

IAH network on “Coastal aquifer dynamics and coastal zone management” QUESTIONNAIRE

IAH national committees, IAH members and non members from all around the world involved in SWI and SGD research and management are kindly asked to fill in the questionnaire in this page with as many details as possible.

A world database will be set up and made available, with basic coastal aquifer main characteristics.

We expect to gather standard and comparable information on the knowledge level and hopefully the state of the art of the research on SWI and SGD, and coastal aquifer management methods adopted around the world.

1)	Location of aquifer (country, more specific location):	Dar Es Salaam, Tanzania
2)	Reported by:	
3)	Type of medium (karst, porous, fracture)	porous
4)	Type of aquifer (phreatic or confined)	Multi-layered: upper aquifer is phreatic, lower is confined. They are separated by a clay aquitard.
5)	Main lithology - (e.g. gravel, sand and clay)	Multi-layered: upper aquifer (Pleistocene to recent): unconfined, mainly fine sand to medium sand with silts and clay, coral reef limestones and calcareous, alluvial clay, silts and gravels (“white buff sands”); aquitard: clay, sandy clay; lower aquifer: semi-confined, medium to coarse sand and gravels with clay; aquitard (Mio-Pliocene): clay-bound sands and gravels (clay), dolomite, calcareous
6)	Hydrochemistry: fresh or saline	Brackish, brackish-salt
7)	Saltwater intrusion: lateral from sea or lakes - upconing	Lateral from sea
8)	Aquifer geometry: hydraulic characteristics	Multi-layered, total thickness 0-150 m: upper unconfined aquifer 5-50m, aquitard 10-50m, semi-confined aquifer 100m; lower aquitard ≈1000m. Sandy aquifer with medium to high permeability, clay-bound sands has low permeability
9)	Aquifer parameters: storage - annual water pumping - (in MCMA - millions cubic meters, annually)	MCMA 8.6x106 m3/y
10)	Depth of aquifer (water level and bottom) - water level 5- 30 m - aquifer depth - 50-200 m	water level 20 m asl aquifer depth 150 m
11)	Major chemistry (anions - ?; Cations - ?):	Chloride, sodium, calcium
12)	Major salinity sources:	Saltwater intrusion
13)	Population:	4.364.541 abitants (Official 2012 census, United Republic of Tanzania)
14)	Aquifer status: special features - e.g. thermal springs, major faults,...	
15)	Investigation methods - e.g. water level measurements, EC (electrical conductivity profiles), TDEM (geophysical),	
16)	Numerical hydrological modeling, chemical and isotopic methods, age determination, IR survey, seepage meters (for Submarine Groundwater Discharge, SGD)	Hydrogeochemical methods: Schoeller diagrams, scatter diagrams of principal ions, correlation matrices of principal ions, Stuyfzand classification
17)	Monitoring methods applied and duration - water level measurements, EC (electrical conductivity profiles - seasonal)	Campaign 2005 (JICA); Campaign 2007 (Mjemah): pumping tests for 39 BH in 2004 and 2005, SWL in 84 BH in August 2004-2005-2006, chemical analysis for 50 samples; Campaign 2009 (Mjemah) pumping tests on 39 borehole; Campaign August 2009 (Mtoni,Mjemah): chemical analysis of 56 samples. Campaign 2010 (Faldi): 6 profiles of SWL, EC, temperature, density, using multiparametrics probes, 15 puntual measures of EC, TDS, temperature (Faldi,2010). Campaign 2012 (Working Paper, Sappa et al.): twice in 6 months (June 2012, November 2012), long-term monitoring activity involving a 79 borehole network: SWL measure (using contact meters), physical parameters in situ measure (using multiparametric probes): T, pH, EC, TDS, chemical parameters laboratory analysis of collected water sample. Monthly (September 2012, October 2012) monitoring activity involving a 33 borehole network: SWL measure (using contact meters), physical parameters in situ measure (using multiparametric probes): T, pH, EC, TDS (Sappa et al.2013).
18)	Management methods:	
19)	Aquifer management actions:	No one
20)	Identification of existing or potential problems:	
21)	Annexes:	
22)	Observations:	