Vision 2030:
The resilience of water supply and sanitation in the face of climate change

Chee-Keong CHEW

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World Health Organization

Scope

- Why climate resilience is important?
- Overview of Vision 2030
- Summary of Findings
- 5 Key Conclusions of the Vision 2030 Study
- Moving Forward

Why climate resilience is important?

- Safe drinking water and Sanitation => foundations of Public Health and Development
- Climate change is a fact and its impacts threaten water supply and sanitation
  - Most impacts through extreme weather events such as floods, droughts, storms
  - Increase vulnerability to human health, water security, resource scarcity

threat multiplier

Climate Change Impacts

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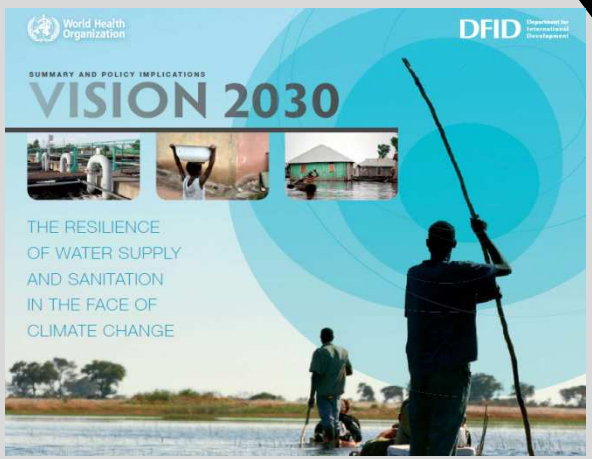
Overview of Vision 2030 Study

- Jointly undertaken by WHO and Department for International Development, UK
- Objectives
  - brings together evidence (projections on climate change and trending on technology application)
  - develop knowledge on adaptability and resilience of drinking water and sanitation
  - identify key policy, planning and operational changes and knowledge gaps
- Time horizon: 2020 and 2030

Overview of Vision 2030 Study

- Predicates on 3 detailed technical studies

Study 1: Projections on Precipitation (Met Office, Hadley Centre, UK)



Study 2: Vulnerability, adaptation & resilience of WASH facilities to climate change, RCPEH)

Study 3: Projections on Precipitation (Status & trends in technology application, WHO, RCPEH)

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Summary of Findings

- Projections on precipitation
  - Decadal forecasts applied to predict changes in frequency of heavy 5-day rainfall events
  - Forecasts for 2020 demonstrated impacts that carry on to 2030
- Status and trends in technology application
  - WHO/ UNICEF Joint Monitoring Programme for Water and Sanitation
  - Access to drinking water in urban and rural areas
  - Access to sanitation in urban and rural areas

Summary of Findings

- Resilience of water technologies

Category 1: Potentially resilient to all expected climate change impacts	- Utility piped water supply - Tubewells
Category 2: Potentially resilient to most expected climate change impacts	- Protected springs - Small piped systems
Category 3: Potentially resilient to only restricted number of climate change impacts	- Dug wells - Rainwater harvesting
Technologies categorized by JMP as “not improved drinking water sources”	- Unprotected springs, unprotected dug wells, Carts with small tank and drum, Surface water (rivers, dams, lakes, ponds, Bottled water

- Though water technologies are vulnerable to climate change, all have some adaptive potential

Summary of Findings

- Drinking Water Management
  - Urban utility managed supply has very high potential resilience and adaptive capacity
    - Good O&M, prudent investment in human capital, asset renewal/ upgrading
  - Small community water supply is highly vulnerable
    - Inadequate O&M => high failure rate and possibility of contamination
- Lack of tools to assess climate change resilience of technology in a given location

Summary of Findings

- Resilience of sanitation technology

Category 1: Potentially resilient to all expected climate change impacts	- Low-flush septic systems - Pit latrines
Category 2: Potentially resilient to most expected climate change impacts	- Conventional and modifies sewerage - High flush septic systems
Technologies categorized by JMP as “not improved drinking water sources”	-Latrines without a slab or platform - Hanging latrines

- Sewerage – the “gold” standard sanitation technology – is only resilient to climate change in some scenarios

Summary of Findings

- Sanitation Management
  - Utility managed sanitation (mainly sewerage)
    - High underlying resilience of centralized sewerage systems being compromised by lower resilience of sewerage technology
  - Household-managed sanitation
    - Potential to be highly resilient to climate change but contingent on many factors => good management, adequate guidance etc.
    - Source of pollution to groundwater with increased rainfall or during floods
- Lack of information on the resilience of technologies and management in specific circumstances
  - crucial to review programmes and operations

Key Policy Implications

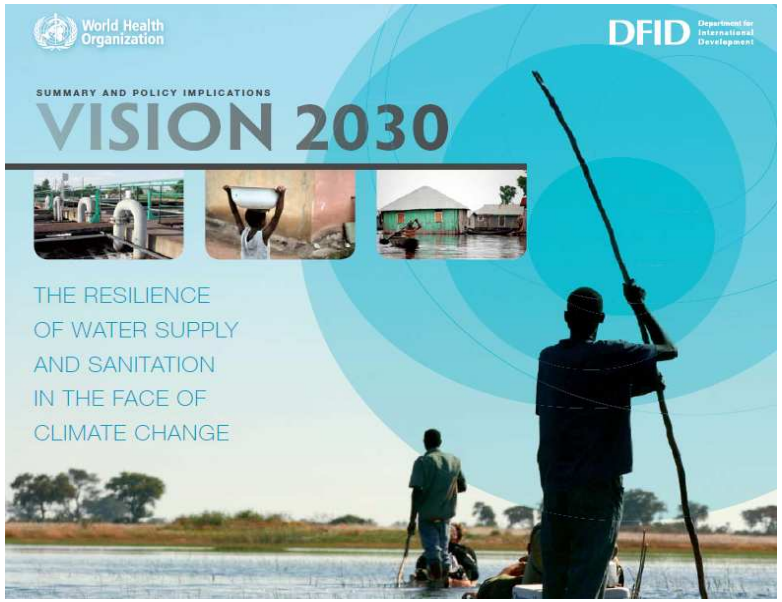
- Low resilience of water supply against climate impacts have serious public health consequences
  - Deteriorating water quality, water scarcity
- Comprehensive water policies and management are key
  - Intersectoral management of water resources e.g. Water and energy, economic vs environment.
  - IWRM (demand and supply management) – increasing storage, reducing leakage, good management practices etc ..
- Diversify water sources to increase resilience

Key Policy Implications

- Systematic assessments of climate resilience of water supply and sanitation facilities are needed
  - Water Supply Plans
- Act to increase resilience and avert future problems => preventive measures is preferable
- Selection of technologies should take into account climate performance besides cost, environmental & social factors
- Missing out on climate resilience, the world could be off-track to achieve the drinking-water and sanitation targets of MDG 7

5 Key Conclusions

1 Climate change is widely perceived as a threat. There may be significant overall benefits to health and development in adapting to climate change.



5 There are gaps in our knowledge that will impede effective action. Targeted research is need to fill technology and information gaps, develop simple assessment tools and provide regional information on climate change

2 Major changes in policy and planning are needed if ongoing and future investments are not to be wasted.

3 Potential adaptivecapacity of technologies is high but rarely achieved. Resilience needs to be integrated into drinking water and sanitation management to cope with present and future climate impacts

4 Climate trends at regional levels might be uncertain, there is sufficient knowledge to inform policy and planning

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Moving Forward

- Develop tools for systematic and rapid assessment of climate resilience of water utilities and sanitation programmes e.g. WSP and climate related risks
- Water scarcity – package of information
- Raise awareness on climate risks and resilience for small community managed supplies e.g. through WHO networks
- Information sheet on possible adaptations for technologies in specific circumstances (regional level)
- Strengthen climate trend information at regional levels e.g. collaboration with WMO

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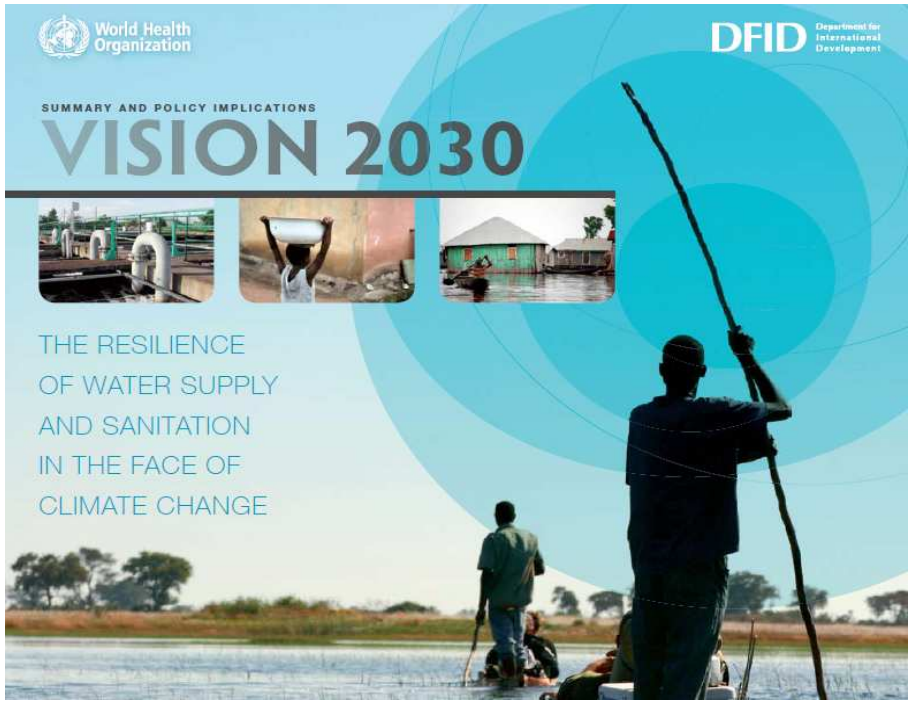
Thank you!



http://www.who.int/water_sanitation_health/publications/9789241598422/en/index.html

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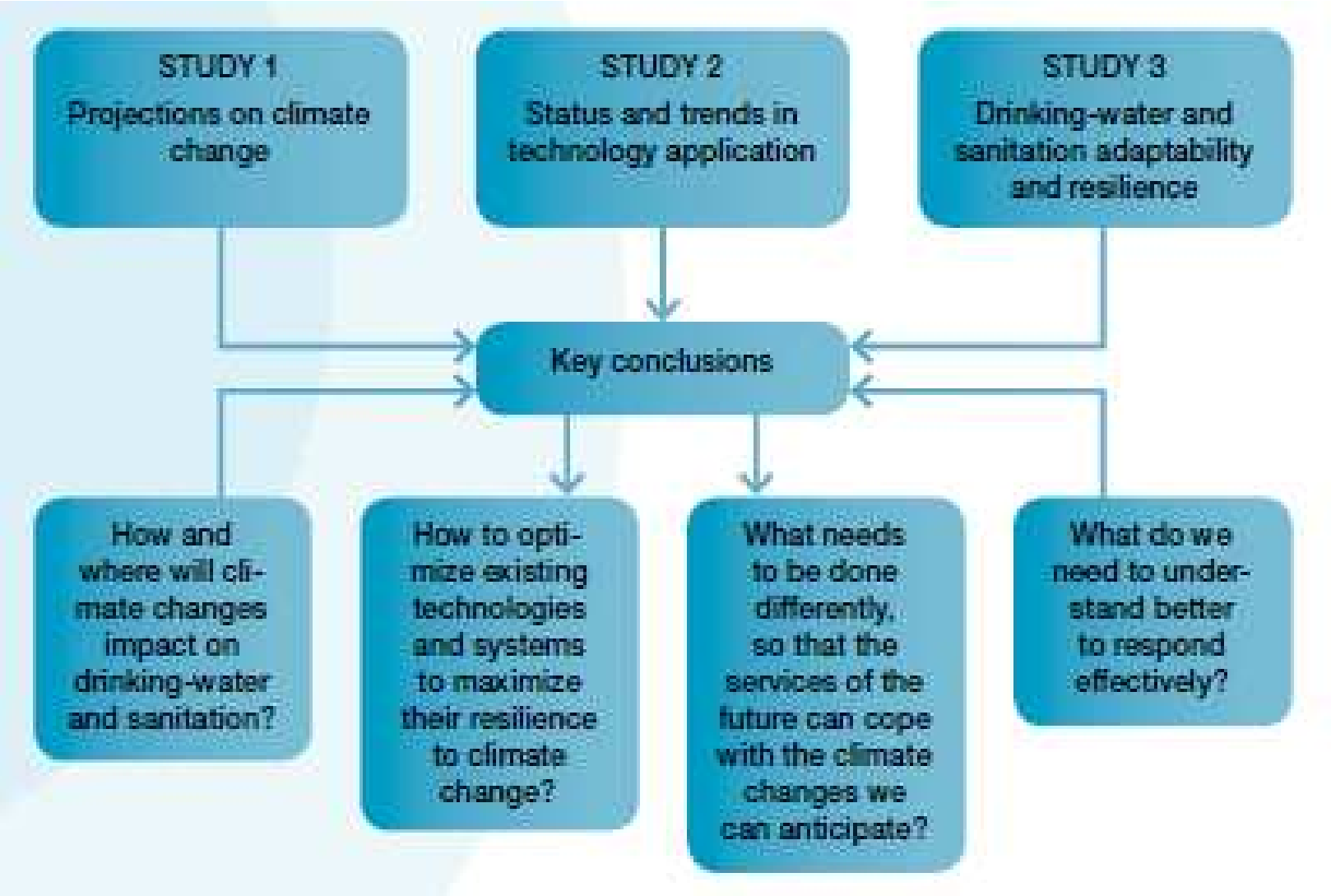
Time Horizons

- Year 2020
  - Conditions in 2020 reflect the expected service life of existing infrastructure and technology in service or being installed
  - Indicate the potential for short-term climate change to undermine short-term sustainability
  - Impact on MDG 7
  - Stock take of policy and planning of recent decades
- Year 2030
  - Represents the time horizon which current policy changes and planning can influence technology selection, management practices, investment etc..
  - Projections illustrate significant climate impacts by 2030 => cost of failure to adapt is high!
  - Improve understanding on policy changes needed to ensure infrastructure in place in 2030 is climate resilient; minimize climate risks

Structure of Vision 2030 Study



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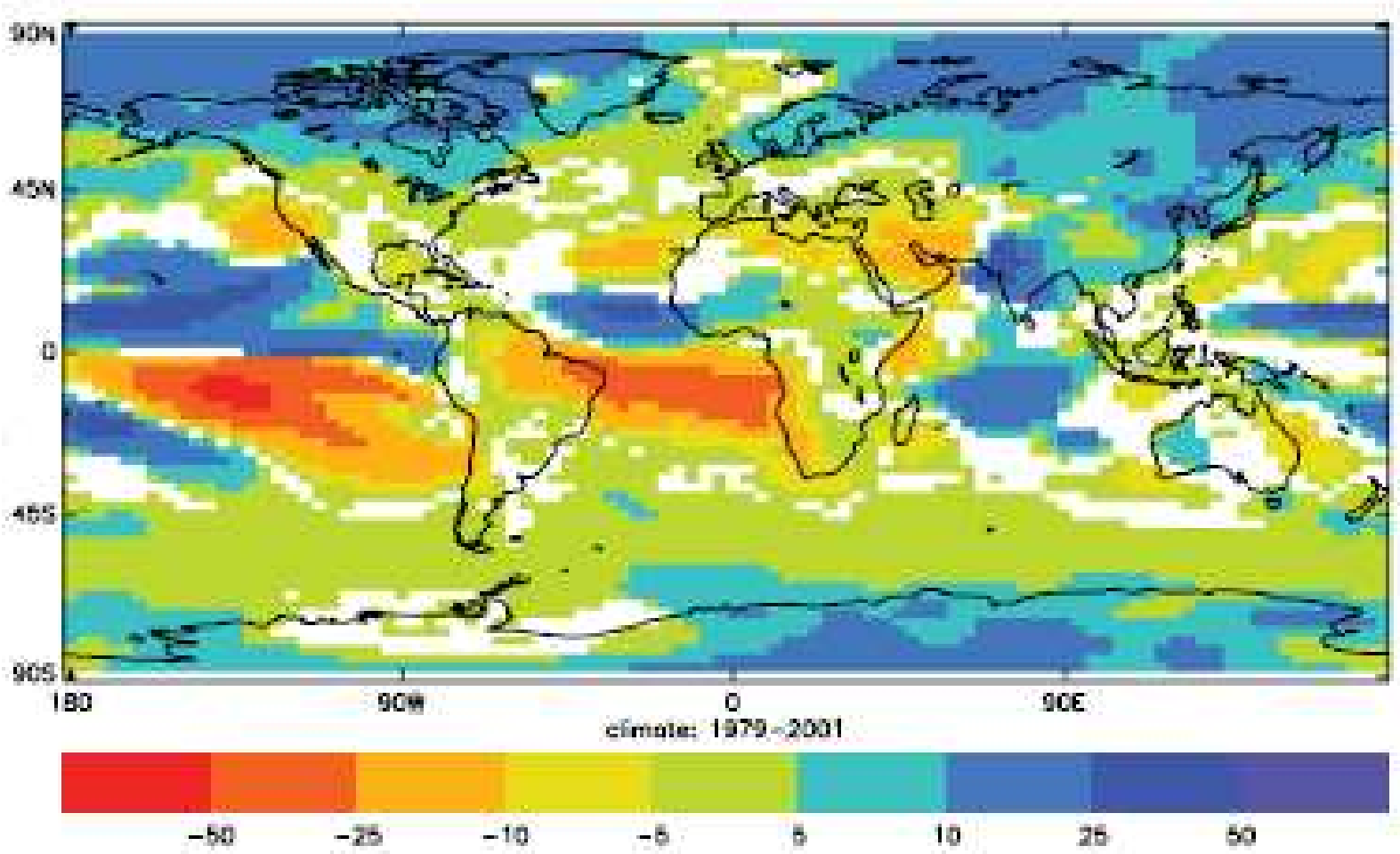
Projection on Precipitation by 2030

↓ average precipitation in south Africa, parts of Central America, Mediterranean basin and N.E South America

↓ intensity of 5-day rain events (eastern Mediterranean, North & S.W Africa, N.E South American)



↑ average precipitation over South Asia, parts of Central Africa and high altitudes of northern and southern hemisphere

↑ likelihood of floodingf in South Asia, parts of East Asia, Central and East Africa

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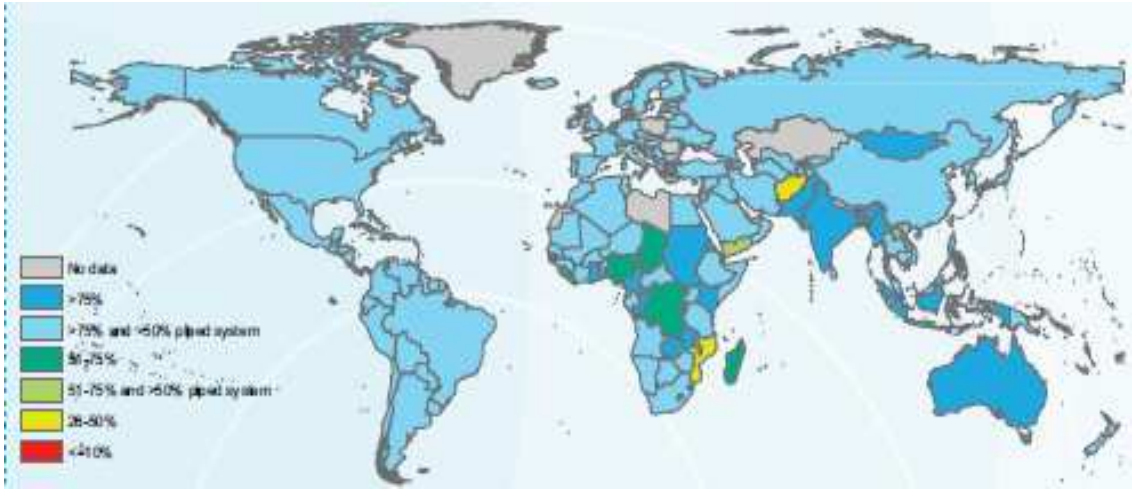
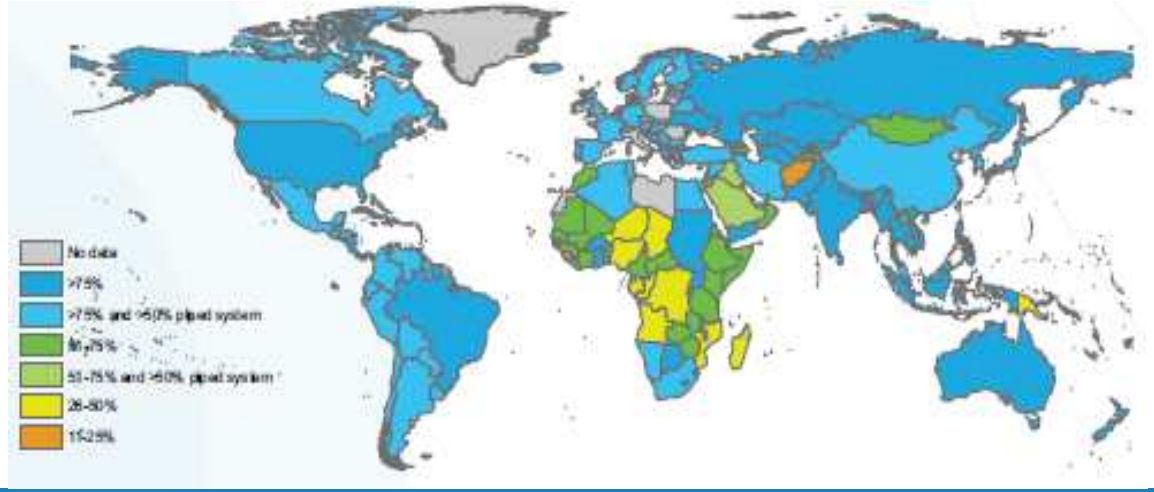
Access to Drinking-water in Urban & Rural Areas (2020)

Forecast for urban



Forecast for rural



- Piped drinking-water coverage is high and increasing; however, many countries in Africa are predicted to attain <75% coverage
- Protected springs and rainwater harvesting are predicted to account for <10% of improved water supplies regions
- Use of protected wells is higher in rural areas than in urban areas

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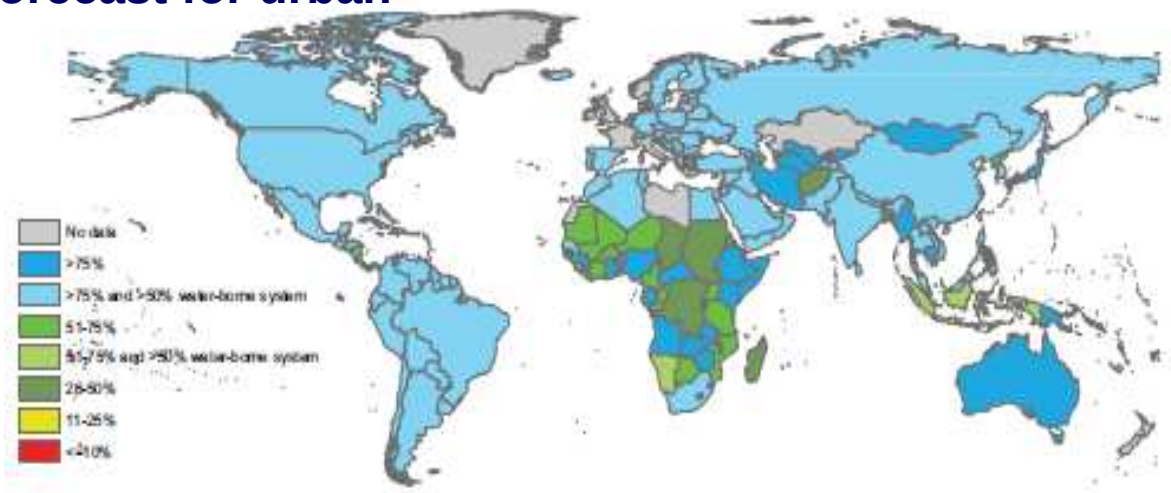
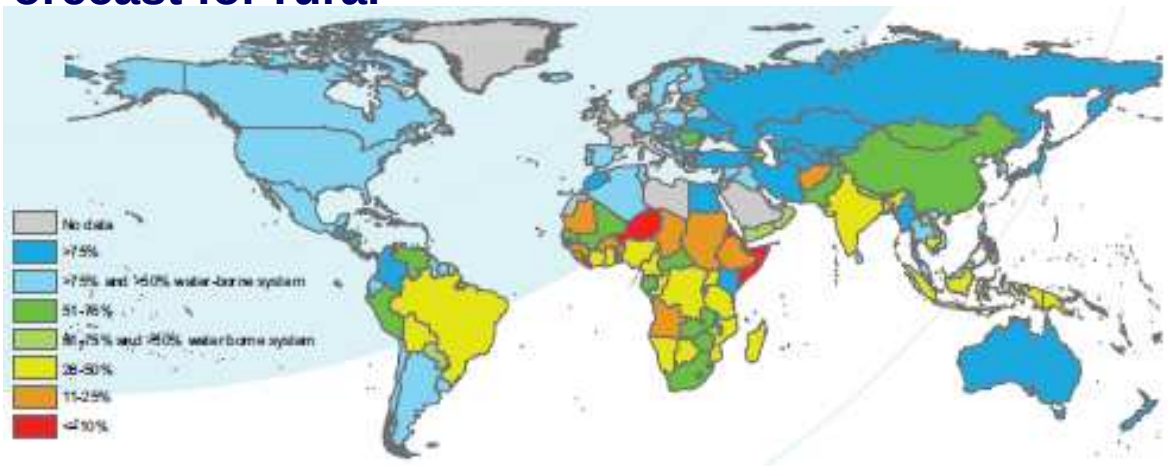
Access to Sanitation in Urban and Rural Areas

Forecast for urban



Forecast for rural



- Latrines are predicted to constitute bulk of sanitation coverage in Africa, and South, South-east and East Asia
- Sewerage expected to remain low (<25%) in Africa, and South, South-east and East Asia till 2020
- In some water scarce countries, sewerage accounts for up to 50% of coverage, further straining scarce water resource.
- Sewerage treatment provision lags behind => climate change will aggravate adverse health impacts due to inadequate treatment

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