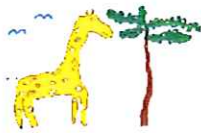


17/02/15 PC
Water



SONA 2017 : a water economy perspective

Dhesigen Naidoo

February 2017

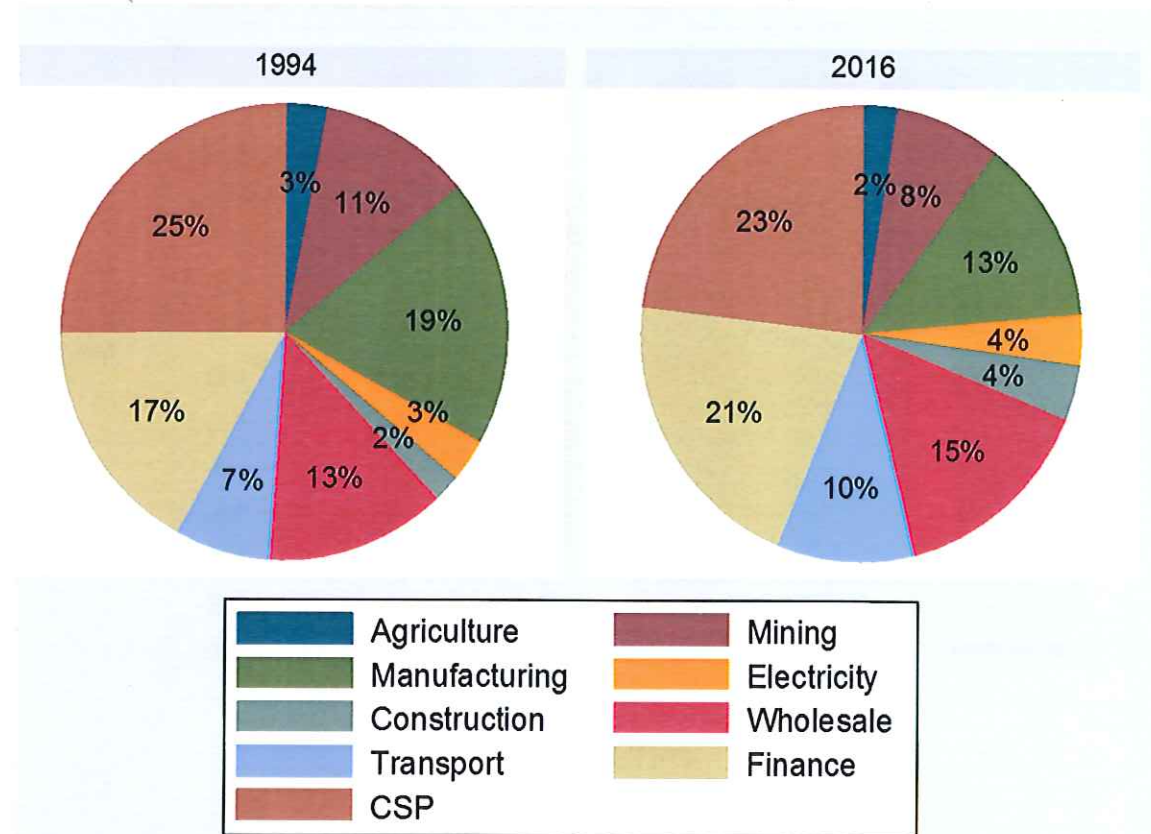
Central Messages

- The challenges of Poverty, Inequality and Unemployment (PIU) are paramount.
- The NDP and its supporting initiatives and mechanisms remains the guiding tool to address the PIU challenges on the back of an economic growth imperative.
- The focus areas/priority sectors and actions have been spelt out.
- Together with S&T, Transport and Broadband access, Water and Sanitation is a key cross-cutter and enabler of growth.

SA's principle sectors

- SONA 2017 priority sectors: Agriculture and agro-processing, Energy, Industrialisation, Mining and beneficiation, Tourism and the Oceans economy.
- In an environment of SMME development, workplace harmony and investment.
- Growth target of 1.3% in 2017 (0.5% -2016).
- Strong correlation to the current dominant sectors albeit changing contributions over time.
- Important nuances and vectors e.g. Agric to Agric + AgroP; Electricity to Energy; ManuF to Industrialisation; mining includes beneficiation.
- In general, the current structure of these sectors in South Africa make them highly water intensive.

re I: Contribution to GDP by sector, (1994 and 2016)



re: Borhat, Cassim and Hirsch (2014) and South African Reserve Bank (2014, 2016).

CSP = community, social and personal services (government)

Water Use per sector

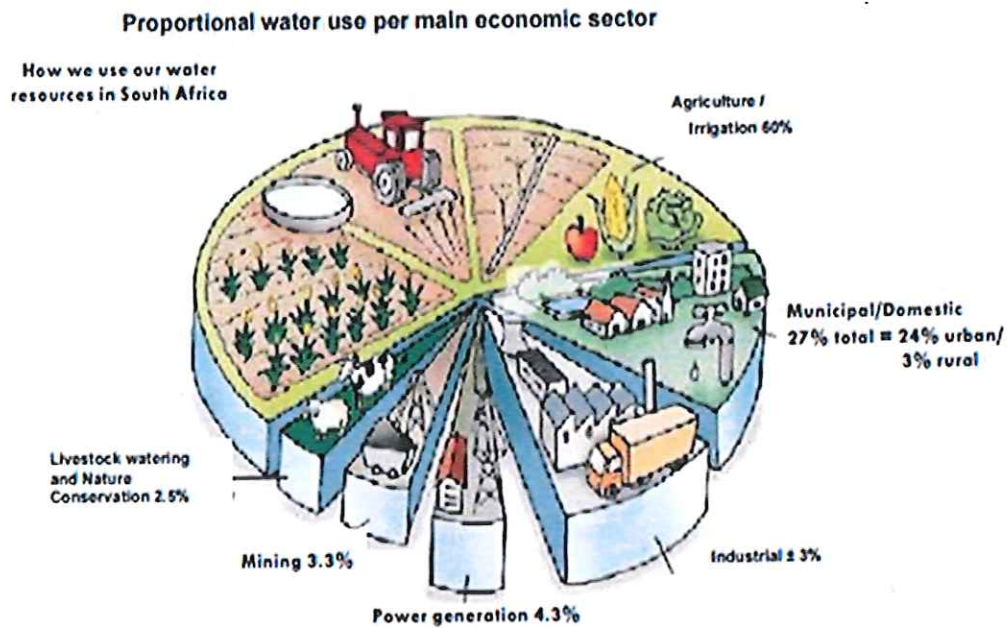
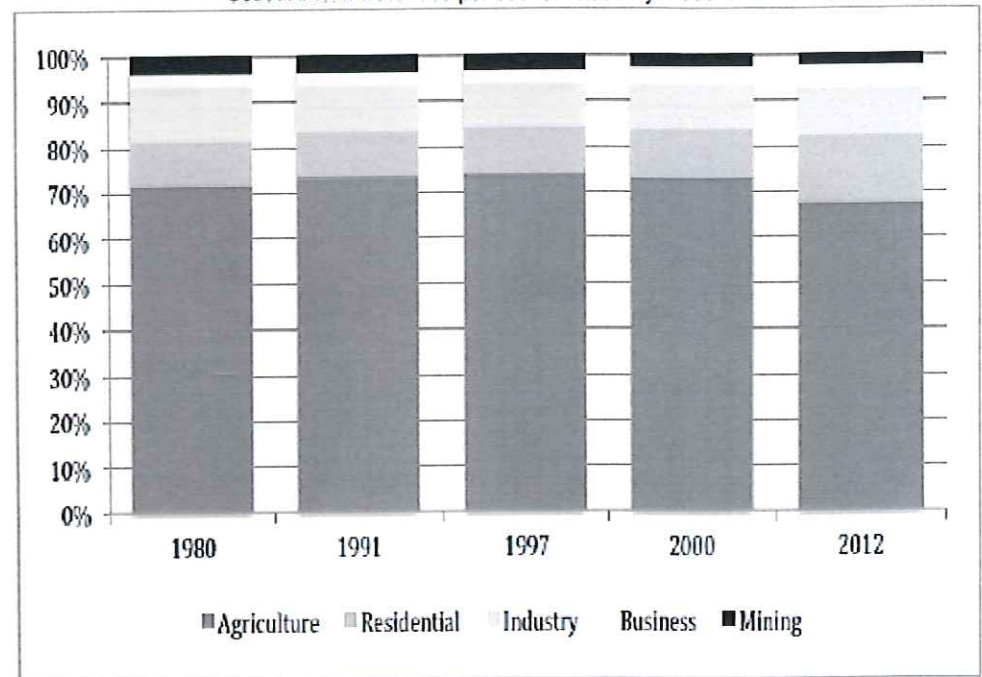


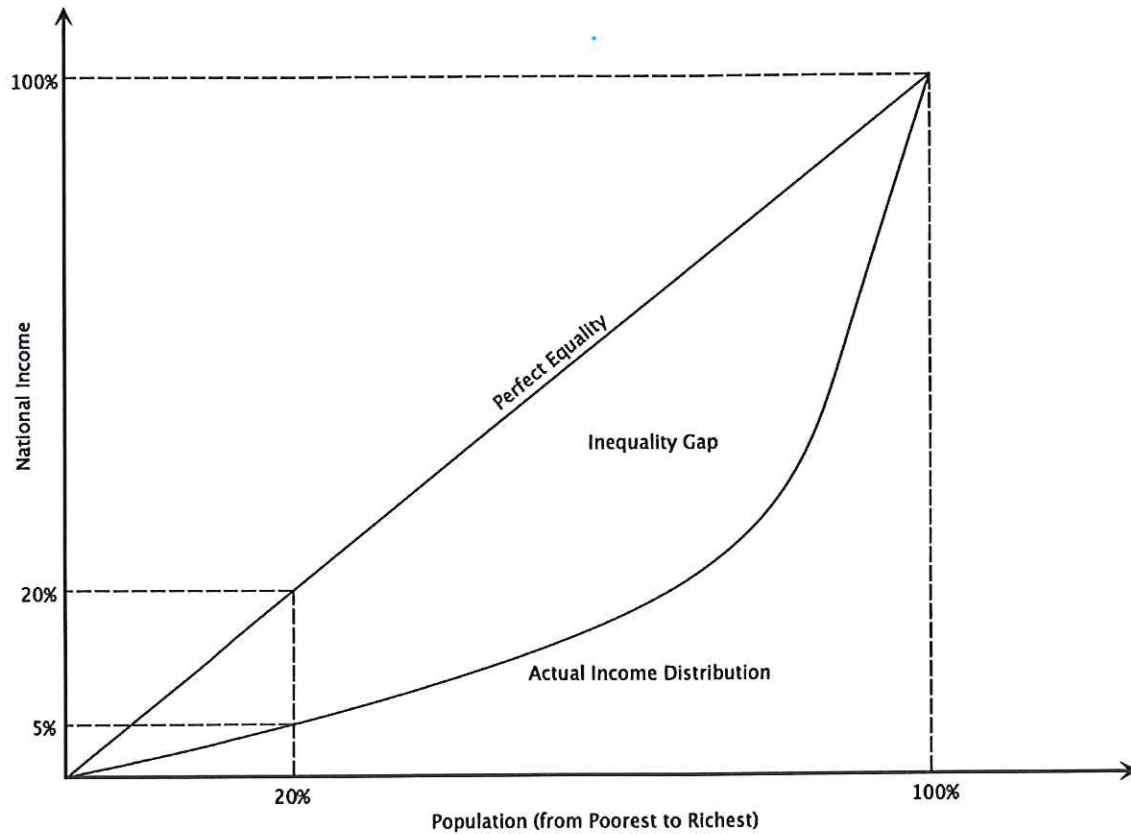
Figure 1
South African water use per economic activity: 1980-2012



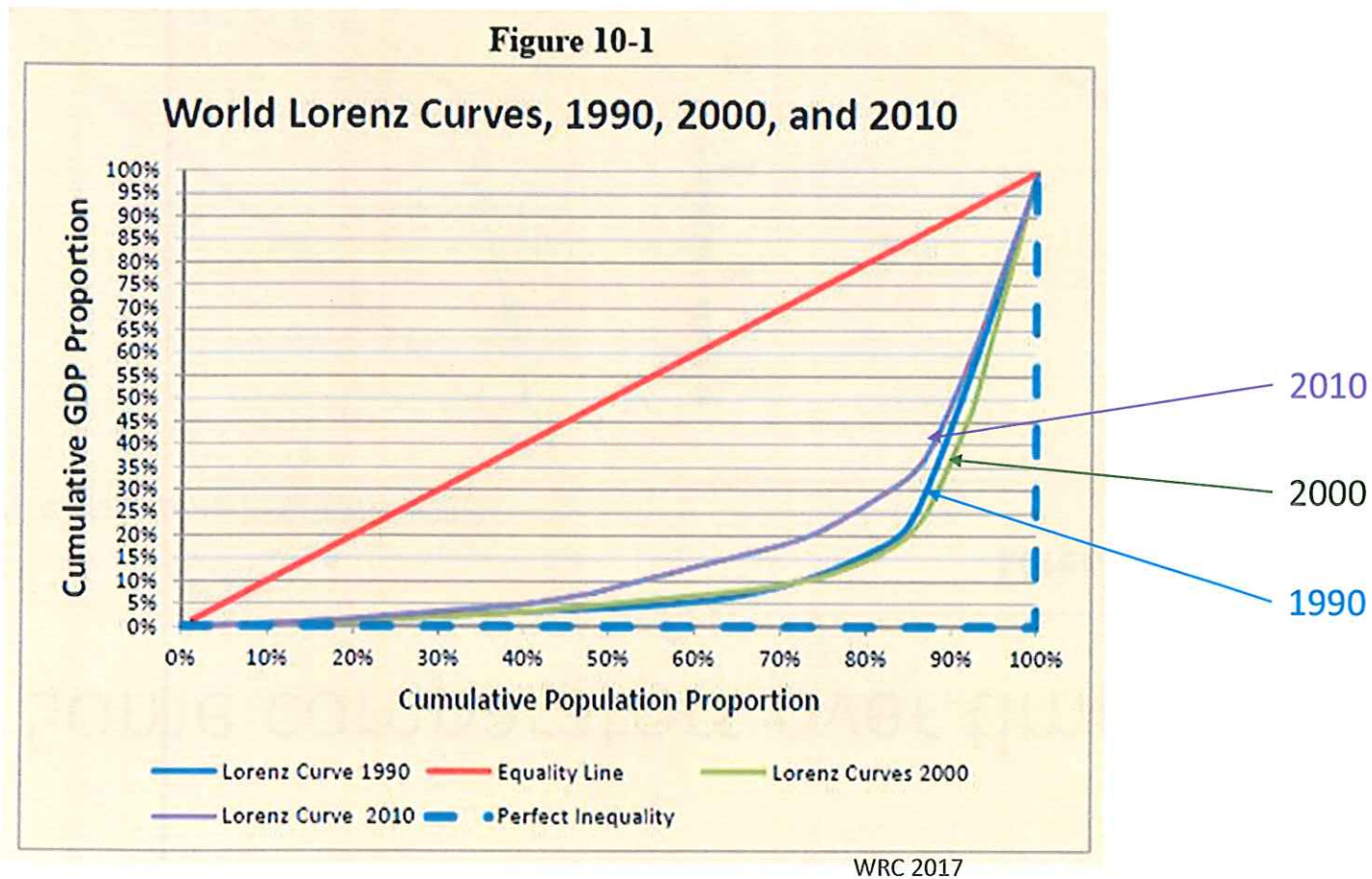
Source: Department of Water Affairs (various publications)

Some analytical tools

Dealing with PIU – the Lorenz curve

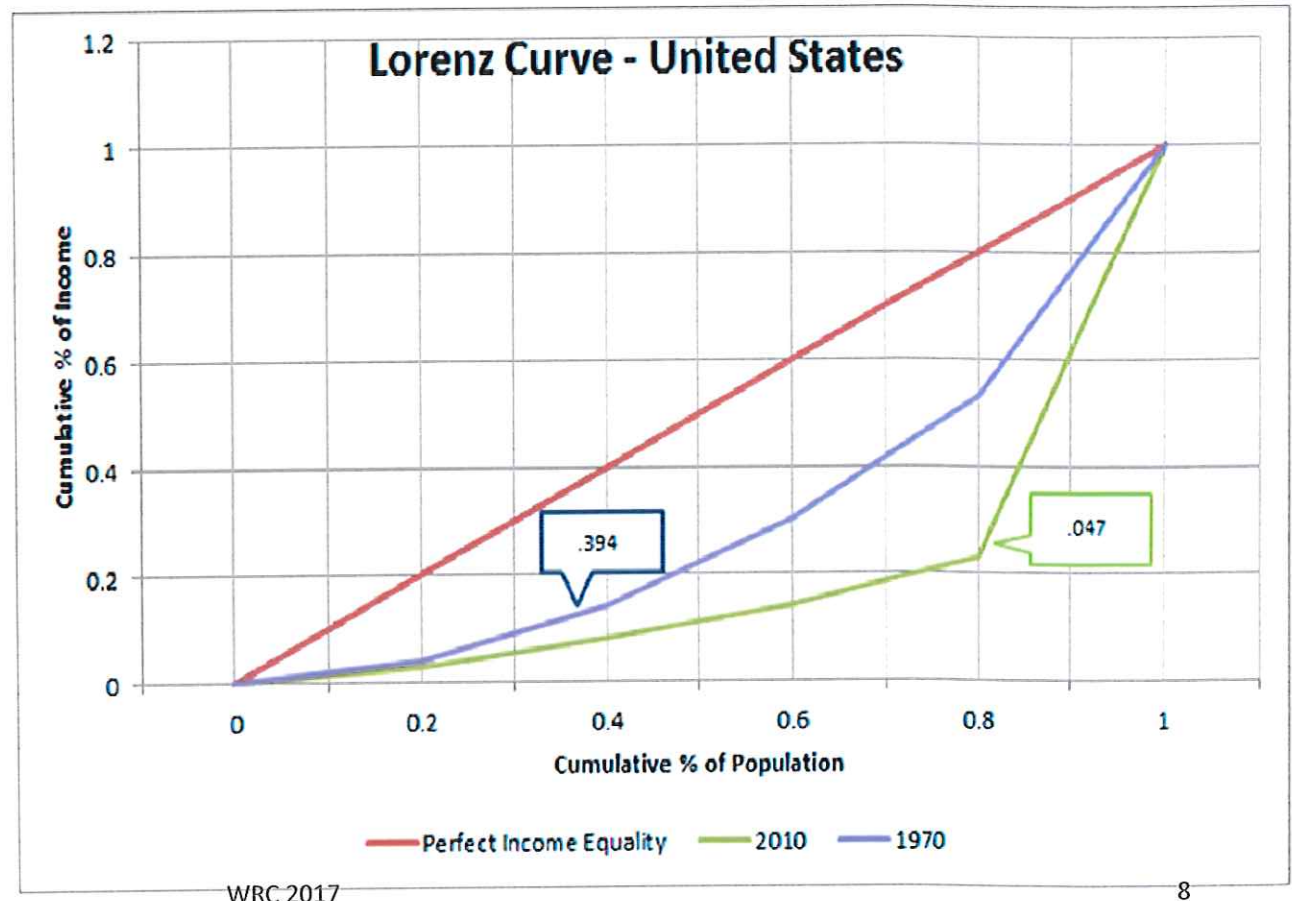
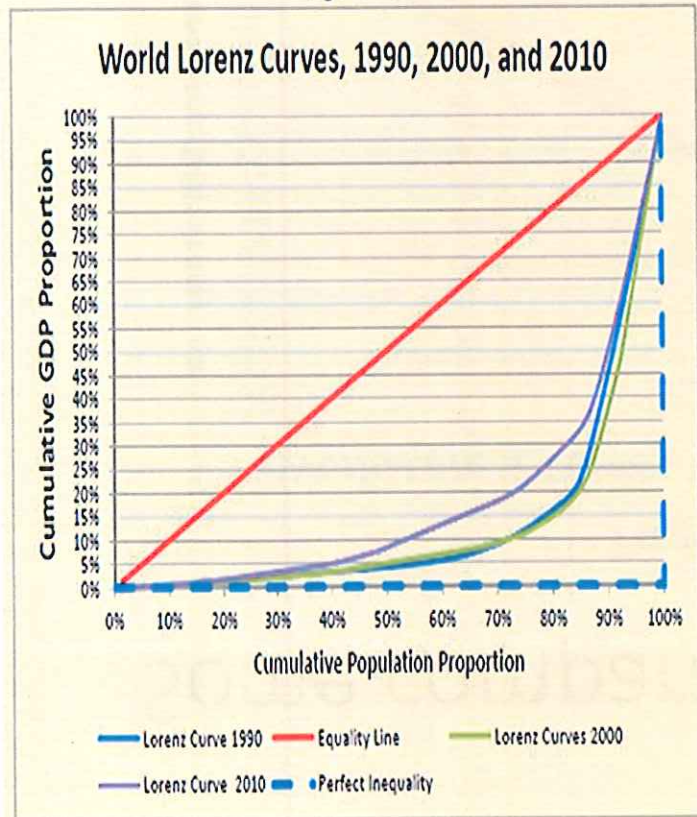


Some comparators over time – Lorenz curves



Some comparators over time – Lorenz curves

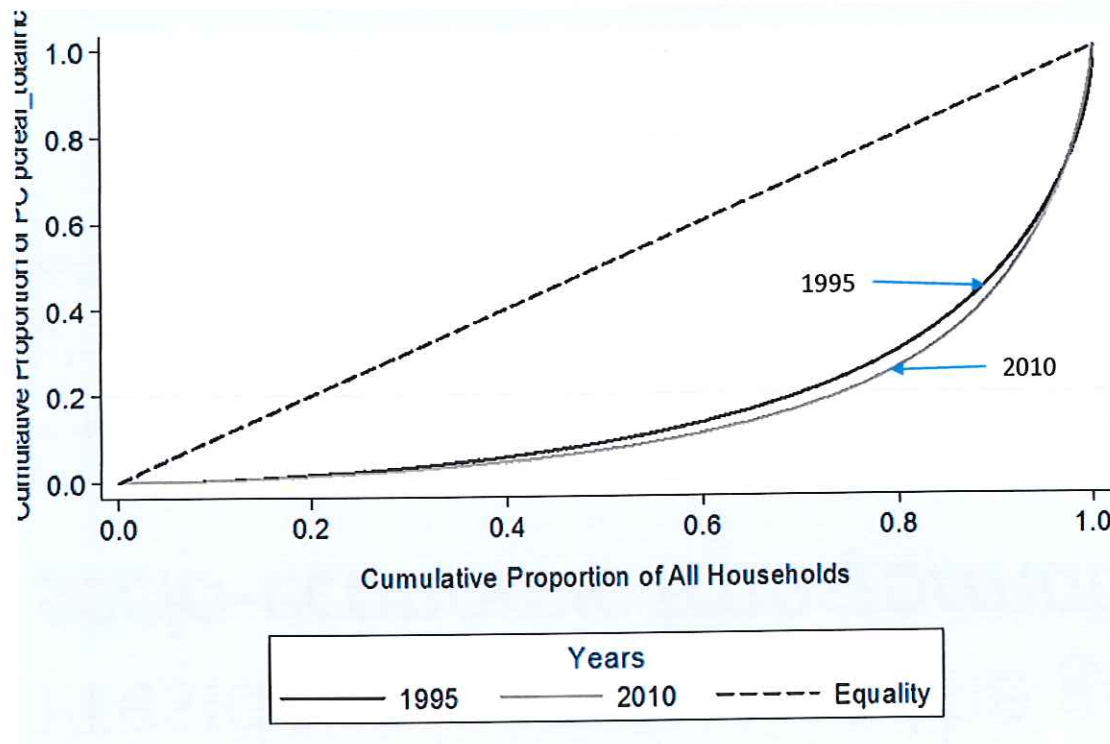
Figure 10-1



President introducing the goal of *'radical socio-economic transformation'* in SONA 2017

“ Twenty two years into our freedom and democracy, the majority of black people still economically disempowered. They are dissatisfied with the economic gains of liberation.”

Lorenz curve for South Africa

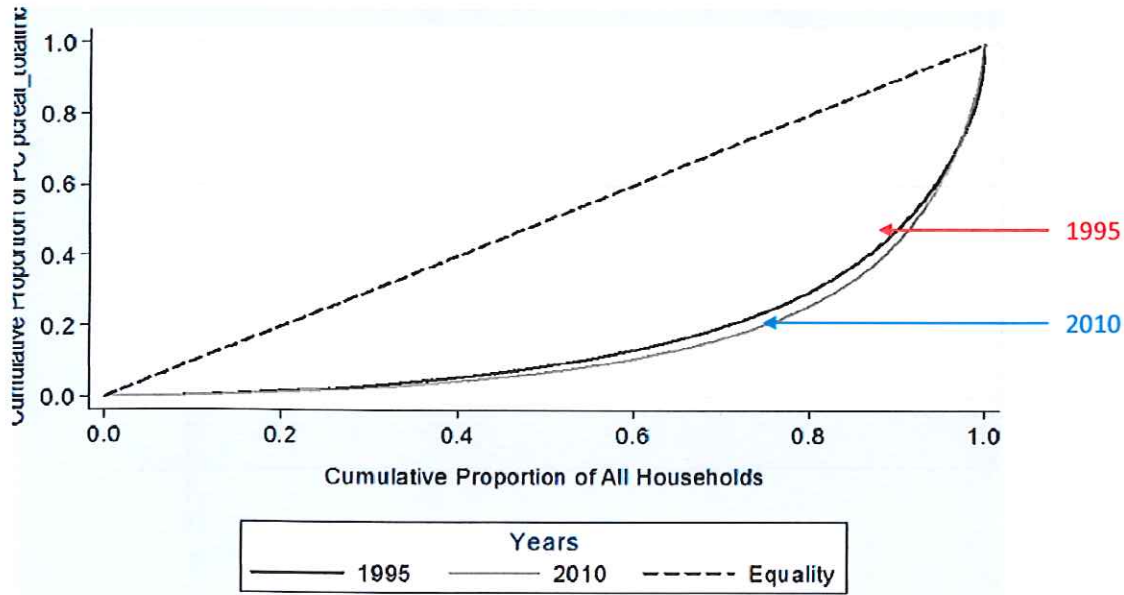


- In SA the classical class structure biases remain race based.
- While the decline is not as sharp as the USA for instance, it remains an unexpected decline given the range of policy and legislative interventions to remove all racial barriers in the economy.
- The picture is even more stark for African households.

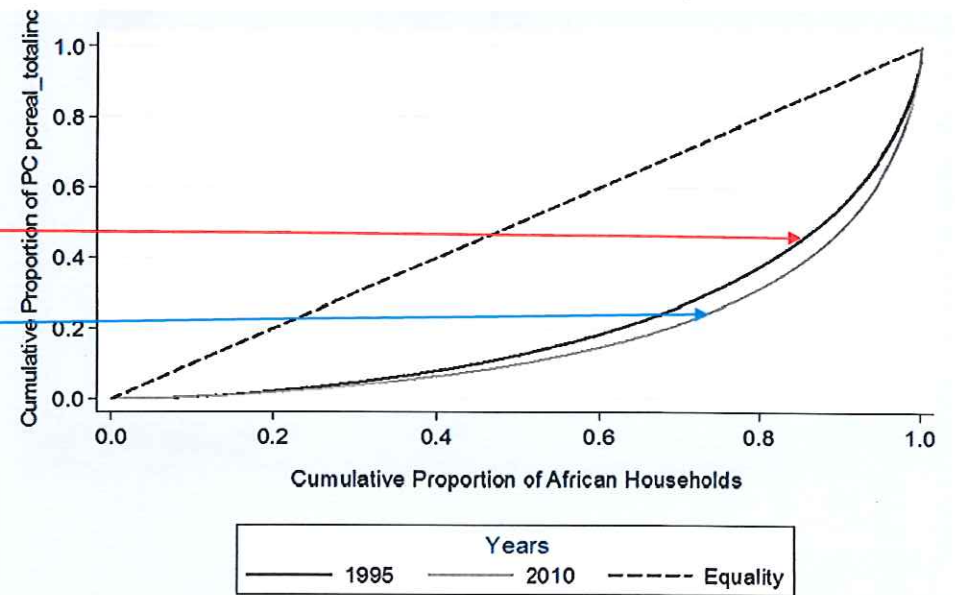
Source: Statistics South Africa (1995 and 2013); Own Calculations using Per Capita Household Income, WRC 2017.
 Notes: 1. The 1995 population weights are based on the cross-entropy methodology calibrated using ASSA's 2003 population model. The 2010 population weights are based on the 2001 Population Census.

Lorenz curve for South Africa

Lorenz Curve for South Africa; 1995 and 2010



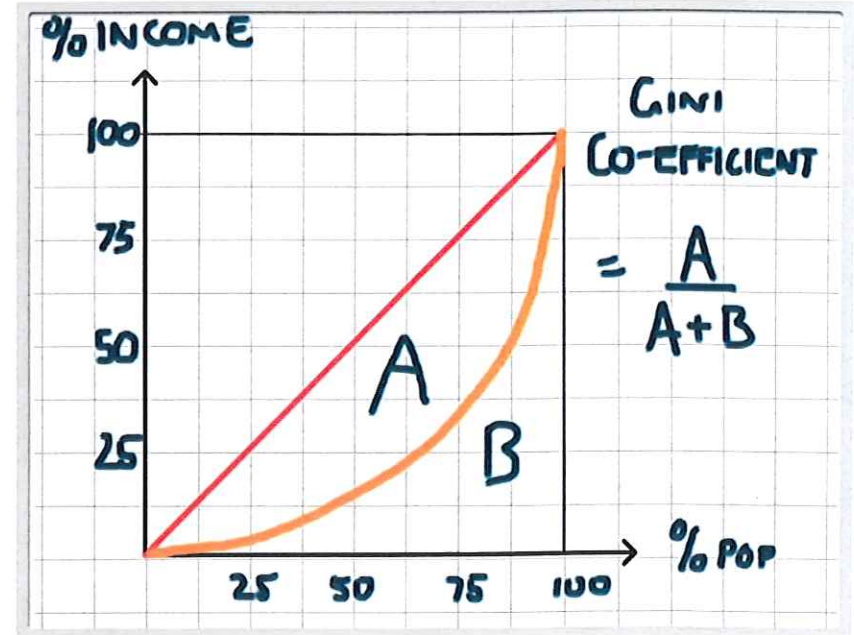
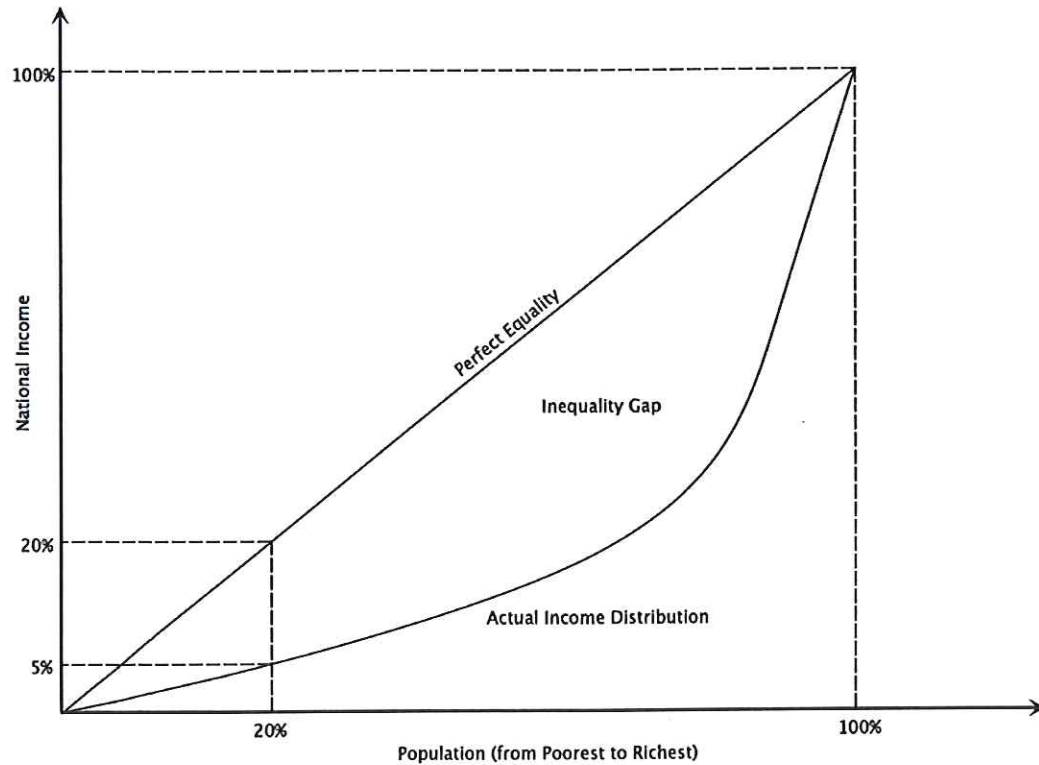
Lorenz Curves for African-Headed Households, 1995 and 2010



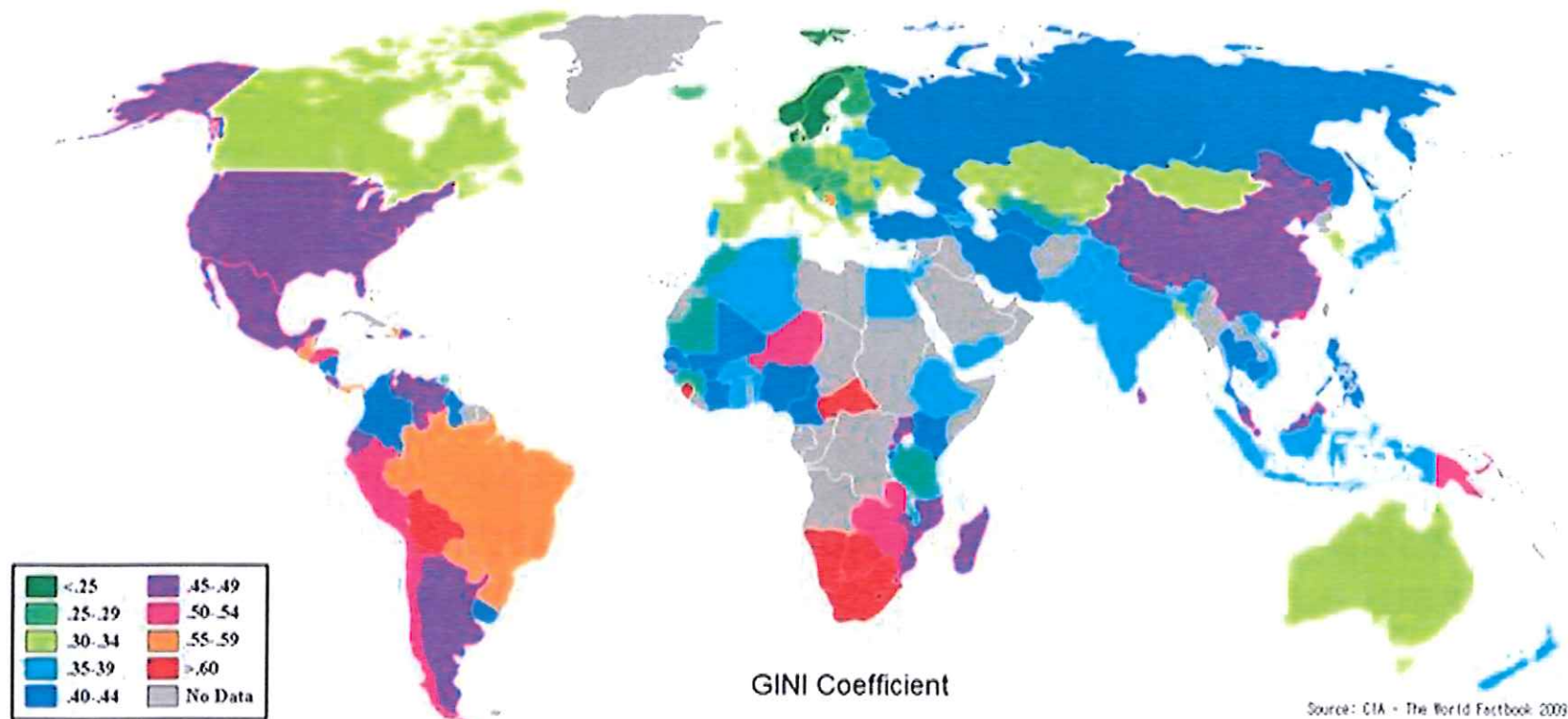
Source: Statistics South Africa (1995 and 2013); Own Calculations using Per Capita Household Income.

Notes: 1. The 1995 population weights are based on the cross-entropy methodology calibrated using ASSA's 2003 population model. The 2010 population weights are based on the 2001 Population Census.

Dealing with PIU – the Gini Co-efficient



The world by Gini co-efficient



WEF Global Competitiveness Index #53/148 countries

IMF GDP ranking #30

World Bank GDP ranking #28

SA Gini ranges from 0.660 – 0.696 (dataset dependencies)

President introducing the goal of ‘radical socio-economic transformation’ in SONA 2017

“ Twenty two years into our freedom and democracy, the majority of black people still economically disempowered. They are dissatisfied with the economic gains of liberation.”

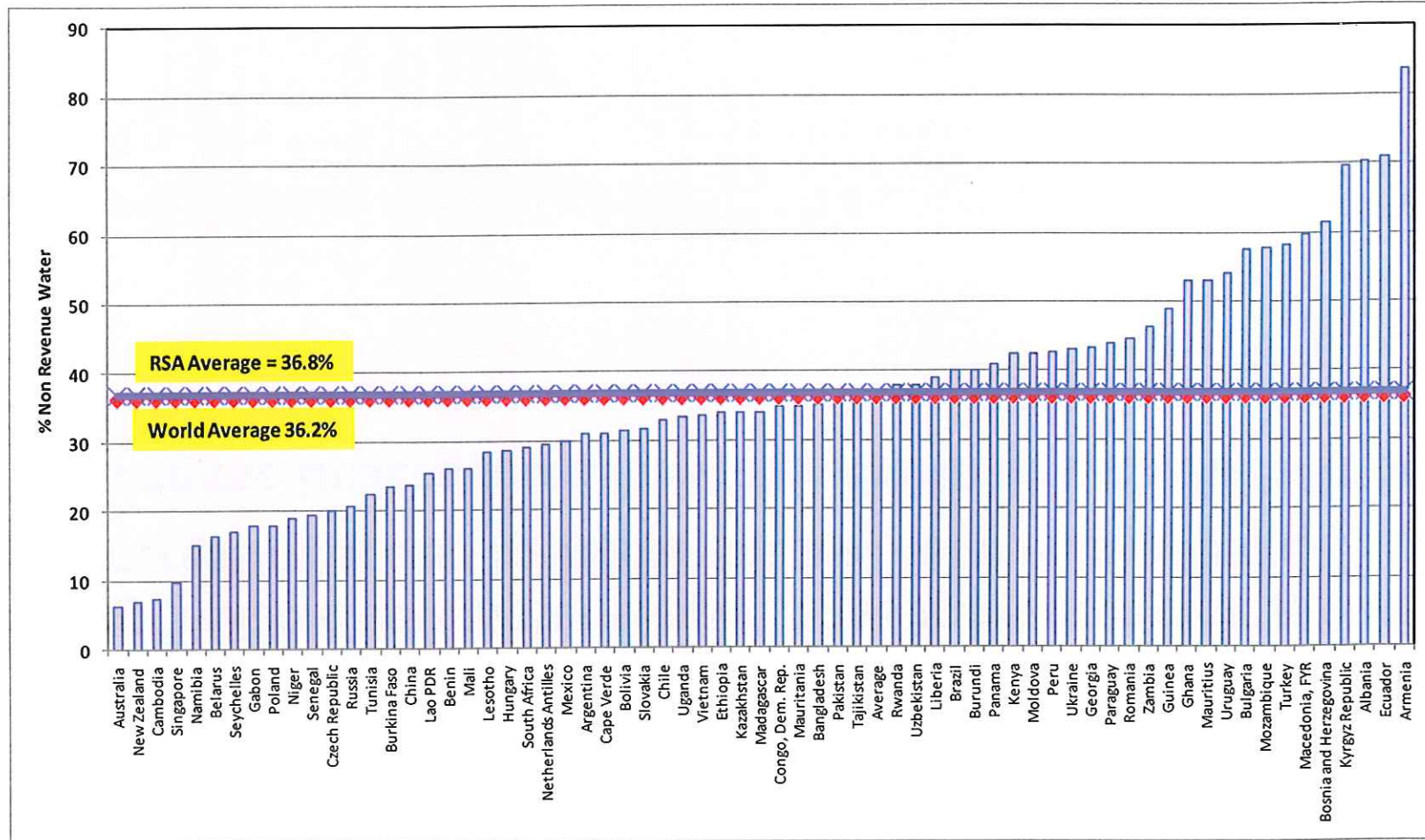
In addition “...The skewed nature of ownership and leadership patterns need to be corrected”

The acute co-dependency of economic sustainability and inclusion as a pre-dominant message.

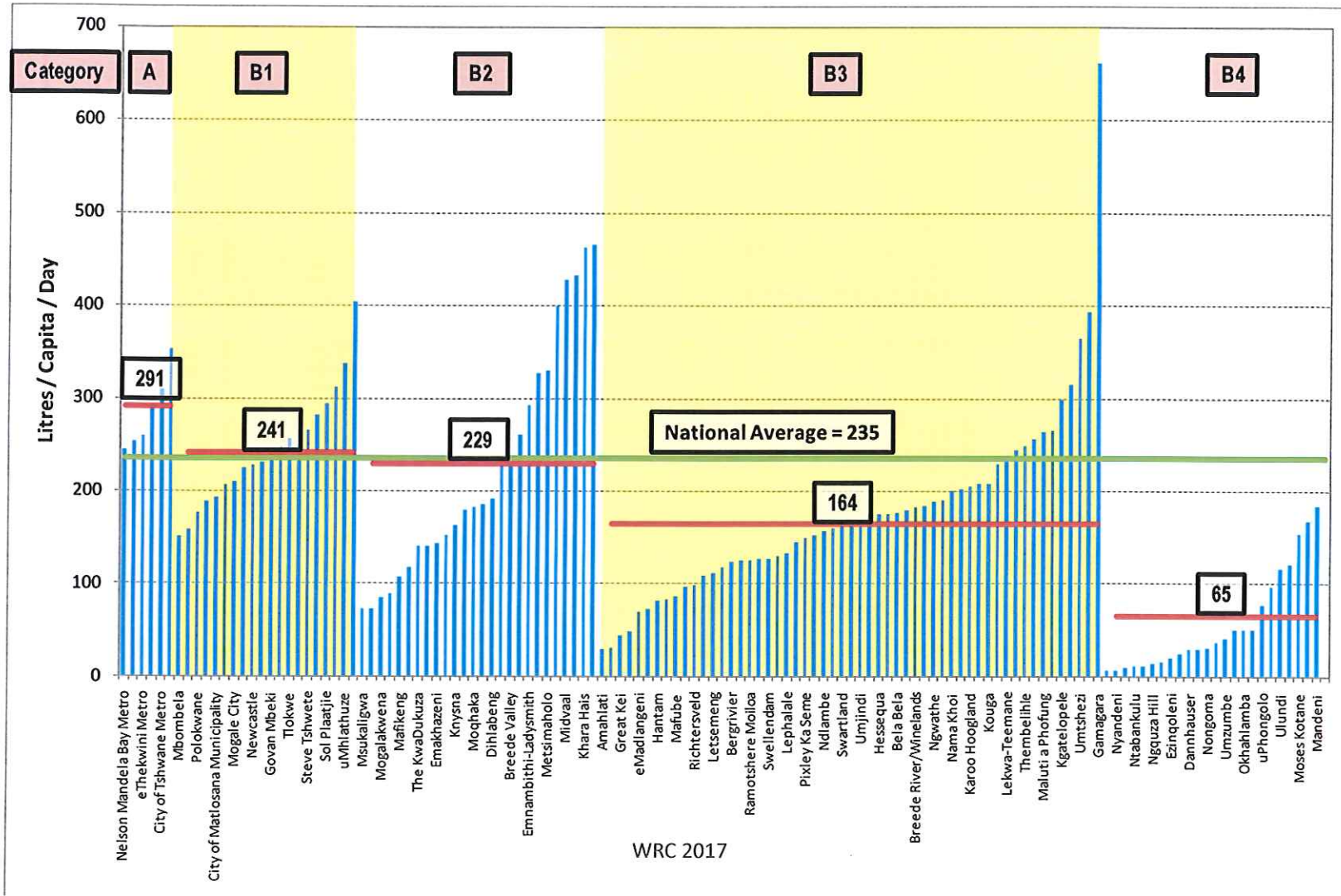
SONA 2017 : Direct water investments

- Ensuring “reliable bulk water supply...to support economic growth whilst increasing access to vulnerable and rural municipalities.”
- Addressing the Unaccounted for Water challenge with the War on Leaks programme.

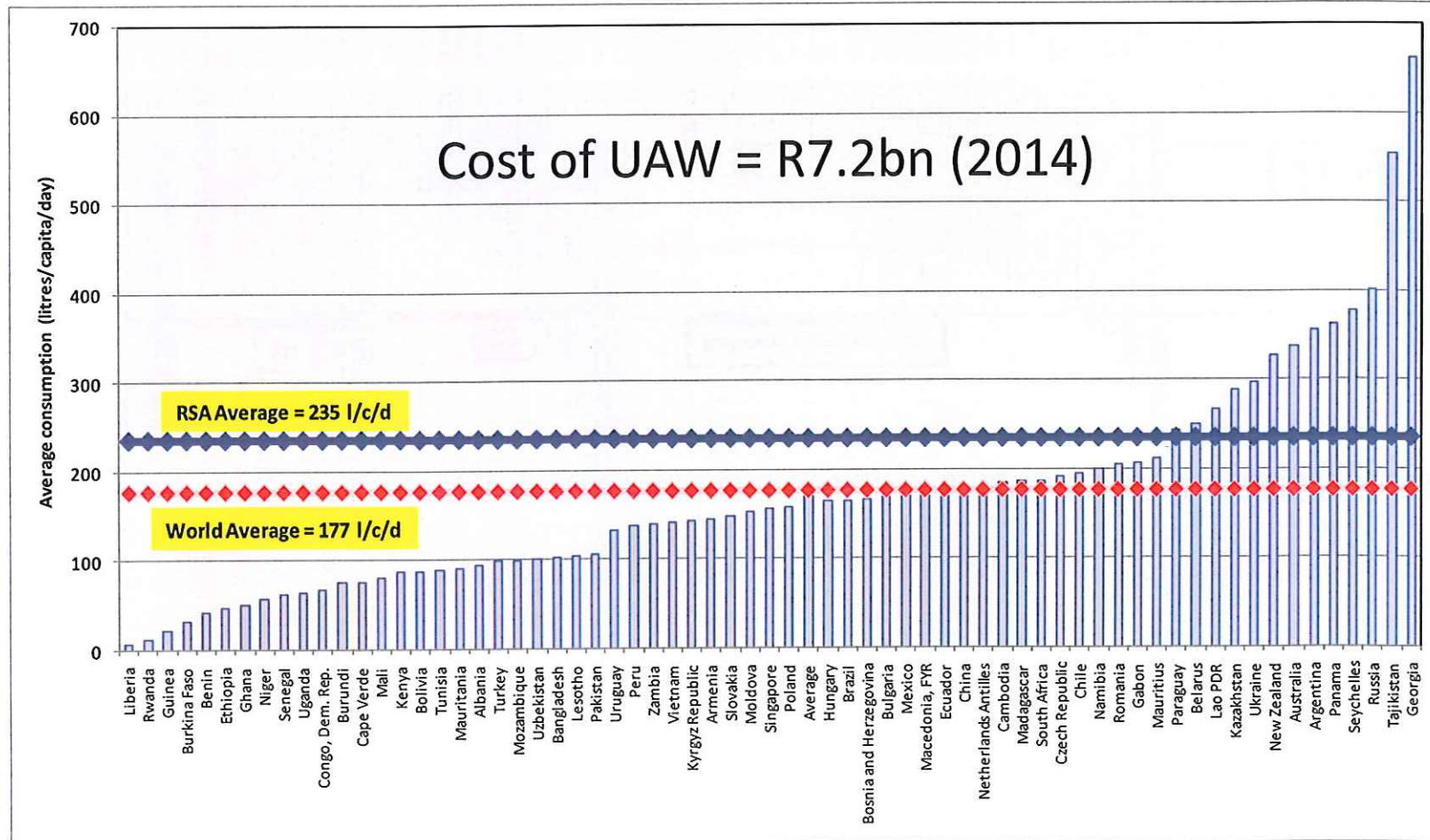
International NRW benchmark



Municipal I/c/d Distribution /Category

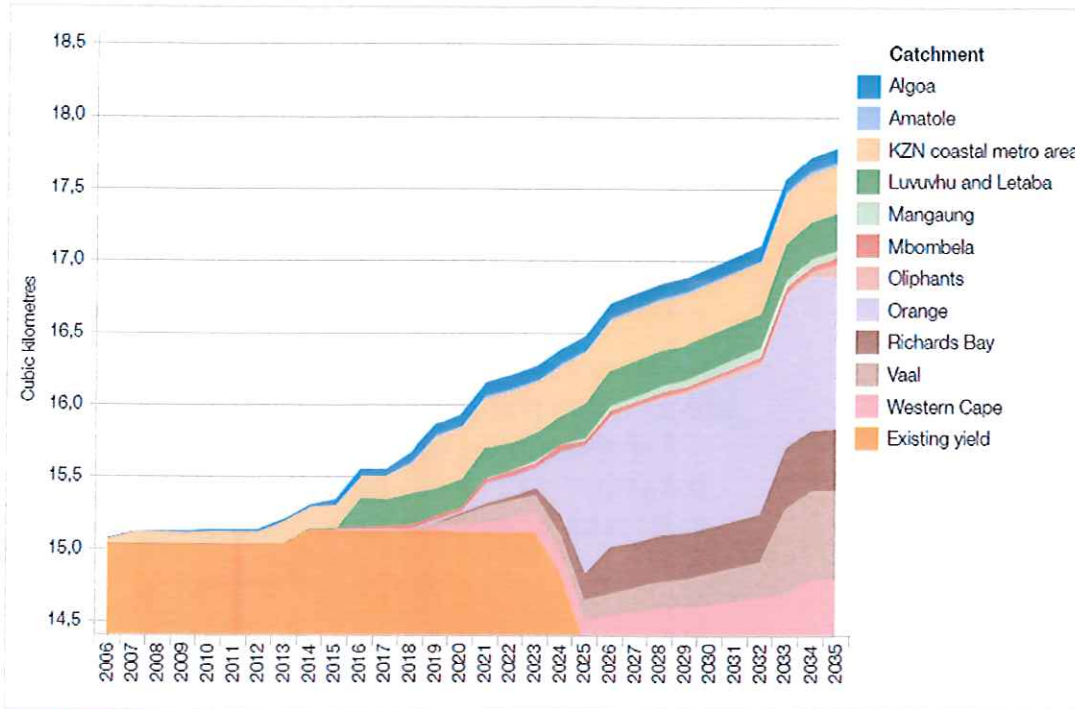


International l/c/d benchmark



Water scenarios 2035 – WRC, ISS, U Denver

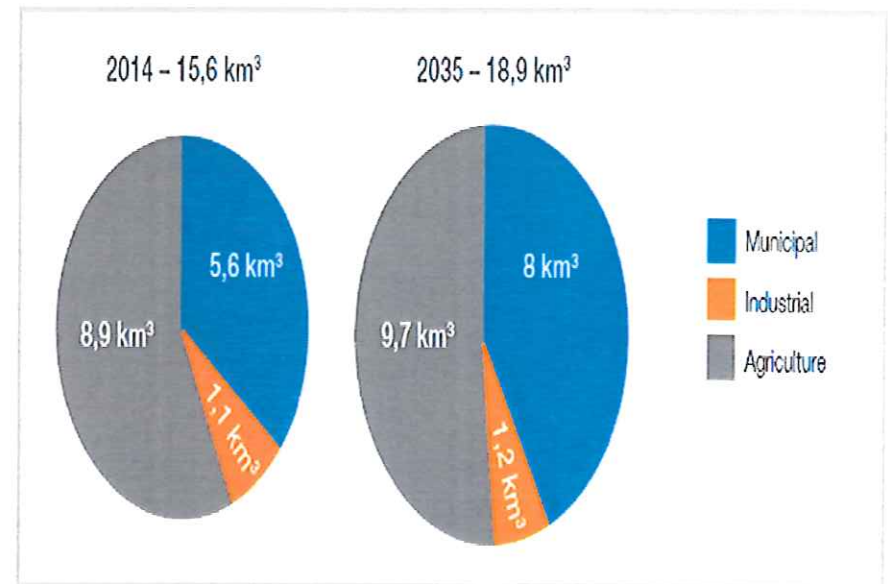
Figure 4: Planned yield increases extracted from all published large-scale reconciliation strategies



Source: All large scale reconciliation strategies, see endnotes for sources.

Note: The decrease in yield in 2024 is due to the completion of the LHWP2. It will initially decrease the yield as the dam is filled. It will also allow for more water to be used for ecological water requirements, further reducing existing yield.³¹

Figure 3: Total water withdrawals in 2014 and 2035 in the Current Path scenario

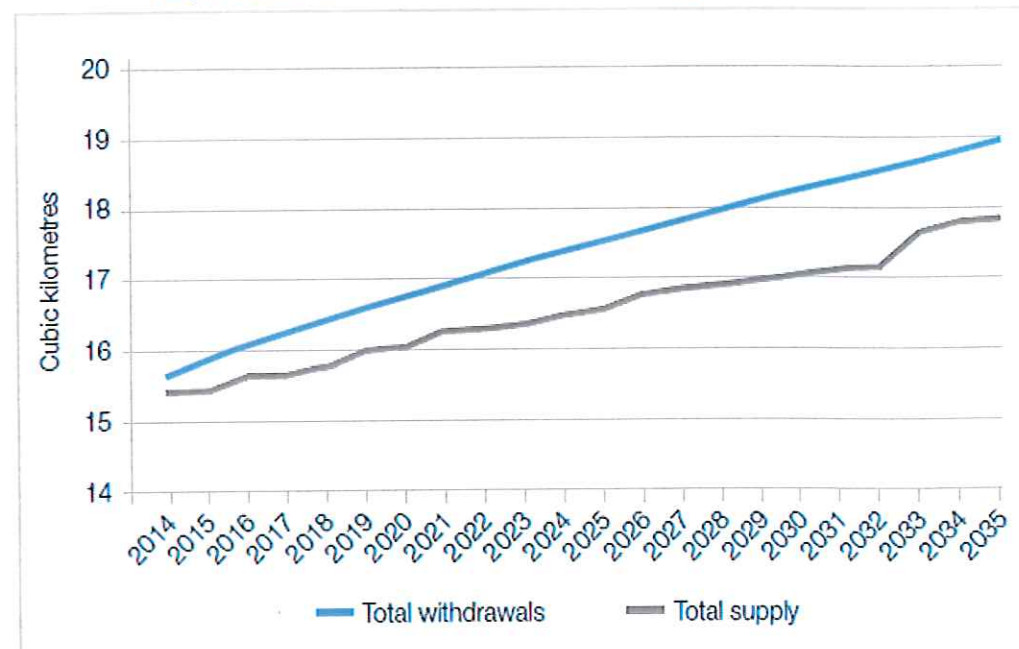


Source: IFs version 7.13. Area of pie charts scaled to overall water withdrawals.

Scenarios 2035

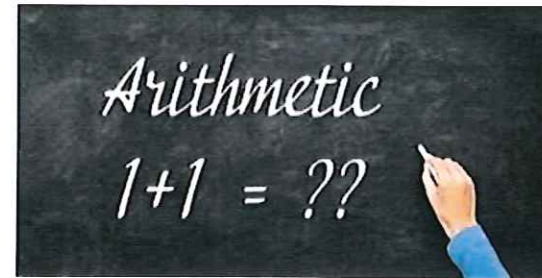
- Business as usual scenario will result in a 1.1 billion m³ deficit.
- The NWRS2 and subsequent strategies including the roll-out of new initiatives have the potential to simultaneously decrease the 2035 demand and increase the supply through innovative measures.
- The demand management measures include 'new sanitation', dealing with the unaccounted for water, recycling and reuse, other water conservation and demand management measures.
- The new supply 'taps' include smarter wastewater treatment (+AMD), Desalination, Fogwater and Rainwater harvesting and water sensitive design.

Figure 5: Total water withdrawals for all sectors forecasted to 2035 and total water supply, including yield increases from all large-scale water reconciliation strategies



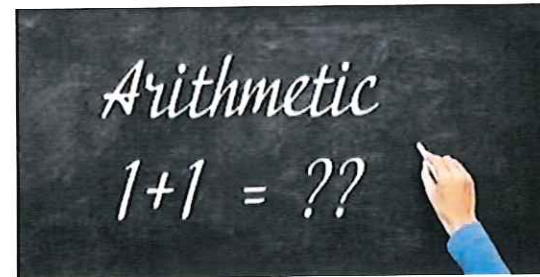
Source: IFs version 7.13.

Time for some



- Current intervention options that can be fully accomplished within the next 5 years include the following DM gains/savings:
 1. A minimum of 109.5 million m³ from New Sanitation
 2. 502 million m³ from the Leaks programme at 50% completion (25.4% leakage to 12.7%)
 3. 400 million m³ savings in large scale agriculture using the WAS instrument.

Time for some



- Projected **deficit** on current use patterns and factoring growth is **1 100 million m³ by 2035.**
- This can be offset substantially within the next 5 years already with proven local interventions, many of which are currently underway offering an offset in water demand decreases of **1 000 million m³ by 2021.**

Water Use per sector

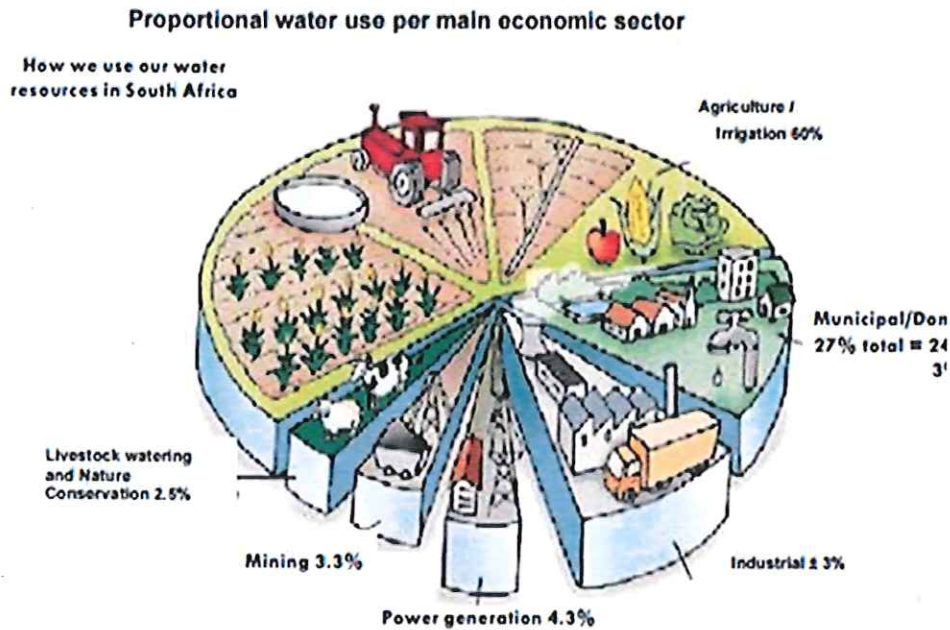
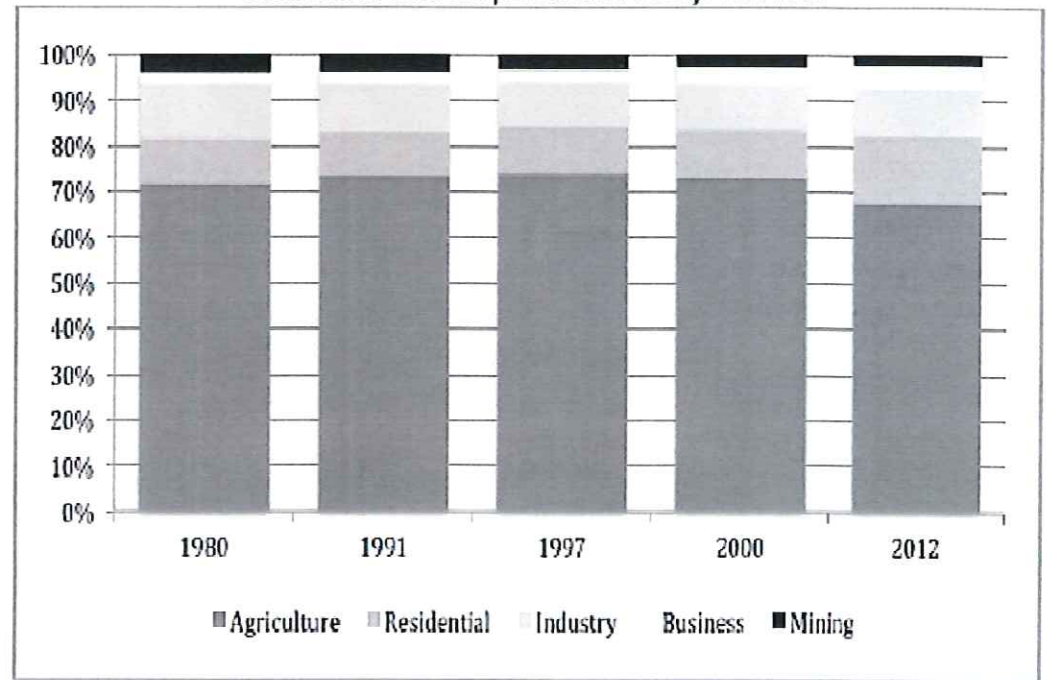


Figure 1
South African water use per economic activity: 1980-2012



Source: Department of Water Affairs (various publications)

Source DWS

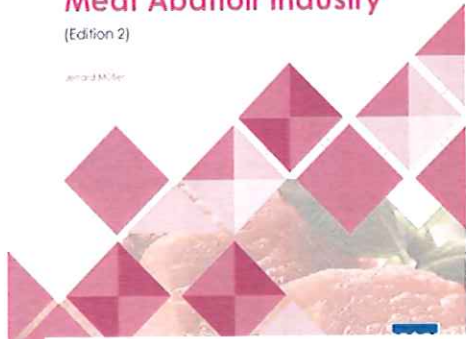
WRC 2017

Natsurv 7:

Water and Wastewater Management in the Red Meat Abattoir Industry

(Edition 2)

Janard Mafur

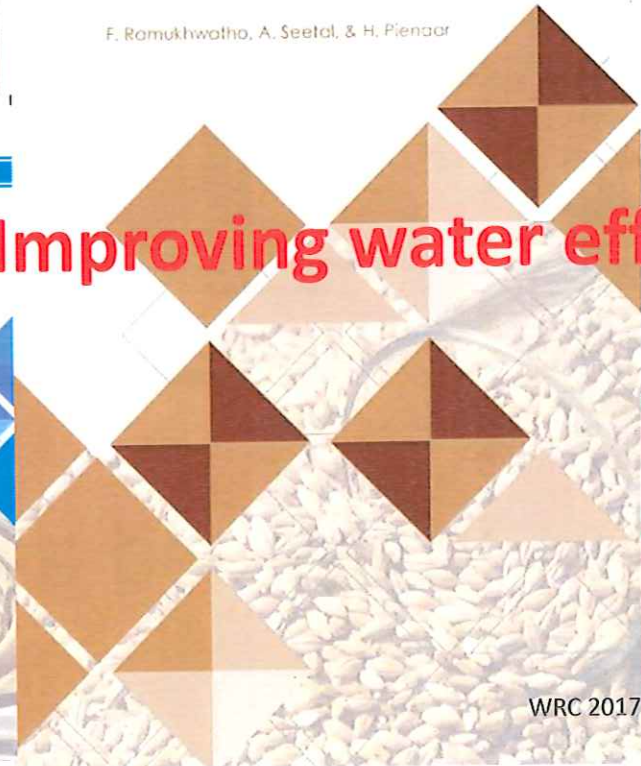


Natsurv 1:

Water and Wastewater Management in the Malt Brewing Industry

(Edition 2)

F. Ramukhwatho, A. Seetal, & H. Pienaar



Natsurv 8:

Water and Wastewater Management in the Laundry Industry

(Edition 2)

CD Swartz, C. Swartepoel, PJ. Welz, C. Muzanda, A. Bonga



Natsurv 17:

Water and Wastewater Management in the Iron and Steel Industry

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Morlene van der Merwe-Bottha, Barika Steyffer, Peter Wile

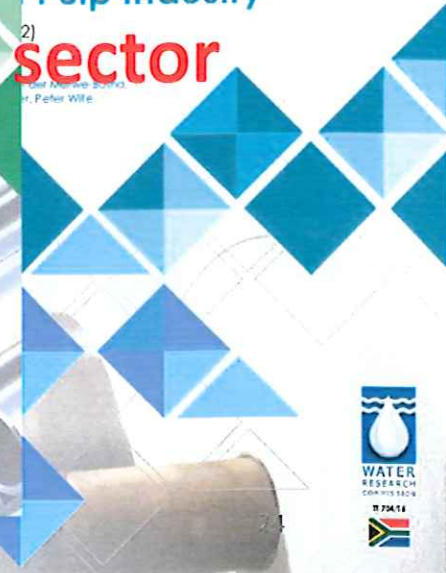


Natsurv 12:

Water and Wastewater Management in the Paper Pulp Industry

(Edition 2)

Delia Muzanda, Peter Wile

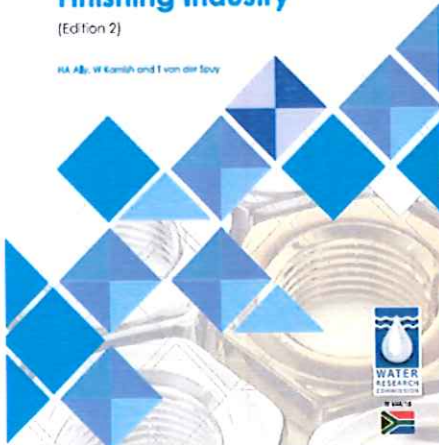


Natsurv 2:

Water and Wastewater Management in the Metal Finishing Industry

(Edition 2)

HA Ab, W Kamish and T van der Louw



Improving water efficiency sector by sector

WRC 2017



Overall economic implications for the water economy

- A percentage of the R900bn infrastructure spend, and a portion of the R500bn public goods and services spend will be used to develop new black industrialists and PDI service providers in water and sanitation.
- Important examples of current programmes include the Women-in-Water Incubator and Mentorship programme as well as the WRC Youth Innovation programme.
- Job creation and capacity building is a priority with examples ranging from Water on Leaks to the Academies.





Thank
you



WRC 2017