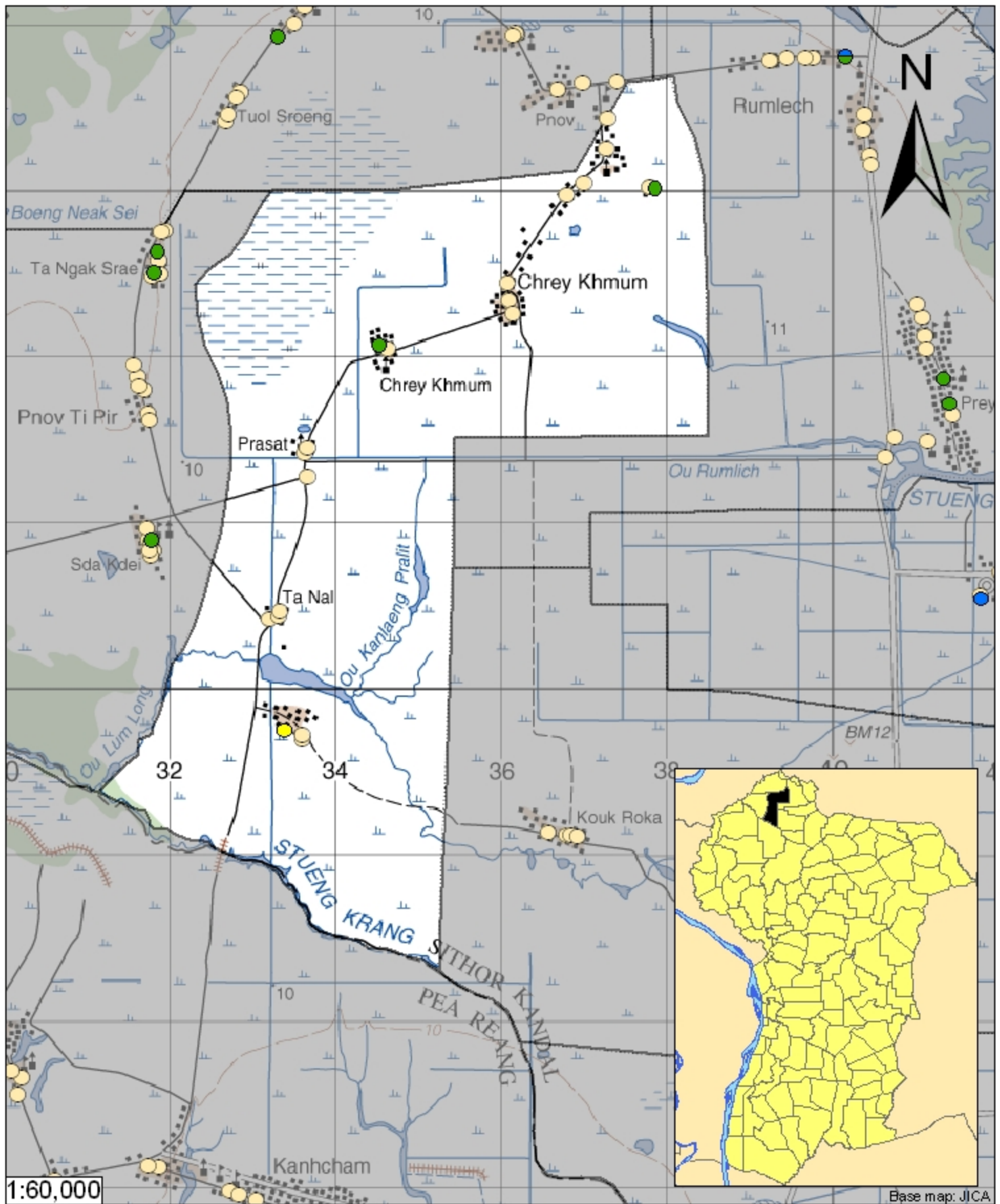
Fluoride - Elevated concentrations of Fluoride were observed within the commune. The estimated probability of encountering unacceptable concentrations of Fluoride (>1.5 mg/L) in tube wells is 10%, based on the observed data. At concentrations greater than 1.5 mg/L, Fluoride can cause dental fluorosis 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 68%, 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.

Hardness - Elevated levels of Hardness were observed within the commune. The estimated probability of encountering potentially unacceptable levels of Hardness (>500 mg/L) in tube wells is 1%, based on the observed data. Elevated hardness levels impact the effectiveness of soaps and detergents and can cause scaling on pipes and pans. Contrary to common belief, there is no relationship between consumption of hard water and urinary tract problems and kidney stones.



1:60,000

Base map: JICA

-  Arsenic
 -  Manganese
 -  Fluoride
 -  Nitrate
 -  No Exceedance
 -  Province 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

Chrey Khmum - Sithor Kandal - Prey Veng - Cambodia

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