



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



Development of the National Water Resources Strategy Third Edition (NWRS-3)

Goal 3: Managing Water and Sanitation under a Changing Climate

NWRS-3 CONSULTATION WORKSHOP

25 July 2022

NWRS-3 CH9: Managing Water and Sanitation under a Changing Climate

The aim of this chapter is:

To plan and respond to a changing climate and its impact on the environment, water resources, water and sanitation services and the quality of life.

This chapter consists of the following 4 sections:

- Context and Current Challenges
- Guiding Principles
- Baseline and Status Quo
- Strategic Objectives and Strategic Actions for implementation (see next slides)

NWRS-3 CH9: Context & Current Challenges

- Water is a medium through which climate change will be felt, more so in developing countries, such as South Africa
- Spatiotemporal increasing temperature and changing rainfall patterns, as well as frequency and intensity of extreme events are attributed to climate change
- The secondary impacts include increasing evaporation rate, reduction in runoff, soil moisture and recharge which impact upon water availability and water quality.
- Climate change scenario projections indicate potential increase in temperature by 2°C along the coastal areas and by up to 6°C inland, while changes in rainfall is erratic and uncertain by 2050 and beyond.
- The western and interior parts of the country are likely to become drier and hotter, while the eastern parts of the country wetter and warmer.

NWRS-3 CH9: Context & Current Challenges

- Increased rainfall intensity will exacerbate scouring in rivers and sedimentation in dams, potentially impacting on water infrastructure.
- Spatial and temporal variation is expected in the immediate future.
- Climate change poses significant additional risks to water security, which in turn has a knock-on effect on those sectors highly reliant on water such as agriculture, health and energy as well as mining and industries.
- Thus, this set of risks must be considered and integrated into short, medium and long-term water and sanitation sector strategies and planning approaches.

NWRS-3 CH9: Guiding Principles

The achievement of South Africa's climate change response objectives in the water and sanitation sector is guided by the following principles:

- Mainstreaming of potential climate change impacts into water resources and water and sanitation services planning and supply at all levels.
- Drive appropriate strategic responses to minimize the impacts of climate change.
- Existing initiatives and institutions must be aligned to improve the effectiveness of the national response (e.g. SDG 6 and 13, SAWS' climate forecasting & early warning systems, DEFF's green programmes and reducing GHG emissions).
- Climate and water is elevated to strategic and appropriate agendas to ensure that it is adequately incorporated into the national agenda.

NWRS-3 CH9: Guiding Principles

The achievement of South Africa's climate change response objectives in the water and sanitation sector is guided by the following principles:

- Critical natural/green infrastructure (ecosystems) and physical infrastructure must be protected, maintained and enhanced.
- Riparian vegetation and buffer zones must be rehabilitated and restored (SDGs 6, 13 and 15).
- Physical infrastructure is planned for a changing future using no-regrets and low regrets approaches.

NWRS-3 CH9: Baseline and Status Quo

The Department of Environmental Affairs' Long-Term Adaptation Scenarios (2013) technical report on Climate Change Implications for the Water Sector in South Africa also emphasises that:

- Projected impacts are due to changes in rainfall and evaporation rate, but hydrological modelling approaches are essential for translating these into potential water resource impacts.
- Preliminary projections for national runoff range from a 20% reduction to a 60% increase by mid-century based on an unmitigated emissions pathway. Across the country, this ranges from increases along the eastern seaboard and central interior to decreases in much of the Western and Northern Cape. If global emissions are constrained to stabilise at 450 ppm CO₂, these changes are projected to lie between a 5% decrease and a 20% increase in annual runoff.

NWRS-3 CH9: Baseline and Status Quo

The Department of Environmental Affairs' Long-Term Adaptation Scenarios (2013) technical report on Climate Change Implications for the Water Sector in South Africa also emphasises that:

- Under all four future climate scenarios, a higher frequency of flooding and drought extremes is projected, with the range of extremes exacerbated significantly under the unconstrained global emissions scenario. Under a wetter future climate scenario, significant increases in runoff would result in increased flooding, human health risks, ecosystem disturbance and aesthetic impacts. Drier future climate scenarios would result in reduced water availability, but would not exclude the risk of extreme flooding events.
- Areas showing the highest risks in increased runoff (extreme) related events (and flooding conditions) include KwaZulu-Natal, parts of southern Mpumalanga and the Eastern Cape. Specific areas at risk of increased evaporation, decreased rainfall and decreased runoff include the south-west and western regions, and to some extent the central region and the extreme north-east.

CH9 Strategic Objective 1:

To improve and enhance water management and sanitation for enhanced adaptive capacity.

In order to achieve the stated strategic objectives, the following strategic actions must be undertaken:

- Develop and review climate change strategies for the water and sanitation sector.
- Implement climate change response strategies for the water and sanitation sector.
- Ensure representation and coordination with other departments to fulfil national, regional and international climate change policy obligations.

CH9 Strategic Objective 2:

To integrate climate change considerations into short, medium and long-term water and sanitation planning processes.

In order to achieve this strategic objective, the following strategic actions must be undertaken:

- Give strategic direction to the Department on water and sanitation-related climate change aspects.
- Mainstream climate change considerations and issues in planning and management of water and sanitation.

CH9 Strategic Objective 3:

To develop appropriate adaptation measures to maximise water security and resource protection under changing climate conditions.

In order to achieve this strategic objective, the following strategic actions must be undertaken:

- Conduct studies on risk and vulnerability assessments of the systems.
- Use appropriate tools to protect climate-sensitive water sources.

CH9 Strategic Objective 4:

To enhance internal capacity and provide resources for improved resilience to climate change impacts.

In order to achieve this strategic objective, the following strategic actions must be undertaken:

- Establish a ring-fenced budget for implementation of the climate change response strategy including capacity development and possible links with green infrastructure and the pricing strategy.
- Ensure the best science and latest knowledge on nature-based adaptation and solutions.

CH9 Strategic Objective 5:

To increase awareness of and build capacity on climate change issues.

In order to achieve this strategic objective, the following strategic actions must be undertaken:

- Present at different fora on issues relating to climate change and the water and sanitation sector.
- Develop and implement requisite tools in increased awareness and build capacity on climate change issues (i.e. using climate change early warning tools for citizens developed with them in a bottom-up approach recognizing local indigenous knowledge and facilitating ownership, risk mitigation and resilience).

CH9 Strategic Objective 6:

To ensure inter-linked climate and hydrological scenario projections representative of the complex inter-related natural systems.

In order to achieve the above strategic objective, the following strategic actions must be undertaken:

- Establish and strengthen the Department's relationships with academic and research institutions.
- Identify and use coupled climate hydrological scenario projections for water planning and management.

Discussion and Inputs

Chapters 9