

Africa Water Week, Dakar, 26-30 May 2014

Technical Session on: Wastewater Management and Water Quality

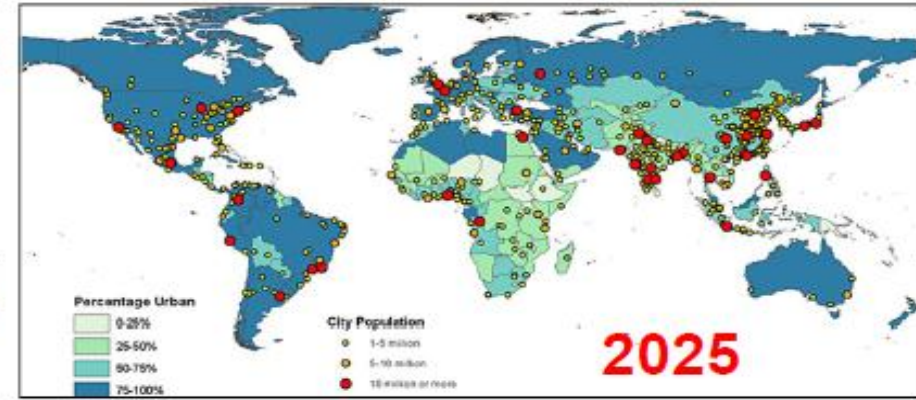
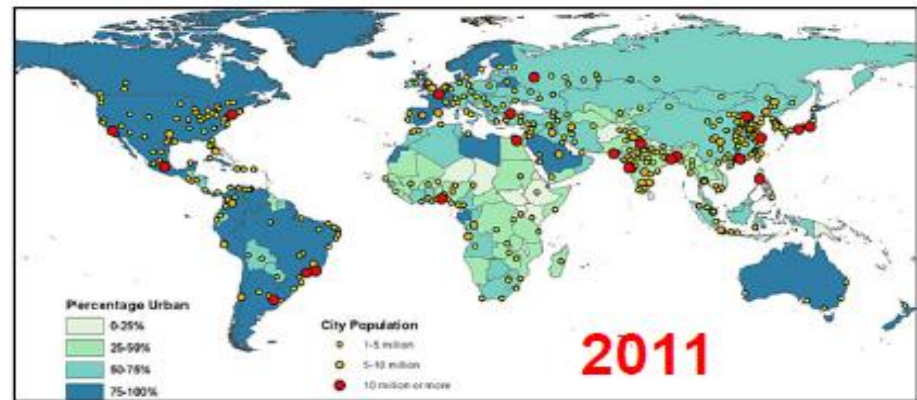
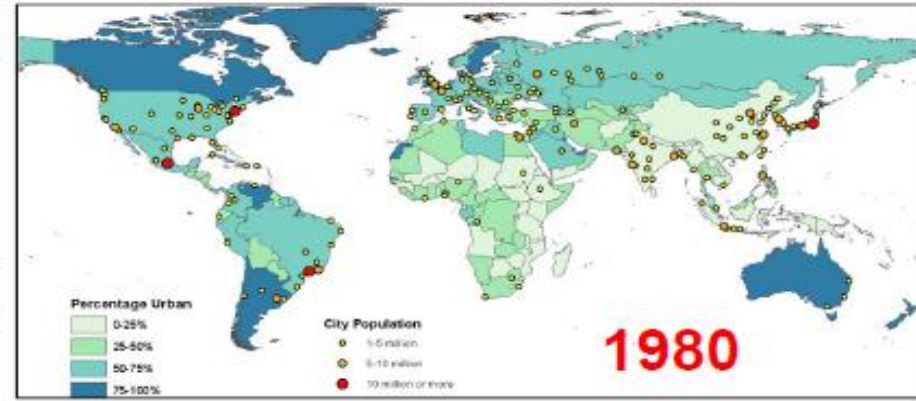
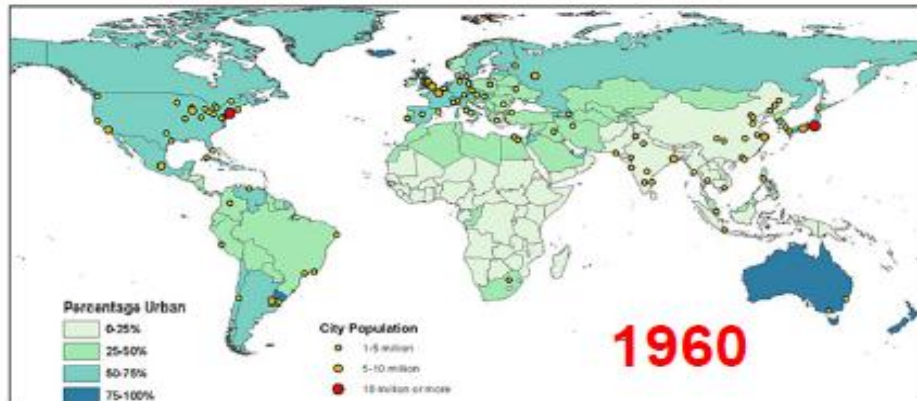
Sub Session 1: Setting the Scene - WWM Global and African Agenda

*Overview of Challenges and Opportunities for WWM and
WQ in Africa*

Presented on Behalf of Dr. Graham Alabaster by

Robert Goodwin, Leader, WATSAN Unit, UN-Habitat

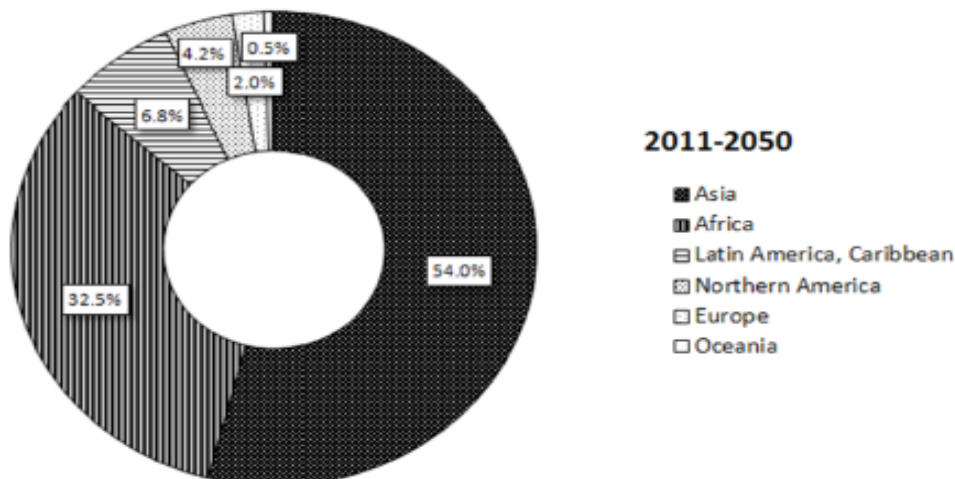
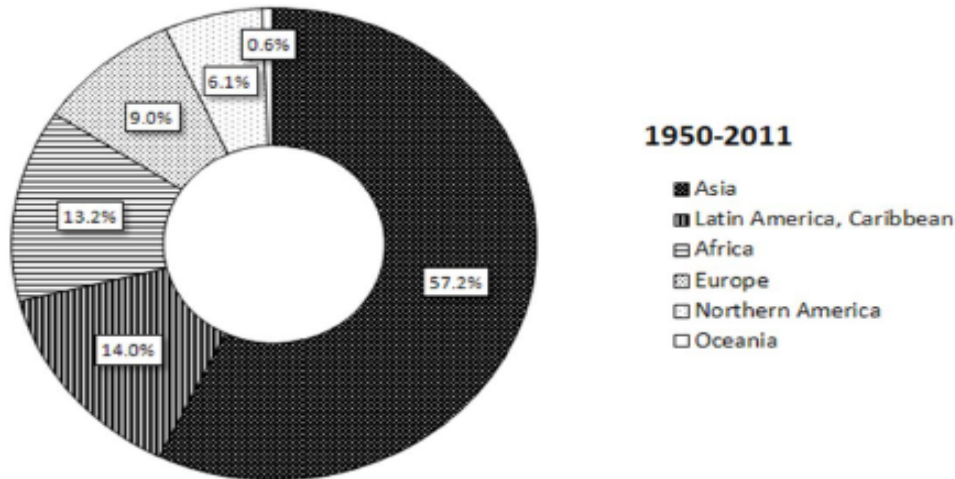
Urbanization Trends: 1960 - 2025



The world urban population is expected to increase by 72% by 2050, from 3.6 billion in 2011 to 6.3 billion in 2050.

Source: United Nations, Department of Economic and Social Affairs, Population Division: *World Urbanization Prospects, the 2011 Revision*. New York 2012 - **Percentage of urban population and agglomerations by size class**

Future urban expansion will be in less developed regions



- Virtually all of the expected growth in the world population will be concentrated in the urban areas of the less developed regions.
- In 2011, cities with fewer than 500,000 inhabitants accounted for about half of the world urban population, amounting to 1.85 billion
- Over the next twenty years the major population growth will be in smaller towns
- Smaller urban centres are where the capacity to develop sustainable wastewater management solutions is weakest

Source: United Nations, Department of Economic and Social Affairs, Population Division: World Urbanization Prospects, the 2011 Revision. New York 2012 - Increase in urban population by major regions, 1950-2011 (per cent of total urban increase)

Wastewater statistics are stark!

- Globally, 2 million tones of sewage, industrial and agricultural waste is discharged into the world's water ways
- Up to 90 % of all wastewater in developing countries is discharged untreated directly into rivers, lakes or the oceans



- An estimated 245,000 km² of marine ecosystems are polluted with impacts on fisheries, livelihoods and the food chain
- Wastewater-related emissions of methane and nitrous oxide, both powerful global warming gases, could rise by 50 per cent and 25 per cent respectively between 1990 and 2020.

Water quality issues

Water quality degradation has many causes. It is not always clear which among the factors below will predominate where

- Direct Discharges (Point Source)
- Land Use (Non-point Source)
- Climate
- Emerging pollutants



Key Wastewater Issues and Trends

- Wastewater is unavoidable, but especially where populations are dense, unmanaged wastewater has very significant negative impacts.
- Improving wastewater management is an integral part of development:
 - Initially driven by the need to avoid contact with pathogens in human excreta
 - Currently a shift towards controlled discharge into the environment of nutrients (especially nitrogen and phosphorus), heavy metals, and toxic chemicals.
- Regional variations:
 - Focus in developed countries is on wastewater sludge and biosolids management.
 - In the developing world (including Africa) where wastewater treatment systems are minimal or absent, focus is on basic sanitation.

Some Gaps in wastewater management in Africa

- Wastewater subsumed under the water and sanitation debate.
- No MDG target for wastewater.
- Inadequate focus on putting in place proper monitoring systems for wastewater.
- Low political will to recognise and prioritise wastewater issues, and thus:
 - weak or non-existent policies and institutional frameworks
 - inadequate funding for wastewater activities
 - Wastewater and sludge treatment to exploit the inherent resource values inadequately encouraged.



inadequate sanitation, a non focus on waste management and water quality systems, has led to increasing pollution of surface/ground water sources and degradation of ecosystems in general.

Some Responses: Knowledge Products

- ***Global Atlas of Excreta, Wastewater Sludge and Biosolids Management*** - a catalogue of worldwide wastewater status in collaboration with Moncton Commission



- ***Rapid Assessment Report on Wastewater Management (Sick Water)*** during the 2010 World Water Day celebrations in Nairobi, Kenya



- ***Rapid Assessment Report on Green Hills, Blue Cities*** during the 2011 World Water Day Celebrations in Cape Town, South Africa

- ***Task Force on Wastewater*** co-chaired by UN-Habitat and UNEP as part of the ***UN-Water process*** for a ***Global SDG Water Goal***.

Some Responses (Contd)

- Faecal Sludge Management:
e.g: *The UN-Habitat Vacutug Project*
- *Exploiting Waste to Energy* e.g: the *Cows to Kilowatts* project in Ibadan
- Waste to Biogas projects in e.g. Kissi, Homa Bay, Dakar, Bamako, etc



Wastewater - threat or opportunity?

- Wastes from various sources are an **under-utilized resource**.
- **Reuse or recycling** can combine an effective environmental and health protection strategy with the recovery of nutrients, water and energy from various waste sources
- The waste challenge can be **a threat** if not properly managed
- The **challenge** is to exploit the inherent **opportunities** for green employment and social well-being

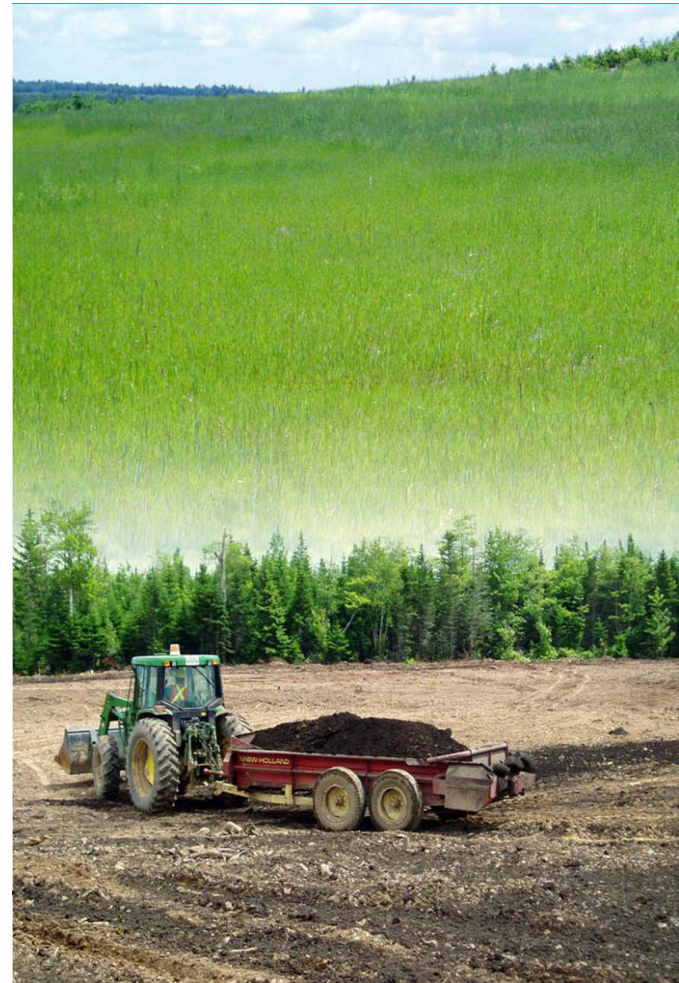
Realizing the opportunities of effective waste management

- **For well being** (healthier habitat and clean environment that can impact both the wealthy and the poor)
- **For agriculture** (including compost from solid waste and nutrient rich water for urban agriculture, irrigation, non food agriculture, and income generation)
- **For industry** (energy for heating, cooling, cleaning and rinsing. Unregulated industrial wastewater can be a highly toxic)
- **For energy** (sludge used for the production of biogas and income generation)
- **For recreation** (Greening parks and better landscaping)
- **For eco system** (Reducing negative impact on ecosystem, fishing, tourism, ground water recharge, and income generation)

Wise and well directed investments into waste management can generate multiple future benefits

What is needed?

- **A strong component on wastewater and water quality** in the proposed SDG water target
- **Proper Monitoring system** (to track progress).
- **Increasing political support and understanding of the value and benefits of wastewater management**
- **Supportive policies and institutional frameworks**
- **Adequate allocation of funds** to support wastewater management



Opportunities for furthering Work on WWM and WQ

1. Post-2015 Development Agenda and the SDG

In formulating the SDG Water Goal (including components on access to safe water and sanitation, wastewater management and water resources management), ensure the urban dimension are effectively reflected

2. Global Waste Water Initiative

- As a platform to promote advocacy and disseminate knowledge on best practices in waste water management and water quality issues

2. Habitat III (2016)

- Third United Nations Conference on Housing and Sustainable Development, will outline a new Urban Agenda for sustainable urban development, including waste management issues.

Conclusions

- increasing trend for the need of sewer-age and water-borne sewerage, and the management of on-site sanitation will need new and innovative approaches.
- Dense urban slums will be extremely problematic if the issue of diffuse faecal pollution is not looked at closely run-off and its presence in the immediate peri-domestic environment.
- The so-called big sanitation will become more important than just wastewater or faecal sludge management alone.
- Integrated systems which demonstrate improved health and environmental protection will be the way ahead.
- The opportunity to see waste and wastewater as a resource will become even more important as unit costs of fossil fuel increase, and freshwater become a scarce commodity.
- nutrients from wastewater and/or energy will become the key drivers to choose appropriate systems.
- Much more attention will be placed on the energy efficiency of wastewater treatment, or rather the energy balance.

Conclusions (Contd)

- Some of the biggest threats will be from the most hard to treat elements of wastewater and excreta.
- Co-disposal will become more important looking at the co-benefits of faecal sludge and the organic fraction of MSW disposal.
- Systems to monitor wastewater and water quality need to become managed more effectively at the local level.
- Community-based monitoring and governance and feedback accountability to waste producers will figure strongly, particularly in resource deficient settings.
- The main hope lies in a much more integrated approach to ww treatment and water quality to ensure
 - much greater national accountability/action; and
 - establishing international benchmarks/standards for good practice rather than academic standards which are impractical and expensive to measure.