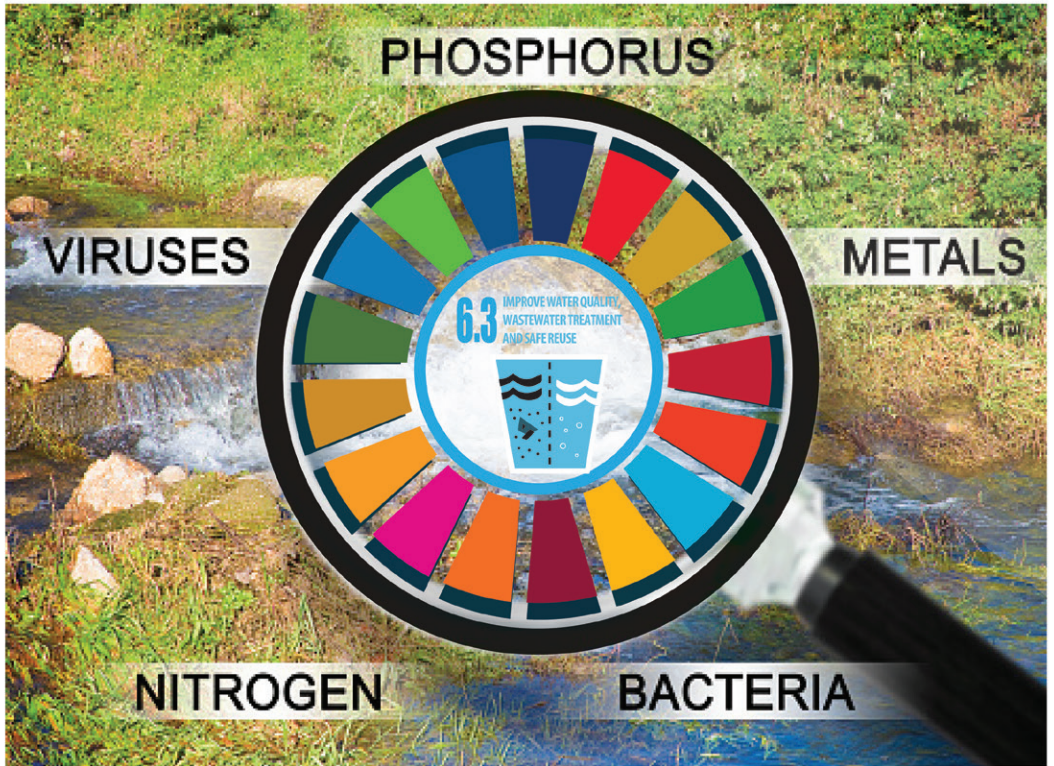


# WATER QUALITY AND WASTEWATER IN SUSTAINABLE DEVELOPMENT GOAL 6

FEBRUARY 2022



WATER IS LIFE - SANITATION IS DIGNITY

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**water & sanitation**

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA



The Sustainable Development Goals (SDGs), otherwise known as the Global Goals, are a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity. There are 17 Global Targets that must be achieved by the year 2030. Water and sanitation are at the very core of sustainable development and the Department of Water and Sanitation leads Goal 6 which ensures availability and sustainable management of water and sanitation for all. Safe drinking water and adequate sanitation and hygiene are pillars of human health and well-being and access to safe water and sanitation as well as sound management of freshwater ecosystems are essential to human health, environmental sustainability and economic prosperity. Moreover, without proper treatment, household wastewater can cause pathogens to spread and nutrient loading to be harmful in receiving waters. Also, a variety of pollutants can be found in wastewater generated by economic activities such as manufacturing. The SDGs therefore require improving/ maintaining water quality reducing the amount of wastewater that is not treated to the necessary standards before being discharged into the water resource.

Target 6.3 of SDG 6 aims to eliminate, minimize, and significantly reduce different streams of pollution entering water bodies to protect ecosystems as well as human health. The main sources of pollution include wastewater from households, commercial establishments and industries (point sources), as well as run-off from urban and agricultural land (non-point sources).

## Target 6.3: Water quality and wastewater

"By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally"

6.3.1 Proportion of wastewater safely treated

6.3.2 Proportion of bodies of water with good ambient water quality

### Why is water quality a concern?

Poor water quality (i.e. water that is not fit-for-use by downstream users) is detrimental to human health, and to health of aquatic ecosystems, crops and livestock. It also



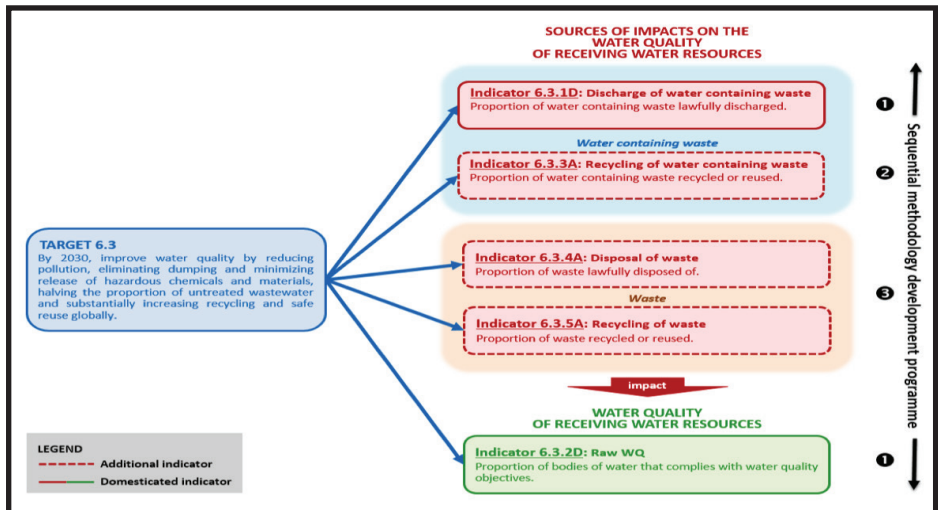
increases the cost of water treatment which has a negative impact on the economy. According to UNESCO (2015), 1 in 9 people world-wide use drinking water from unsafe water sources; and 90% of sewage in developing countries is discharged untreated, directly into water resources.

### In what ways does legislation regulate water quality management?

Within the sectors of agriculture, industry, mining, government or public institutions and private developments, water quality is managed through the National Water Act (NWA, Act 36 of 1998). The NWA outlines a number of Resource Directed Measures and Source Directed Controls which together aim to ensure that the water in the surface and groundwater resources is fit-for-use. A number of other relevant legislations also have an important role to play in ensuring Water Quality Management, especially within the urban, environmental and mining sectors. It can be easier to manage the sources of pollution, point source pollution (e.g. sewage discharges) than non-point source pollution (e.g. runoff from land contaminated by solid waste).

### Which SDG target addresses wastewater and water quality?

Wastewater and water quality are prioritised under SDG Target 6.3 which calls for improved water quality by 2030, by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally. SDG Target 6.3 can be measured by using the following indicators.



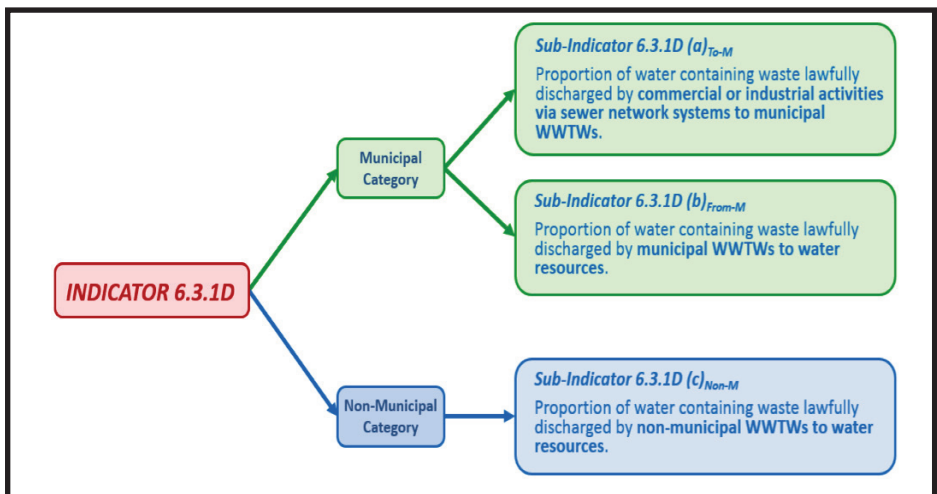
## What is the role of the Department, represented by Task Team 6.3 in achieving this target?

The role of the Task Team for Target 6.3 is to:

- Domesticate the indicators,
- Develop and draft 'science-based' methodologies for the domesticated indicators;
- Develop targets for achieving the indicators;
- Identify and draft methodologies for the additional indicators; and
- Monitor progress towards achieving set targets.

## What does SDG Indicator 6.3.1D measure?

For the purpose SDG Indicator 6.3.1D reporting, wastewater handling in South Africa, broadly, falls in one of two categories, viz. either in the municipal or non-municipal categories. Indicator 6.3.1 measures the proportion (volume) of water containing waste that is lawfully discharged into or from Wastewater Treatment Works (WWTWs), for the volume of discharges that are both permissible (i.e. they are authorised as defined in the NWA or in a municipal bylaw) and which complies to the required water quality standards. SDG Indicator 6.3.1 is subdivided into the following sub-indicators:



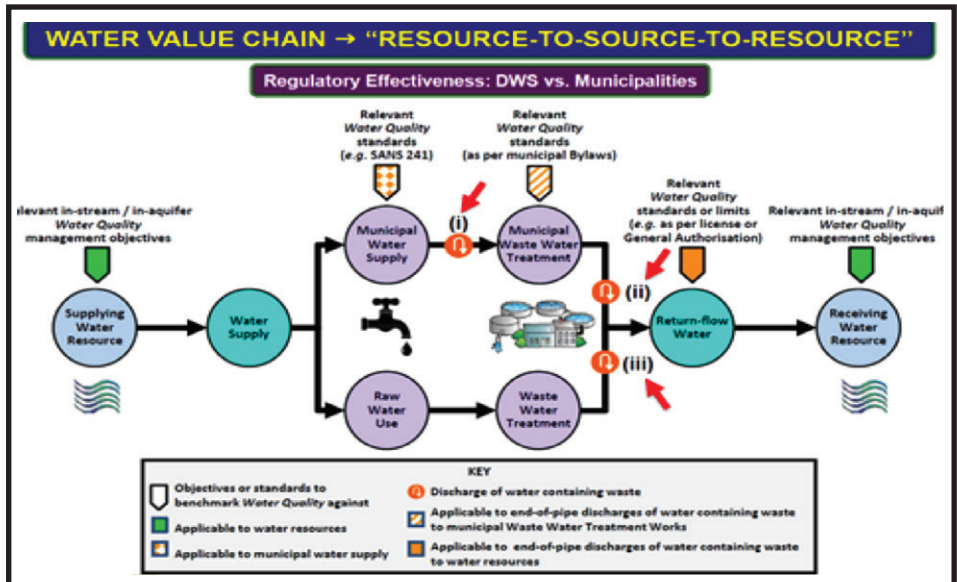
## Which stakeholders are involved in the management of wastewater and water quality, and their roles?

Indicator 6.3.1D (i) involves all the industrial and commercial water users which collect, treat and/ or discharge wastewater into a municipal sewerage system. Indicator 6.3.1 D (ii) pertains to the district and local municipalities that manage the municipal WWTWs and Indicator 6.3.1D (iii) involves all the water users which discharge directly into water resources. This includes the following sectors:



- **The Department of Forestry, Fisheries and Environment (DFE)**, whose legal mandate and core business is to manage, protect and conserve South Africa's environment and natural resources and promote sustainable development.
- **Department of Corporate Governance and Traditional Affairs (COGTA)**: Municipal WWTWs that discharge to water resources; and Non-municipal WWTWs that discharge to water resources.
- **Industry**: Commercial or industrial activities that discharge via sewer network systems to municipal WWTWs, excluding residential activities.
- **Mining**: The pumping of Acid Mine Drainage (AMD) from underground in order to safely and efficiently continue with mining activities.
- **Private Developments**: Government, in partnership with private sector and civil society, secure water that is fit-for-use, for all, forever and its goal is "to adopt a government-wide, adaptive and systems-based management approach, in alliance with the private sector and civil society, that will improve resource water quality, prevent pollution and ecological degradation, support ecologically sustainable economic and social development and allow an informed use of the nation's water resources".

All the activities involved in indicator 6.3.1D are explained as follows:





## **How is water quality data collected?**

Because you cannot manage and measure what you do not know, DWS is therefore collecting samples in order to obtain water quality data and gauges discharge in order to obtain flow data, as well as authorization information from all sectors involved. The Department also uses IRIS (Integrated Regulatory Information System), (<http://ws.dwa.gov.za/iris/mywater>), to collect volumes, water quality data and authorization information from authorized water users.

## **Are there any data gaps?**

Some data exists for sub indicators i, ii and iii, however the sectors need to collectively work towards capturing more reliable data. The most notable data gap is on the volume of wastewater being discharged.

Since mid-2018 there have also been large data gaps on the Water Management System (WMS) water quality database. This is due to a number of reasons primarily hinging on financial problems experienced by DWS, including: having insufficient funds for samplers to get to sampling sites in order to take samples and readings, insufficient resources to get samples to the laboratories, insufficient resources to maintain equipment and to buy the necessary reagents *etc.*

## **What is the link between data collection and achievement of SDG Target 6.3?**

In order to achieve SDG 6 Target 6.3, Data and Information is collected, processed and assessed to ascertain and determine the degree of water quality compliance for municipal and non-municipal activities. This Data and Information is collected from various sources, including the National Compliance Information Management System (NCIMS), Water Management System (WMS), with the long-term goal of using IRIS as the driver of data collection and analysis.

## **What role can an ordinary DWS employee play in the management of wastewater and water quality?**

Ordinary DWS employees can play a huge role in helping government develop policies and frameworks that support improved water quality. Also, employees can help ensure that there is compliance to the measures that the DWS has developed by taking part in initiatives such as 'adopt-a-river' campaign, clear rivers campaign, *etc.* Employees can also share the data they have and think of what is relevant to the improvement of wastewater and raw water quality.

## **What role can an ordinary South African Citizen play in the management of wastewater and water quality?**

Ordinary citizens can help by ensuring that there is no littering/polluting of water resources, that the WWTW are compliant with the laws of the country. They should report any leakages from WWTW and any illegal discharges immediately.



## **Which strides have been achieved over the years, aimed at assisting towards achieving the 2030 Global Target?**

Over the years, several strides have been made in achieving the 2030 target, which include:

- Development of the over-arching Methodology for SDG target 6.3;
- Development of the methodologies for the different sub-indicators;
- Domestication of the sub-indicators;
- Identification of additional sub-indicators to help achieve the target: Proportion of water containing waste recycled or re-used; etc;
- Submitted to the United Nations Environment Programme (UNEP) the baseline data (2018) and participated in the subsequent data drive (2020);
- Many of the SDG 6 Target 6.3 sub-indicators have been added to the Master Plan:
  - **Gaps analysis:** identified gaps that may affect the country from achieving the set-targets, and
  - **Action Plan:** came up with a list of actions that should be undertaken in order to achieve the set-targets.

## **What challenges are encountered in the management of wastewater and water quality?**

Any dysfunction in the management and operation of WWTWs has a negative effect on downstream water quality. The illegal discharging of pollutants either directly into the sewer system, storm water drain system or directly into rivers negatively affects water quality and may also hamper the proper functioning of WWTWs with a resultant deterioration in the quality of the treated effluent discharged.

There must be adequate resources (financial, human and logistical, amongst others) to take all of the necessary water quality samples and measurements in order to have the required data and information available to be able to make evidence based and informed management decisions. Where these resources are not available, or are insufficient, then there will be a gap in the data record and decisions will not be made using actual and reliable data.

## **Are there enough resources to ensure the achievement of the set targets?**

There are currently insufficient resources available to take all of the samples

and readings necessary to adequately populate the databases. Various factors are involved in this, including but not limited to:

- Staff shortages in the Regional Offices of DWS – most of water quality samples are taken by Regional Office staff;
- Insufficient financial resources for staff to get to all sites at desired sampling frequency;
- No longer permitted to preserve water quality samples prior to analysis necessary to more costly transportation of the samples to the laboratory; and
- Maintenance of equipment and acquiring the necessary reagents and consumables.

### **Where to find more information?**

Visit DWS SDG 6 website and have access to information at:

<https://www.dws.gov.za/Projects/sdg/default.aspx> (The website includes all SDGs DWS is involved in, including more information on SDGs).

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**Layout and design - Chief Directorate Communication Services**