

WWCH 2017 PROBLEM DESCRIPTION

Problem Title

Water scarcity and saline groundwater affecting local community of Kojani

Contact Information

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1. Basic information

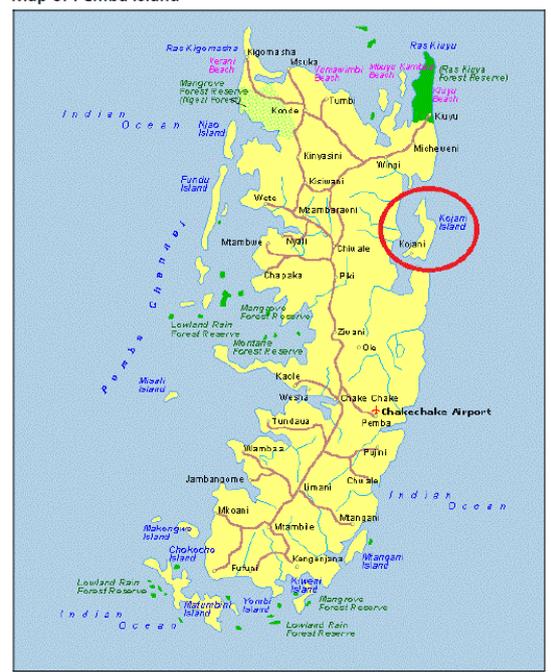
Location: Kojani town, Kojani Island (part of Pemba Island,) Zanzibar, Tanzania

Zanzibar is an island state belonging to Tanzania (semi-autonomous), located in the Indian Ocean and composed by two main islands (Unguja and Pemba). **Pemba** is located about 40km to the north east of Unguja with an area of 1'537 km² and a population density of 428 km². According to the 2012 national census, the population in Pemba was 406'848. The main source of income is agriculture with over 80% living in rural areas and tourism (Hansson, 2010).

Kojani Island is about 7 square kilometers and located in the district of Wete of the Pemba Island. The population is about 15'000 inhabitants concentrated in the main town called **Kojani** (Bezzi, Trombino and Zolezzi 2015).

The island has an equatorial climate and is characterized by two rainy seasons with drier periods in-between. The rainfalls are about 1600mm annually (Hansson, 2010).

Map of Pemba Island



Source : <http://pembafoundation.org/where.php>

2. Water Circumstances (Optional)

Groundwater is the primary source of freshwater in Zanzibar whose level varies according to the rainfalls. Another small source of water comes from the in-land rivers which flow to the groundwater. There are also several natural caves filled with water (pipe system to the villages). According to the 2008-2013 ZAWA (Zanzibar Water Authority) Strategy Business Plan, Zanzibar has 110 wells. 76 in Unguja and **34 in Pemba** (Said S. Ufuzo, 2012). The most common source of freshwater in the villages is water wells. It's the easiest and cheapest way to get water. During the rainy season, people use a lot the rainwater, but only for dishes and laundry.

Water supply in Kojani is very critical due to the inadequacy and insecurity of the water supply:

- Drinking water is pumped from a 60 feet-deep aquifer through a pumping station located in the nearby Pemba Island to Kojani Island where is not convenient to dig boreholes due to the hard rock aquifer and contamination of freshwater (seawater intrusion)

- The pumping station in Pemba also provides water for several other villages, so the amount of water for Kojani island is reduced

- The existing piping scheme, connecting Kojani Island to Pemba's pumping station, is too small to provide enough water for 15'000 inhabitants (Bezzi, Trombino and Zolezzi 2015).

3. Problem description

Kojani Island suffers in terms of water supply, sanitation and hygiene. The supply of water is especially dependent of Pemba Island.

The main source of drinking water in Kojani area is groundwater where the biggest problem is the **salinity**.

Contamination of the water is a second problem due to the lack of sewage system. Since there is no sewage system, the villagers use soak-pits as toilets, located inside or near their house and it leaks into the groundwater. The water wells are also contaminated by decomposing organic (leaves, small animals, or other dust) which falls in.

The local population has come up with ideas of collecting water that are not hygienic and harm the natural environment, for instance: a) collecting water in Pemba using unclean plastic buckets and transporting it to Kojani by wooden boats; b) using shallow open wells where the water is polluted due to environmental contamination and saltwater; c) collecting water from surface ponds which are usually use for animals and domestic purposes.