

Drinking Water in oilfields of Sudan contaminated with brine

Singen/Germany – The analysis of eight water samples provided alarming results. The Sudanese Government must dramatically improve the quality of drinking water and avoid an ecological catastrophe.

The water from a water borehole in Rier, a small village in an oilfield of southern Sudan, is contaminated with **salts, strontium** and **nitrate**. The analysis of a water sample produced a total salinity (total dissolved solids - TDS) of 6,600.50 milligrams per litre water (mg/l). The water sample also contained strontium to the amount of 6.7 mg/litre and nitrate amounting to 81.6 mg/l. The US Environmental Protection Agency (EPA) recommends a total salinity (TDS) ranging up to 500 mg/l. The sample at hand exceeds this recommendation 13-fold. EPA's recommendation concerning nitrate is up to 10 mg/l. This very sample exceeds the recommendation eight-fold. A nitrate concentration amounting to 81.6 mg/l can have serious effects especially on young children. Infants below the age of six months who drink water containing nitrate in this dose could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

Sign of Hope's executive director, Reimund Reubelt, states: *"The extremely high salinity and the inconspicuousness of other water wells in the vicinity can only lead to the conclusion that the water of the borehole in Rier is contaminated with produced water, which derives from the oil extraction. We assume that the drinking water of Rier was contaminated with improperly disposed of produced water. This is a perilous threat not only to the local population of Rier. We also see a looming ecological catastrophe for the largest swamplands of the world. The Sudanese Government in Khartoum has brought the oil companies into the country. To secure public health the Government must now improve the quality of drinking water dramatically and at the same time prevent an ecological catastrophe."*

Usually when oil is extracted, large amounts of saline water are being injected into the subsurface to maintain the pressure of oil reservoirs, which enhances oil recovery. When oil is extracted, large amounts of brine are typically brought back to the surface. The brine or produced water is being segregated from the oil. Often saltier than seawater, produced water can also contain toxic metals and radioactive substances. It can be very damaging to public health and the environment if it is discharged to surface water or injected into underground sources of drinking water. Presently, for each barrel of crude oil produced, approximately 9 barrels of water also are produced.

Rier is located at the edge of the Sudd in the oilfield of Thar Jath. Since several years crude oil is being extracted in this area by the White Nile Petroleum Operating Corporation (WNPOC).

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39 percent of WNPOC are being held by Petronas. In the oilfield of Thar Jath the Chinese drilling companies Great Wall Drilling Company (GWDC) and Zhongyuan Petroleum Exploration Bureau (ZPEB) are also operative. A newly erected refinery, only 6.5 kilometers away from Rier, became operative just a couple of weeks ago. The Sudd is the largest swamplands of the world. A Sign of Hope panel, led by Klaus Stieglitz, took eight samples of water in order to assess the water quality around Rier. The samples were analyzed scientifically in Germany.

During the panel's stay in Rier a young girl was complaining about the bitter taste of water there. "We do not even wash our clothes with this water, as the colours fade away and the fabrics are being destroyed," she said on February 13. The Commissioner of Koch, Peter Bol Ruot, confirmed that in the year 2006 a total number of 27 adults and three children died as a result of the consumption of contaminated water. Ruot said that at the moment up to 1,000 people have fallen sick for the same reason.

Sign of Hope is a German-based interdenominational organisation for human rights and humanitarian assistance. The organisation has Special Consultative Status with the Economic and Social Council of the United Nations.

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