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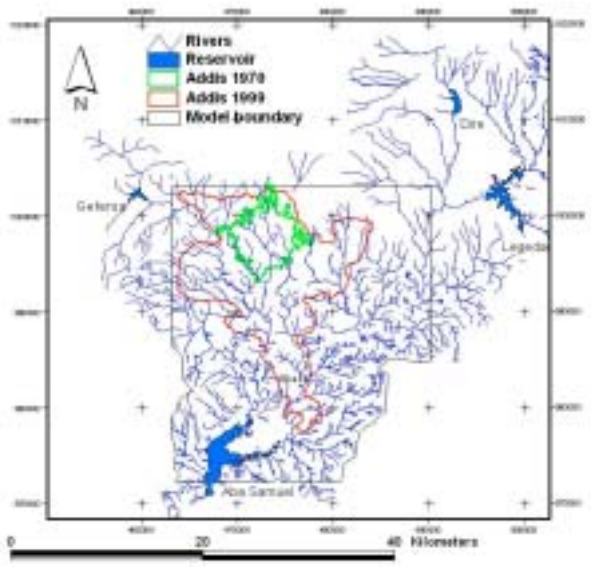
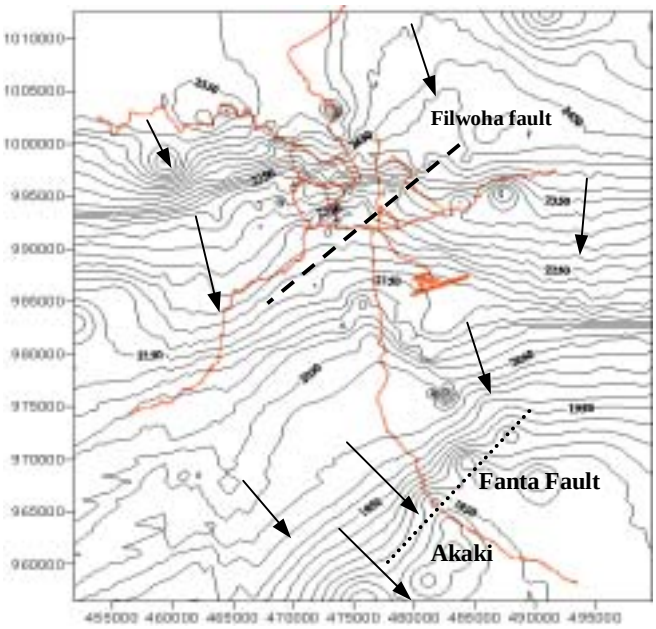
UNECA/ECA

March 2005

EARLY WARNING BULLETIN No. 4 ON SURFACE & GROUNDWATER QUALITY, ADDIS ABABA, ETHIOPIA



In the year 1970 the size of the city was 37.4 km^2 while in 1999 it reached 230.35km^2. Within three decades the city expanded for 129.95km^2. The rate of urban increase was 6.65 km^2/yr, which demanded huge volume of water supply for urban use.

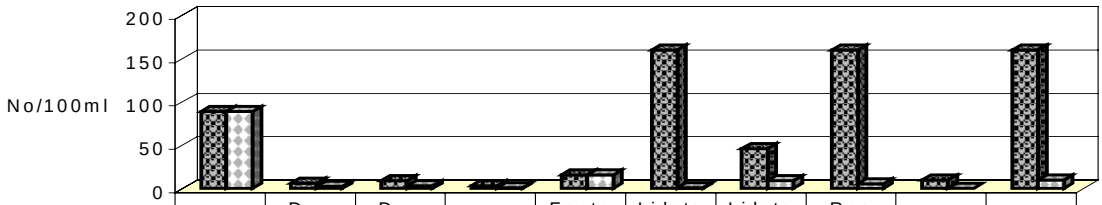


Groundwater contour lines in the intensively fractured volcanic aquifer in Addis Ababa (Numbers indicate SWL elevation a.s.l, arrows indicate flow direction)

Travel time required by bacterial to reach groundwater located in average 50m below ground surface in Addis Ababa ranges from 2.5 to 4 hours. This could be true during rainy months and need appropriate attention by groundwater users. For successful bacterial control, pit latrines should be located 2 km away from water supply wells.

Jan 2005	Little Akaki up stream	Little Akaki Down stream	Big Akaki Up stream	Big Akaki Down stream	Lideta River
Tot. Coliform/100ml	2.4 x 10^4	3.5 x 10^6	170	5.4 x 10^5	5.4 x 10^6
E. Coli/100ml	2.4 x 10^5	3.5 x 10^6	2	2.4 x 10^5	5.4 x 10^6

Total Coliform and E. Coli in major surface water of the city, note that bacterial population increase down stream due to urban waste.



	Bh	Dug well	Dug well	Bh	Fanta Sp	Lideta sp	Lideta sp	Ras Mekon	Bh	Bh
Total Coliform	89	6	9	3	16	160	46	160	10	160
E. Coli	89	2	3	1	16	1	9	5	0	10

This figure indicates Bacterial concentration in various groundwater bodies (Springs, boreholes and dug wells). The quality of groundwater in Addis Ababa is influenced by the quality of surface water (rivers) and availability of pollution sources near by the water points.

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