

Wastewater Production, Treatment, and Agricultural Use in Ethiopia: The Case of Addis Ababa

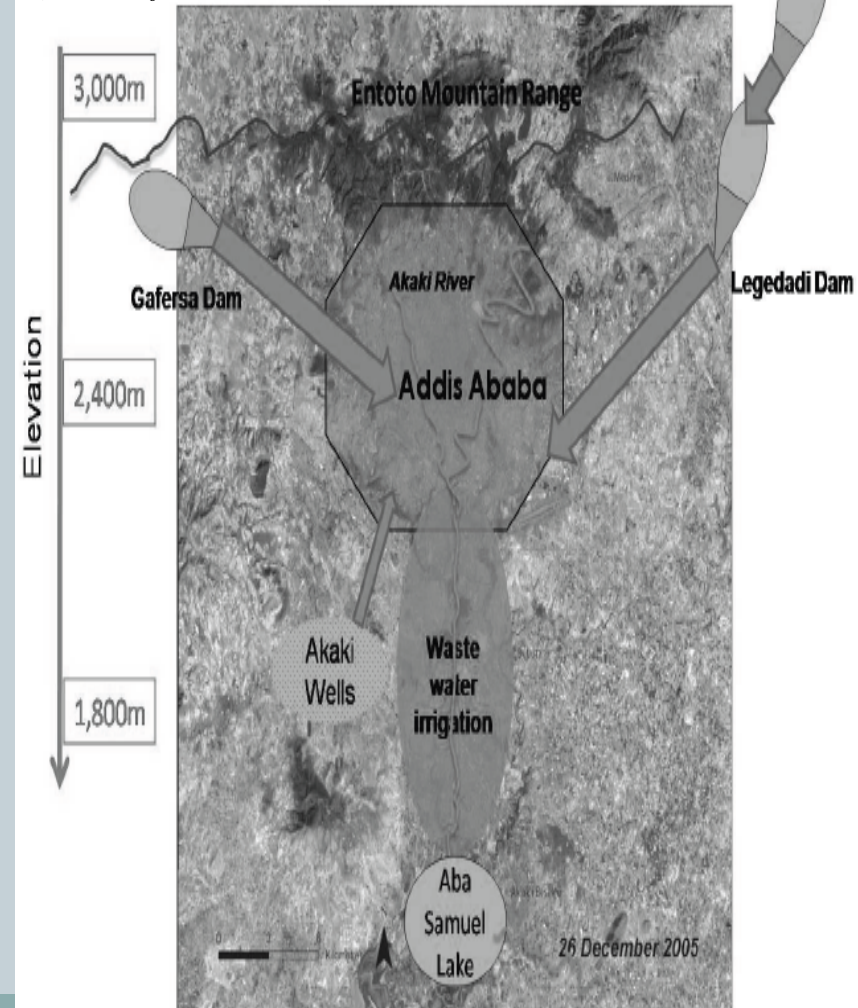


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Wastewater production and treatment

- Addis Ababa generates an estimated annual volume of 49Mm³ total wastewater from which about 4Mm³ is industrial wastewater (*Van Rooijen et al., 2009*).
- Addis Ababa has two secondary sewage treatment plants and a centralized sewerage system /Sewer line
 - Kality treatment plant, runs under its designed capacity of 7,600 m³/day
 - Kotebe -Sludge treatment capacity- of 85,000 m³/year
 - Less than 10 % is connected to the Sewerline
- The treatment involves circulation of sewer in various ponds for about 30 days in order to make the level of BOD fall below 5 mg/L (Mohammed, 2007).

water links of Addis Ababa with surrounding rural areas
(*Van Rooijen et al., 2009*)



Source: Satellite image downloaded from UNEP website,

Wastewater use and/or disposal



- Since the 1940s, a variety of vegetables have been produced within and around the city, mainly using water from the Akaki River (troubled water)
- The irrigation is carried out informally by smallholders without conventional irrigation infrastructure
- The major vegetable crop grown in the schemes are lettuce, Swiss chard, carrot, kale, cabbage, potato, zikuni (cucumber), cauliflower, beans, tomato, pepper and onion.
- They provide about 60% of the vegetables on the cities' vegetable markets
- provides their main source of household income

Regulations and implementation of guidelines



■ Institutions Involved:

- Addis Ababa Water Supply and Sewerage Authority (AAWSSA).
- Ministry of Water and Energy (MoWE), Ministry of Health (MoH) and Environmental Protection Authority (EPA) are mainly
- Ministry of Agriculture (MoA) and the Urban Agriculture Department under the Addis Ababa City Administration .

➤ Policy :

- No Urban agriculture policy

➤ Regulations & Guideline :

- Informal irrigation practices- with untreated wastewater
- Guidelines and regulations are not practiced
- weak enforcement mechanisms on pollution prevention and control

Challenges

- Despite the great importance of the Addis Ababa peri-urban informal agriculture as food source for the urban community and as income generation means for the poor dwellers, it is subject to numerous constraints and is causing high health risks.
- Some of the main constraints /Challenges are :
 - lack of policy and strategy on the safe use of wastewater in agriculture,
 - Poor sanitation coverage/low level of awareness on waste management,
 - High investment cost needed for treatment plants
 - insufficient access to non-contaminated or clean water,
 - health problems resulting from the usage of contaminated and polluted water,
 - poor water use efficiency, and lack of skilled technicians for promoting and training urban agriculture skills.
 - weak enforcement mechanisms on pollution prevention and control and
 - low level of income of the city dwellers have aggravated the pollution problem

Government's approach to wastewater management



- Addis Ababa currently has two secondary treatment plants that are in operation. Following
- The treatment capacity expansion plans (NEDECO 2002) the wastewater treatment fraction will increase from 30% by 2008 to 53% by 2020 if funding for the project can be secured.
- **Wastewater generation and treatment in Addis Ababa for 2008 and** *(Van Rooijen et al., 2009)*

	2008	2020
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Possible solutions



- Holistic, Multi-sectoral approach is needed to tackle the multilateral problem
- Projects that aim to boost water supply should incorporate measures that account for the impact of increases in wastewater flows on the environment and downstream agricultural and domestic uses.
- Industrial pollution control measures are needed to mitigate further contamination of water, soils and crops with especially heavy metals.
- Capacity building should be done in the following areas:
 - Institutional Strength/ Financial & Technical
 - Public awareness on sanitation & waste disposal both solid & liquid
 - wastewater treatment and non treatment options for use in agriculture
 - Health risk assessment, health protection measures and monitoring system
 - Water use efficiency and crop production aspects



Thank You !