

RESEARCH PAPER BY RICHARD ATTIAS & ASSOCIATES

TASKFORCE SESSION Scheduled for: August 29, 14.30

WATER AND SANITATION

Powered by Africa Caucus, Harvard Kennedy School

Session overview

Despite the discovery of significant underground aquifers in several regions of Africa, as much as 40% of the continent's population lacks access to clean water. People in rural areas are worst affected with only a quarter of the rural population in sub-Saharan Africa having access to proper sanitation. It is estimated that every \$1 spent on water and sanitation generates \$4 in increased economic opportunity. Are there ways to jumpstart water infrastructure? How can the public and private sectors work together to solve Africa's water dilemma?

"Anyone who can solve the problems of water will be worthy of two Nobel Prizes - one for Peace and one for Science" – John F. Kennedy

Current situation

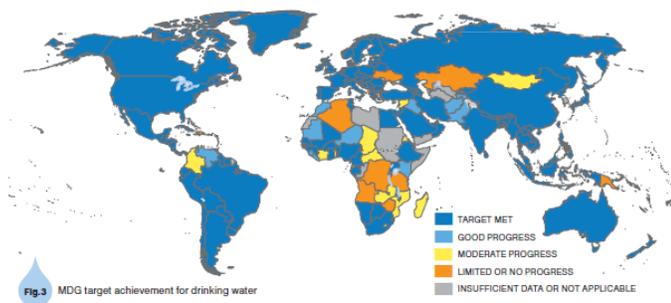
Despite the discovery of significant underground aquifers in several regions of Africa, as much as 40% of the continent's population lacks access to clean water. People in rural areas are worst affected with only a quarter of the rural population in sub-Saharan Africa having access to proper sanitation. It is estimated that every \$1 spent on water and sanitation generates \$4 in increased economic opportunity. Are there ways to jumpstart water infrastructure? How can the public and private sectors work together to solve Africa's water dilemma?

Regional challenges

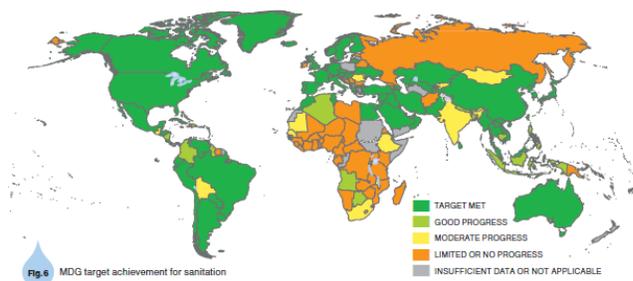
A core component of the soon-to-expire Millennium Development Goals, access to fresh water has been central to the development discourse for many years. While the global MDG goal of increasing the population with access to improved sources of drinking water was met (91% of the world's population has access to improved sources of drinking water), the world has fallen short on its sanitation target,

leaving 2.4 billion people without access to improved sanitation facilities¹. The African continent has failed to meet both safe drinking water and basic sanitation MDG targets: only 62% of Africans have access to safe water and 60% have adequate sanitation². These are the lowest regional percentages in the world. Today, more than 300 million Africans do not have access to safe drinking water and the results are striking. Water security is essential for growth and poverty reduction and has positive knock-on effects with other sectors and important linkages to the other MDGs (soon to be re-launched as the Sustainable Development Goals).

147 countries¹ have met the MDG drinking water target



Only 95 countries have met the MDG sanitation target



The current endemic African water and sanitation crisis has repercussions on public services such as healthcare and educational access – particularly for rural communities and women and children – which in turn limits economic growth prospects. Water scarcity negatively impacts on productivity and income due to extra time spent to get water or extra costs of abstraction (e.g. deeper boreholes).

In addition, African countries are urbanizing fast, putting additional strains on scarce urban water resources. The World Bank estimates that African cities are urbanizing at a rate of 3.9% per year; by 2030, 50% of the continent’s population will be living in urban areas (654 million people)³. As a result, demand for clean water in Africa is expected to quadruple by 2035⁴, faster than any other region in the world and faster than the population growth rate. The increase in annual water demand is expected to be 283% between 2005 and 2030⁵, stemming from greater industry, agriculture and power needs. At the same time, the water supply is shrinking and water quality is deteriorating as countries rely on resources that are further away and more expensive, where groundwater resources are often threatened by poor sanitation. The annual per capita availability of water is 4,000 m³ per person vs. a global average of

¹ WHO / UNICEF Joint Monitoring Programme

² [Water and Sanitation Program](#)

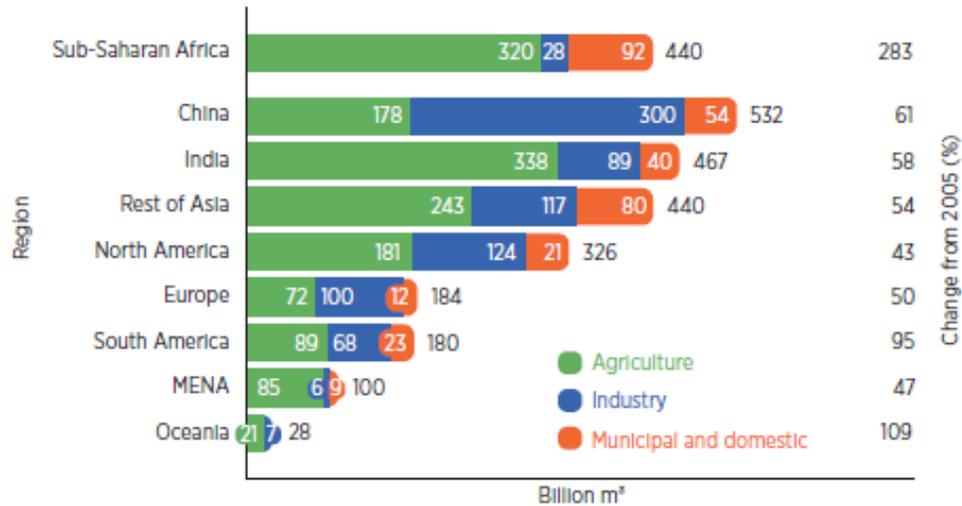
³ [World Bank Future of Water in African Cities Report, 2013](#)

⁴ [2030 Water Resources Group](#) (McKinsey, World Bank, IFC et al.)

⁵ [2030 Water Resources Group](#) (McKinsey, World Bank, IFC et al.)

6,500 m³ per person⁶. These factors have led to a fast growing demand and supply gap when it comes to water provision.

Figure 1.7 Increase in Annual Water Demand (2005 to 2030)



Source: World Bank, based on 2030 Water Resources Group, 2009.
 Note: MENA: Middle East and North Africa. m³ = cubic meters.

If managed properly, there can also be a range of productive opportunities for investments in water: investments in water for agriculture, hydropower and industry can be seen as drivers of economic growth. The 2012 discovery by the British Geological Society of vast aquifers of groundwater totaling 0.66 million km³ (100x the amount found on the surface of the continent)⁷ also presents an opportunity for greater supply of fresh water on the continent if accessed in a sustainable method. However, there are a large number of shared watersheds, which increases transboundary competition between states for these limited resources.

Finally, the World Bank argues that to date African cities have not been fiscally strong enough or self-sufficient to manage their water resources. Building safe drinkable water sources and distribution networks is costly (well drilling, water treatment facilities, pipes) and competent operating protocols have often been lacking. The result has largely been underinvestment, inadequate maintenance and often a deterioration of water assets.

⁶ World Bank Future of Water in African Cities Report, 2013
⁷ MacDonald et al., 2012, Environmental Research Letters

Main issues to be solved

- Improving access to water as a human right: the UN defines access to water under the following 5 categories ⁸
 - **Sufficient:** the WHO suggests that between 50-100 liters of water per person per day are required to ensure that basic needs are met and few health concerns arise
 - **Safe:** water must be free from micro-organisms, chemical substances and so on that pose a threat to a person's health
 - **Acceptable:** water should be of an acceptable color, odor and taste for personal or domestic use. All water facilities and services must be culturally appropriate and sensitive to gender, lifecycle, and privacy requirements.
 - **Physically accessible:** according to the WHO, a water source should be within 1,000 meters of the home and collection time should not exceed 30 minutes.
 - **Affordable:** water facilities and services must be affordable for all. The UNDP suggests that water costs should not exceed 3% of household income.

- Secondary cities are equally at risk but less equipped to manage the water scarcity complexity (even though 38% of urban demographic growth in the next 15 years is predicted to occur in cities of under 1 million people)⁹.

Recommendations from the World Bank, African Development Bank and the UN:

- (i) Promote sector reform, improved governance and the development of country-owned roadmaps; (ii) assist countries in developing sustainable financing strategies to implement large scale programs; (iii) provide capacity-building and vocational support to regional and national policymakers and service providers to operate these systems (*Water and Sanitation Program*)
- (i) enhance mutual accountability, (ii) improve monitoring & evaluation, and (iii) promote decentralization (i.e. ownership and partnership of water management at the local level) (*Building Partnerships for Sustainable Water and Sanitation Services in Africa, World Bank, African Development Bank, Water and Sanitation Program*)

⁸ [United Nations](#)

⁹ [World Bank Future of Water in African Cities Report, 2013](#)

- (i) diversifying sources to provide better security (for example, increased reliance on groundwater), (ii) sustainable financing – including adequate cost recovery from tariffs or taxes, (iii) adapting water that is fit for purpose (matching quality to intended use – for example recycled greywater use for toilet flushing or gardening) (*Future of Water in African Cities, World Bank*)
- Enable public-private partnerships between governments and private operators to bring the needed capital, expertise and technology to improve access and quality of services and to manage and share risks of these operations (*International Finance Corporation, World Bank Group*)
- Roll-out pay-as-you-go solutions for access to water with the right mix of working capital, efficient distribution networks and partnerships with mobile operators to strengthen last-mile delivery channels (*The Synergies between Mobile, Energy and Water Access: Africa, GSMA*)

Issues for debate

Water is central to development prospects, just as it has been the source of many woes. With rapid urbanization, institutional, technical and investment decisions will impact the ability of these cities to cope. These are some issues to debate how we can make access to water sustainable and safe:

- Whose responsibility is it (regional, national, local governance structures – centralized or decentralized facilities)?
- Old vs. new: how to secure water access in new distribution networks as well as in existing networks? How to improve operation and maintenance of the systems?
- Is there room for innovation in developing countries (Leapfrogging? Low cost solutions? Lessons learnt from other regions?)
- What further synergies exist between mobile technology, energy and water access (e.g. pay-as-you-go solutions)?
- What is the role of international donors and aid in support of the private and public sector?

Forum Flashback

The taskforce on water from NYFA 2014 included the following speakers:

- *Kala Fleming, Water Research Scientist, IBM Research-Africa Lab (Kenya)*
- *Grant Gibbs, Executive Director, Hippo Water Roller Project (South Africa)*
- *Olivier Mukoko, Director General, Department of water Resources (Gabonese Republic)*
- *Paul Wood, Managing Director Africa and Arabian, Waterfund (UAE)*
- *Moderator: Mel Brooks, Senior Finance Lecturer, Henley Business School (South Africa)*

Key Interventions - The taskforce proposed the following interventions:

1) Development and adoption of suitable technology and solutions

The development and adoption of solutions and technologies specifically tailored to meet African conditions has been suggested as a feasible method to alleviate water access challenges. In this context it is important that the technologies applied are suitable for the conditions in the geographies in which they are used. Furthermore, these technologies should be maintenance-light, durable and affordable.

2) Improvement of water governance

In order to curb the wasting of water and financial resources, a more appropriate set of regulations is required that ensure the transparent management of funds and improve the accountability of companies involved in the management and provision of water.

3) Government incentives

In order to encourage private sector participation in the water sector, governments are well advised to provide incentives to private sector players. The reduction of taxes imposed on private sector companies involved in the water sector is a feasible way to also reduce the cost of water to consumers.

4) Human capital development

In order to make the proposed intervention workable and in order to implement them, investments in human capital development are required. Training and education programs targeting the water sector have to be developed and introduced.

Summary prepared by Claire Hassoun (Master in Public Administration graduate) and Amandine Lobelle (Master in Public Policy candidate) of the Africa Caucus, Harvard Kennedy School of Government.