1

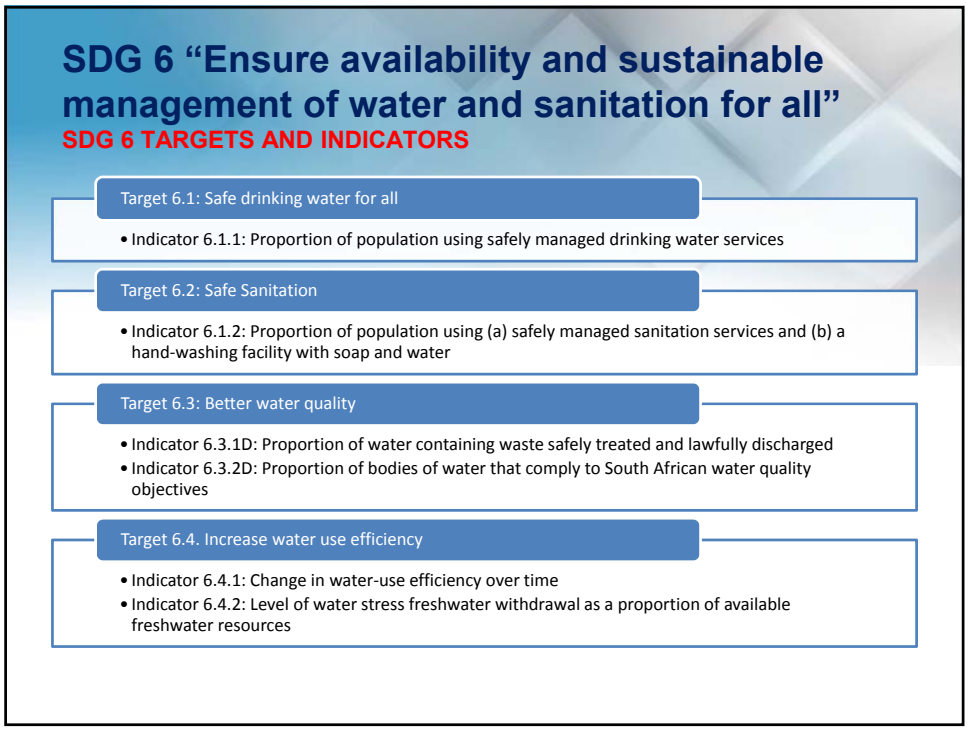
Presentation outline

- General overview of Sustainable Development Goals (SDG)
- SDG 6 targets and Indicators
- SDG: 6.4.1
  - WUE: UN Method of Calculation and Results
  - Monitoring and reporting tools per water sector
- SDG: 6.4.2
- Challenges

2


SA can report on 68,1% of Social Goals
SA can report on 69% of Economic Goals
SA can report on 56,5% of Environmental Goals
SA can report on 73% of the Peace and Security Goal
SA can report on 29,4% of the Means of Implementation
STATS SA
STATISTICS SOUTH AFRICA
THE SOUTH AFRICA I KNOW, THE HOME I UNDERSTAND

3


SDG 6 "Ensure availability and sustainable management of water and sanitation for all"
SDG 6 TARGETS AND INDICATORS
Target 6.1: Safe drinking water for all
• Indicator 6.1.1: Proportion of population using safely managed drinking water services
Target 6.2: Safe Sanitation
• Indicator 6.1.2: Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water
Target 6.3: Better water quality
• Indicator 6.3.1D: Proportion of water containing waste safely treated and lawfully discharged
• Indicator 6.3.2D: Proportion of bodies of water that comply to South African water quality objectives
Target 6.4. Increase water use efficiency
• Indicator 6.4.1: Change in water-use efficiency over time
• Indicator 6.4.2: Level of water stress freshwater withdrawal as a proportion of available freshwater resources

4

SDG 6 "Ensure availability and sustainable management of water and sanitation for all"

SDG 6 TARGETS AND INDICATORS

Target 6.5. Integrated water management

- Indicator 6.5.1:Degree of integrated water resources management implementation (0–100)
- Indicator 6.5.2: Proportion of transboundary basin area with an operational arrangement for water cooperation

Target 6.6: Protect and restore ecosystems

- Indicator 6.6.1D (1):Extent in the spatial extent of water related ecosystems at a point in time, including wetlands, reservoirs, lakes and estuaries as a percentage of total land area
- Indicator 6.6.1D(2): Change in the national discharge of Rivers and Estuaries over time

Target 6a: International cooperation

- Indicator 6.a.1: Amount of water- and sanitation-related official development assistance that is part of a government-coordinated spending plan

Target 6b: Local participation

- Indicator 6.b.1: Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

5

Alignment with Current Programmes

- The SDG 6 (Water & Sanitation) target is in line with
  - Vision 2030; National Development Plan
  - A key driver of the National Water & Sanitation Master Plan
  - High Level Panel on Water
  - MTSF Outcome targets
  - Department of Water and Sanitation APP
  - NWSRS
  - African Ministerial Council on Water (AMCOW)
  - Africa Agenda 63

6

SDG 6 Operational Successes

- 5 Reports submitted to UN to date and a further 8 reports to STATSSA
- DWS SDG6 Biennial Progress Report
- STATSSA SDG6 Goal Report/Country Report / Voluntary National Review

7

SDG 6.4

"By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity"

6.4.1 Change in water-use efficiency over time

6.4.2 Level of water stress: freshwater withdrawal as a proportion of available freshwater resources

8

6.4.1 Change in water-use efficiency over time

- This indicator includes water use by all economic activities,
  - agriculture (excluding forestry and fisheries), Mining,
  - Power Generation (Eskom, currently excluding IPP), and
  - water collection, treatment and supply (looking at distribution efficiency and capturing network leakages, Broadly Local Government) and
  - Industries
- The indicator - value added per unit of water used, expressed in USD/m3, over time of a given major economic sector.

9

UN Method of Calculation of WUE

Agriculture	Local Government
$A_{we} = \frac{GVA_a \times (1 - C_r)}{V_a - R_a}$	$M_{we} = \frac{Mu_d}{V_m}$
• Awe = Irrigated agriculture water efficiency [USD/m3] • GVAa = Gross value added by agriculture (excluding river and marine fisheries and forestry) [USD] • Cr = Proportion of agricultural GVA produced by rain fed agriculture • Va = Volume of water withdrawn by the agricultural sector (including irrigation, livestock and aquaculture) [m3] • Ra = Volume of water returned to the hydrologic system	• Mwe = Municipal water supply efficiency [-] • Mud = Water distributed to municipal users [m3] • Vm = Volume of water withdrawn by municipal utilities (i.e. the public distribution network) [m3]

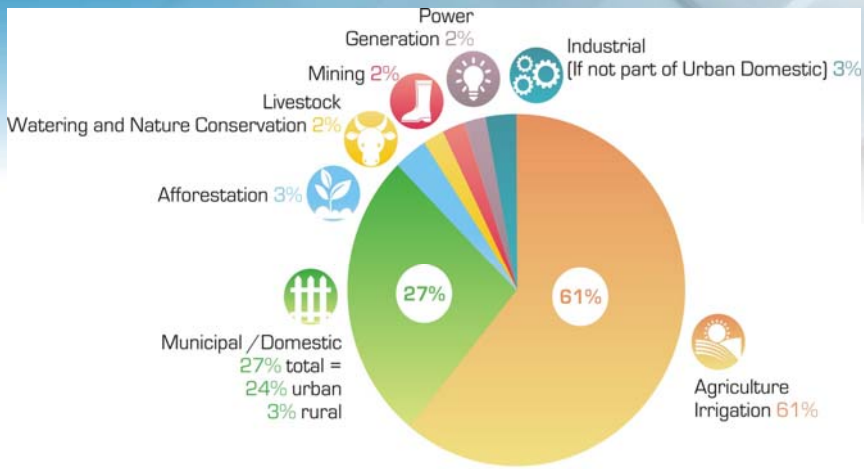
10

UN Method of Calculation of WUE

Power Generation	Industry (Mining and industry)
$E_{we} = \frac{TEP}{V_e - R_e}$	$I_{we} = \frac{GVA_i}{V_i - R_i}$
• Ewe = Energy water efficiency [MWh/m3] • TEP = Total energy production [MWh] • Ve = Volume of water withdrawn for energy production, i.e. for the cooling of power plants (including evaporation from reservoirs created behind dams for hydropower) [m3] • Re = Volume of water returned to the hydrologic system (return flow) [m3]	• Iwe = Industrial water efficiency [USD/m3] • GVAi = Gross value added by industry (excluding energy) [USD] • Vi = Volume of water withdrawn by the industries (excluding energy) [m3] • Ri = Volume of water returned to the hydrologic system (return flow) [m3]

11

Water Use per Sector



How we use our water resources in South Africa

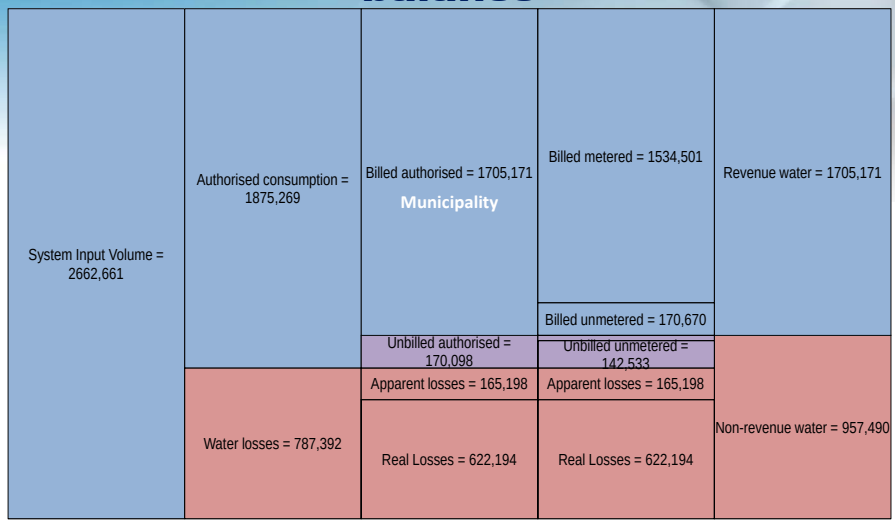
12

Preliminary Report: 2018

Irrigated Agriculture Water Use Efficiency	0.115 USD/m3
Industrial Water Use Efficiency	25.926 USD/m3
Services Water Use Efficiency	1.041 USD/m3
Water Use Efficiency	**5.051 USD/m3**

13

WUE Monitoring tools
Local government: IWA water balance



14

WUE Monitoring tools
Agriculture: Water Administration System

- Major irrigation schemes (71) are assessed for water losses
- Irrigation schemes submit their Water Use Efficiency Accounting Reports through Water Administration System on monthly basis.
- State of water losses for irrigation scheme can be produced.

15

Example of the WUEAR

SAND-VET WUA - WGV

Water Use Efficiency Accounting Report: Weeks 1 to 9
Vet: Canal: VET 2019/2020

Year	Mnth	Agriculture (x1000 m3)	Industrial (x1000 m3)	Municipality (x1000 m3)	Household (x1000 m3)	Down stream (x1000 m3)	Other (x1000 m3)	Total used (x1000 m3)	Released (x1000 m3)	Total loss (x1000 m3)	Loss (%)	Alloc used (x1000 m3)	Alloc avail (x1000 m3)	Used (%)	Avail (%)
2019	Jun	328	0	487	27	434	0	1 276	1 911	635	33.2	815	44 668	1.8	98.2
2019	Jul	1 161	0	512	27	538	0	2 239	3 096	857	27.7	2 489	42 995	5.5	94.5
2019	Aug	400	0	130	7	89	0	626	625	-1	0.0	3 019	42 464	6.6	93.4
		1 890	**0**	**1 130**	**60**	**1 062**	**0**	**4 141**	**5 632**	**1 491**	**26.5**	**3 019**	**42 464**	**6.6**	**93.4**

Vet: Canal 02/08/2019 Page 1

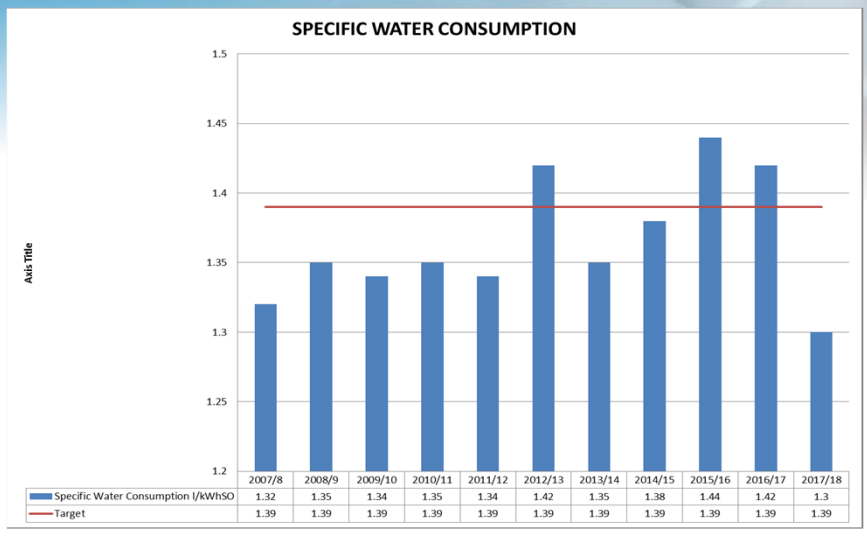
16

Power Generation

- All power stations have developed water strategy implementation plans, focusing on actions to reduce water use and ensure compliance.
- Progress against plans is monitored and reported to head office
- WUE targets for each power station has been set as part of these strategies and they are measured against these targets
- The performance of all the stations against the targets feeds into overall performance for the group
- Targets are revised each year
- Data is provided quarterly for each month of the year.

17

Eskom Ten Year WUE Performance



	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Specific Water Consumption l/kWhSO	1.32	1.35	1.34	1.35	1.34	1.42	1.35	1.38	1.44	1.42	1.3
Target	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39	1.39

18

Mining Sector

- DWS together with Mining sector developed the following tools for WUE
  - Benchmarks for WC/WDM in the Mining Sector i.e. Commodity-based Benchmarks Including Key Performance indicators .
  - Guideline for the Development of WC/WDM Plans for the Mining Sector
- Currently developing the Computerised WC/WDM Reporting Tool.

19

SDG 6.4.2 (LEVEL OF WATER STRESS)

- WATER SCARCITY : can broadly be understood as the lack of access to adequate quantities of water for human and environmental uses (Source,GWF Understanding water scarcity: Definitions and measurements May 07, 2012)
- There is no consensus on how water scarcity should be defined or how it should be measured.
- One of the most commonly used measures of water scarcity is the 'Falkenmark indicator' or 'water stress index'.
  - it defines water scarcity in terms of the total water resources that are available to the population of a region

20

SDG 6.4.2 :WATER STRESS

- The purpose of this indicator is to show the degree to which water resources are being exploited to meet the country's water demand.
- It measures a country's pressure on its water resources and therefore the challenge on the sustainability of its water use.
- It indicates the likelihood of increasing competition and conflict between different water uses and users in a situation of increasing water scarcity.

21

Overview of Method

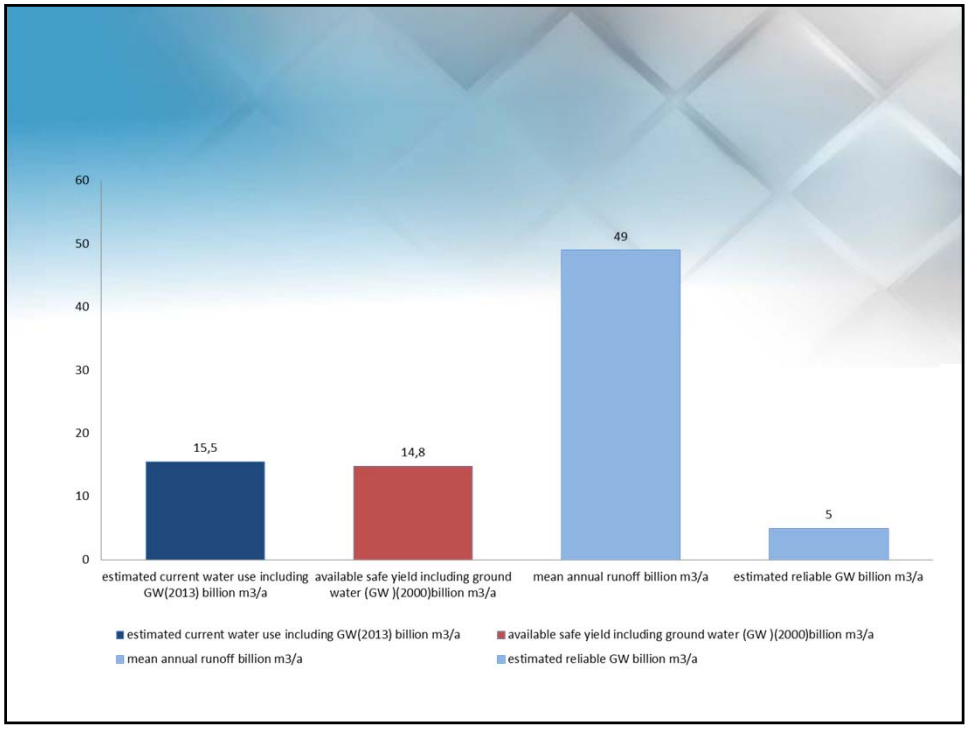
- MOC

$$Stress = \left(\frac{TWW}{TRWR - Env}\right) \times 100$$

Where:

- TWW = Total Water Withdrawal (surface + groundwater)
- TRWR = Total Renewable Freshwater Resources
- Env = Environmental flow requirements

22



23

2018 reporting results

- **Water stress at 41% (2017 calculation)**

24

Challenges Way forward

- Actual water use data by the respective water use sectors i.e. Agriculture, Industries, Mining, Power Generation and Municipal Sector including Water Boards (not WARMS data)
- Lack of reporting on the actual water use
- Web-based Water Use Efficiency monitoring and reporting tools
- Lack of regulatory tools addressing water use efficiency
- Lack of reliable hydrological data

25

Some key messages from Minister and DM's Budget Vote Speeches:

- New regulations on the conservation of water
- Operations and Maintenance
- (National WC/WDM) Education and Awareness campaigns
- Explore new technologies
- Agricultural consumption is largely unmetered,

26

THANK YOU

27