Water Pollution and Sanitation Problems: The African Challenge

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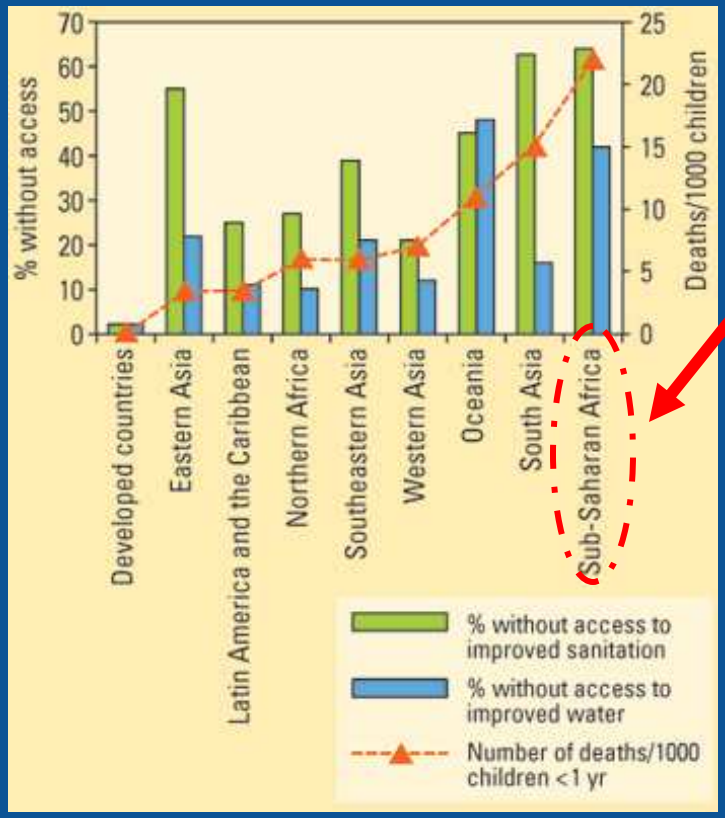
UN Millennium Development Goals Related to Water and sanitation Issues

Target date 2015

- **Reduce the proportion of people without access to safe drinking water by 50% (~17% of the global population)**
- **Reduce the proportion of people without access to basic sanitation by 50% (~38% of the global population)**



Most severe conditions are found in sub-Saharan Africa, where 42% of the population is without improved water, 64% is without improved sanitation, and death due diarrheal diseases are greater than in any other region ***(WHO, 2004; Montgomery and Elimelech, 2008)***

CURRENT STRATEGIC/POLITICAL FRAMEWORK

The African Union (AU)

African Ministerial Council on Water (AMCOW)

- Compilation of key water portfolios for the five sub-regions of Africa
- Establishment of the Rural Water and Sanitation Initiative (RWSSI) for Africa which targets attainment of 80% access to rural water supply and sanitation by 2015.
- The African Ministers Initiative for Water, Hygiene and Sanitation (AMIWASH)

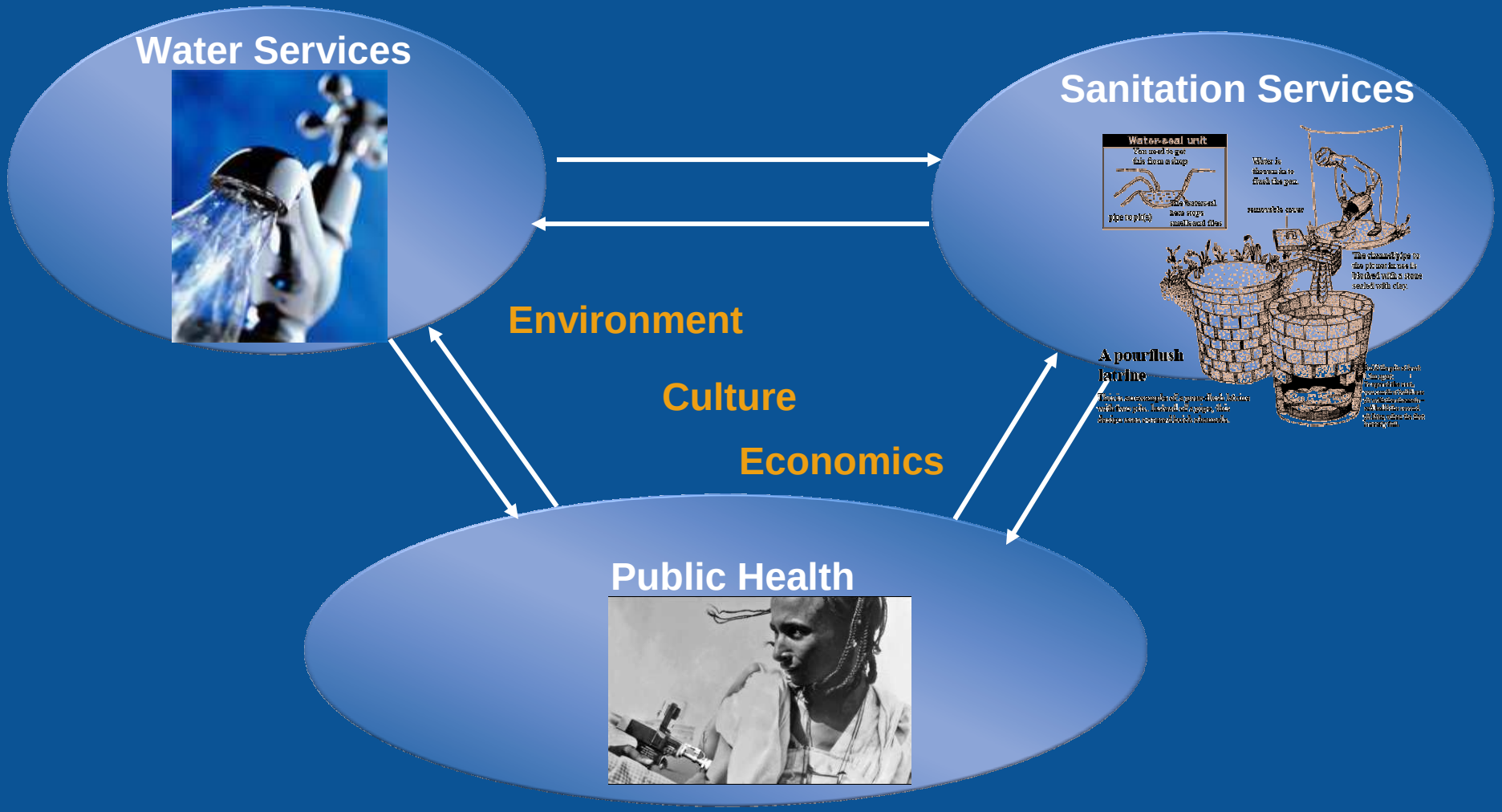
THE AFRICAN CHALLENGE:
WATER POLLUTION AND SANITATION PROBLEMS

1. **Half-way towards the 2015 UN Millennium Declaration deadline, progress in many African countries with regard to MDGs remains behind schedules**

2. **Water and sanitation issues are being tackled. A slight improvement is seen in a number of African countries, but the benefits of water and sanitation services remain minimal and could be significantly expanded**

3. **From a political point of view – the main obstacle = $$$. However increasing funds alone is not the solution**

1. THE PARAMETRIC EQUATION OF WATER, SANITATION, AND PUBLIC HEALTH PROBLEMS



- **Collaborative Approach: Implementation and long-term maintenance**
- **Community-based research: Identification of factors that lead to adoption (knowledge based approaches) → sustainability → health gains**

2. WATER POLLUTION BY TOXIC CHEMICALS

The "*New Gold Rush*" in Africa: A Potential "*time bomb*"

- Gold mining activities along rivers
- Uses metallic mercury (Hg^0) in Amalgamation Processes
- Mercury oxidation ($Hg^0 \rightarrow Hg^{n+}$), methylation ($H_3C\text{-}Hg^+$), and bioaccumulation/biomagnification in food chains
- Acute and chronic toxic effects

EXAMPLE SITES

- Ghana (Pra River Basin)
- Sudan (Nile River)
- Tanzania (Lake Victoria)
- Zimbabwe (Zambezi River)