A RAPID RESPONSE ASSESSMENT

GREEN HILLS, BLUE CITIES

AN ECOSYSTEMS APPROACH TO WATER RESOURCES MANAGEMENT FOR AFRICAN CITIES



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GREEN HILLS, BLUE CITIES AN ECOSYSTEMS APPROACH TO WATER RESOURCES MANAGEMENT FOR AFRICAN CITIES

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JOINT STATEMENT



The challenge of providing safe water and adequate sanitation will be aggravated by unchecked climate change and rising urban populations.

Africa's urban population is projected to triple to over 1.2 billion by 2050 in cities already challenged in many places and in many ways by shortages of safe drinking water and inadequate sanitation services.

Access to clean drinking water and sanitation is perhaps one of the most important Millennium Development Goals because of its links to human health and the ability of people to carry out productive employment. It is also linked to gender and the nutrition of women and as well as their role in collecting water for families and communities.

Child mortality is also inextricably linked to water. Globally, at least 1.8 million children under the age of five years, or one every 20 seconds, die every year from water-related diseases. On the overall more people die from water-related diseases than are killed by all forms of violence including wars. Thus access to clean water is in many ways a pre-requisite for sustainable development.

The challenge of providing safe water and adequate sanitation will be aggravated by unchecked climate change and rising urban populations. As the world prepares for the UN Conference on Sustainable Development in 2012, 20 years after the Rio Earth Summit of 1992, water and urbanisation need to be key issues on the sustainability radar.

There is strong and growing evidence that a Green Economy, within the context of poverty eradication and sustainable development, can accelerate and scale-up delivery of these services if countries and communities commit themselves to managing the use and the sources of water such as forests, wetlands and other ecosystems central to this sustainability equation.

Creative and forward-looking policies, alongside partnerships across all sectors including agriculture, will also be key to sustainability.

This report, jointly produced by UNEP and UN-HABITAT in collaboration with the Africa Ministers' Council on Water (AMCOW) and funded by Tongji University, the Ministry of Science and Technology of China and Bayer Foundation, shows that there is a way forward for a more sustainable future where restoration of ecosystems, often in the green hills and watersheds surrounding cities, can provide cheaper, efficient and resilient water supply systems in a changing world.

Launched in Cape Town, a South African city surrounded by green hills that support water supplies to that city, it is our hope that World Water Day 2011 can provide a fresh vision for cities across Africa and beyond.

Achim Steiner	Joan Clos
Executive Director, UNEP	Executive Director, UN-HABITAT

SUMMARY

Africa is currently the least urbanised region in the world, but this is changing fast. Of the billion people living on the African continent, about 40 per cent lives in urban areas. The urban population in Africa doubled from 205 million in 1990 to 400 million in 2010, and by 2050, it is expected that this would have tripled to 1.23 billion. Of this urban population, 60 per cent is living in slum conditions. In a time of such urban growth, Africa is likely to experience some of the most severe impacts of climate change, particularly when it comes to water and food security. This places huge pressures on the growing urban populations.

Over the last 50 years, many African cities have grown from villages to large agglomerations. To date there are 48 cities with over a million inhabitants in the region. Lagos and Cairo have population figures exceeding 10 million.

The primary driver of the continent's urbanisation is economic activity, for example, oil in countries such as Angola, Gabon, Libya, Cameroon, Algeria and Nigeria; minerals in Botswana, Democratic Republic of Congo and Zambia; or small industries and agro-business in countries such as Côte d'Ivoire, Kenya, Tunisia and Zimbabwe. In Mauritania drought conditions provided the driver of urban growth, while it was civil war in the 1980s in Mozambique that resulted in the country's rural people seeking safety in the urban areas.

The high rate of urbanisation in Africa has not been matched with improvement in service delivery, resulting in inadequate access to safe drinking water and sanitation. The urban population without sanitation services in Africa doubled from 88 million in 1990 to 175 million in 2008. This trend is repeated for the provision of safe drinking water, with the number of people without access doubling from 29 million in 1990 to 57 million in 2008. Access to safe drinking water and sanitation is even more restricted in the densely populated slums and peri-urban areas of Africa. The delivery of water and sanitation in Africa's urban centres is characterised by deficient, aging and overloaded networks. This, combined with the degradation of the quantity and quality of water sources through poor management of wastewater and solid waste, as well as low capacity to reuse and recycle wastewater, has resulted in inadequate water supply to serve a growing population.

As towns and cities rapidly increase in size, impoverished people tend to settle along drainages, where they can grow home gardens, while at the same time become exposed to flood risks. Moreover, with rising urbanisation and slums, particularly in towns and smaller cities with limited access to electricity, local forested watersheds are cut for firewood and housing materials, and vegetation is cleared for home gardens and crops. Hence, the water supply and cleaning function of the forested areas is lost, further aggravating the urban water gap.

The loss of ecosystem services, such as the natural filtering of rainwater in forests and riparian zones, brings with it a critical reduction in water quality and increases health risks as available water resources become polluted. The impervious unvegetated ground of slum areas has little or no retention during heavy rains meaning human and animal wastes are flushed into the river systems polluting urban water supplies, rivers and productive coastal waters.

The lack of green urban, peri-urban and rural watershed management and consequent loss of critical ecosystem services threatens people's food security, health, livelihoods and subsequently development opportunities. Attempts to manufacture substitute ecosystem services through engineering solutions are extremely expensive and often unrealistic. Existing financing and planning for water and sanitation is not even able to cope with current population levels.

Until recently, cities have sought to meet increasing demand in water and sanitation services through engineering solutions. Some cities have built large water storage and treatment facilities, while others have embarked on river basin transfer schemes as a way of augmenting supplies. Besides being expensive and supply-focused, these engineering solutions do not address the depletion and degradation of available resources and ecosystem services, forcing cities in Africa to embark on water management reforms. The reforms seek to manage water demand, and to focus more on water resources management rather than supply. The reforms are a result of the need to balance water supply and sanitation services for urban areas with the ecosystem health of urban environments.

Water resources management reforms are based on consultation. Urban areas provide an ideal institutional structure for community engagement, representing an organised infrastructure to supply water and sanitation services, provide incentives for water use efficiency, as well as consider the environment in urban water solutions.

Ecosystems degradation can potentially derail the pace of urbanisation. This can happen if urban water solutions fail to take into account environmental impacts. The case studies provided in this report emphasize the pivotal role of ecosystems in sustainable urban water supply and sanitation, noting:

- There is a widening disparity between demand and availability of safe drinking water and sanitation services.
- There is a growing demand for alternative sources of water such as rainwater, groundwater and desalinised water as a way of addressing the shortfall between demand and supply.
- Urban water quality and supply will continue to deteriorate if urban planning does not fully integrate watershed management.
- City water supply is dependent upon watersheds outside city borders.
- Cities are vulnerable to waterborne diseases both from surrounding settlements and from the city itself.
- Consider environmental impacts, destroying ecosystems and spreading waterborne diseases to communities downstream as well as to the cities themselves.
- There are unique water supply and sanitation challenges to the various cities in Africa, and these include:
 - dependence on ecosystem services that are outside city boundaries;
 - growing reliance on groundwater supplies, the quality of which is at times compromised by the poor management of wastewater;
 - growing participation of the private sector in complementing government and local authority efforts in water supply and sanitation services; and
 - little use of alternative water sources, particularly rainwater harvesting and wastewater recycling.
- In light of the projected rise in urban populations, including those living in slums, access to water and sanitation is crucial for health, development and poverty reduction.
- Public and private management of water resources ensures access to clean water, but this requires concerted efforts including protection and restoration of ecosystem services, as well as engineering solutions.

RECOMMENDATIONS:

Cities must protect and restore ecosystems that are important as key water sources. This will provide cheaper, more efficient and flood resilient water supply systems for the fast urbanising region of Africa. Cities must reduce water consumption and recycle wastewater inside cities, restore adjacent watersheds and improve engineering solutions to supply water from well-managed ecosystems.

Tackle Immediate Consequences

Countries must adopt a multi-sectoral approach to water and wastewater management as a matter of urgency, by incorporating principles of ecosystem-based management from the watersheds into the sea, and connecting sectors that will reap immediate benefits from better water and wastewater management.

2 Ecosystem protection, management and restoration provide a central, effective, sustainable and economically viable solution to enhancing water supply and quality while mitigating effects of extreme weather events of too much and too little water.

3 Successful and sustainable management of wastewater to help support peri-urban agriculture is crucial for reducing water consumption, and requires a mix of innovative approaches that engage the public and private sector at local, national and transpoundary scales. Planning processes should

Towards the Future

5 In light of rapid global climatic changes, communities should plan water management against future scenarios, including extreme events of too much and too little water combined with rapidly growing urban populations.

6 Solutions for smart water and waste management must be socially and culturally appropriate and acceptable, as well as economically and environmentally viable. Ecosystem protection, management and restoration are the cheapest, easiest and most effective ways of improving and securing water supply, filtration and quality including re-use of wastewater for irrigation.

Z Education must play a central role in water management and in reducing overall volumes and harmful content of wastewater so that solutions are sustainable.

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