

Role of RDI in addressing SDGs

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Setting and Achieving Goals (SDGs)

A Need for Development

- But have to Set Goals

What kind of Goals?

- ✓ Those we can Sustain

What is Sustainability?

- ✓ Using natural resources in a manner that does not deprive future generation from using or benefiting from similar or related resources

The WRC's Knowledge Tree & Lighthouses

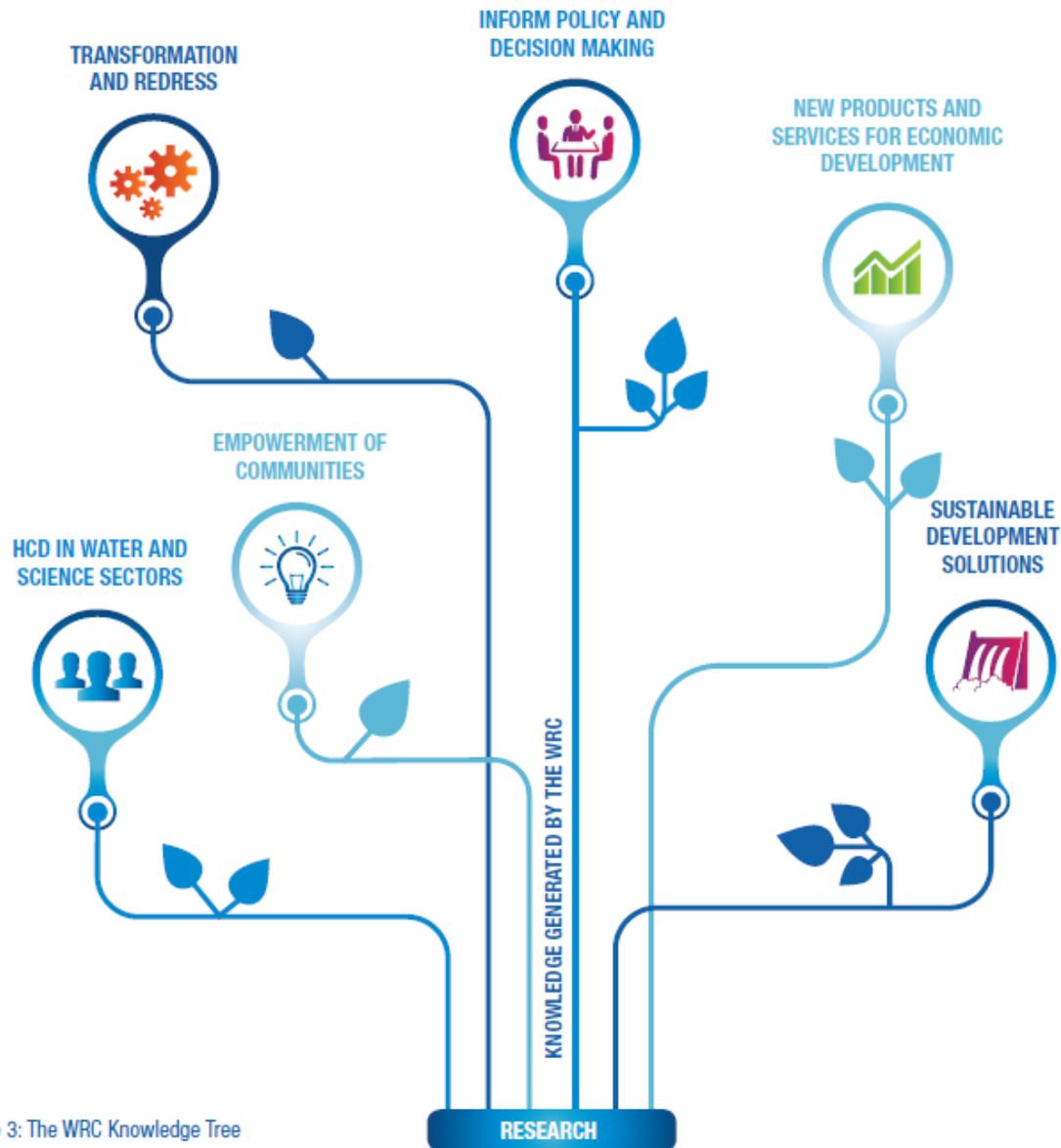


Figure 3: The WRC Knowledge Tree

- Supporting HCD in Water & Science Sectors
- Empowerment of communities,
- Transformation & Redress,
- Inform Policy & Decision making,
- New products & Services for Economic Development
- **Sustainable Development Solutions**

The Lighthouses

- ✓ Climate Change
- ✓ ICT and Water Big Data
- ✓ The Green Village
- ✓ Water Quality
- ✓ Water Energy Food Nexus
- ✓ Drought & Extreme Weather Event (Water security)

WRC's Knowledge Tree address the SDGs

Supporting HCD
in Water &
Science Sectors

4 QUALITY
EDUCATION



Sustainable
Development
Solutions

2 NO
HUNGER



6 CLEAN WATER
AND SANITATION



7 RENEWABLE
ENERGY



14 LIFE BELOW
WATER



15 LIFE
ON LAND



Empowerment
of communities

1 NO
POVERTY



3 GOOD
HEALTH



11 SUSTAINABLE CITIES
AND COMMUNITIES



13 CLIMATE
ACTION



Transformation
& Redress

5 GENDER
EQUALITY



10 REDUCED
INEQUALITIES



Inform Policy
& Decision
making

All SDGs

New products &
Services for
Economic
Development

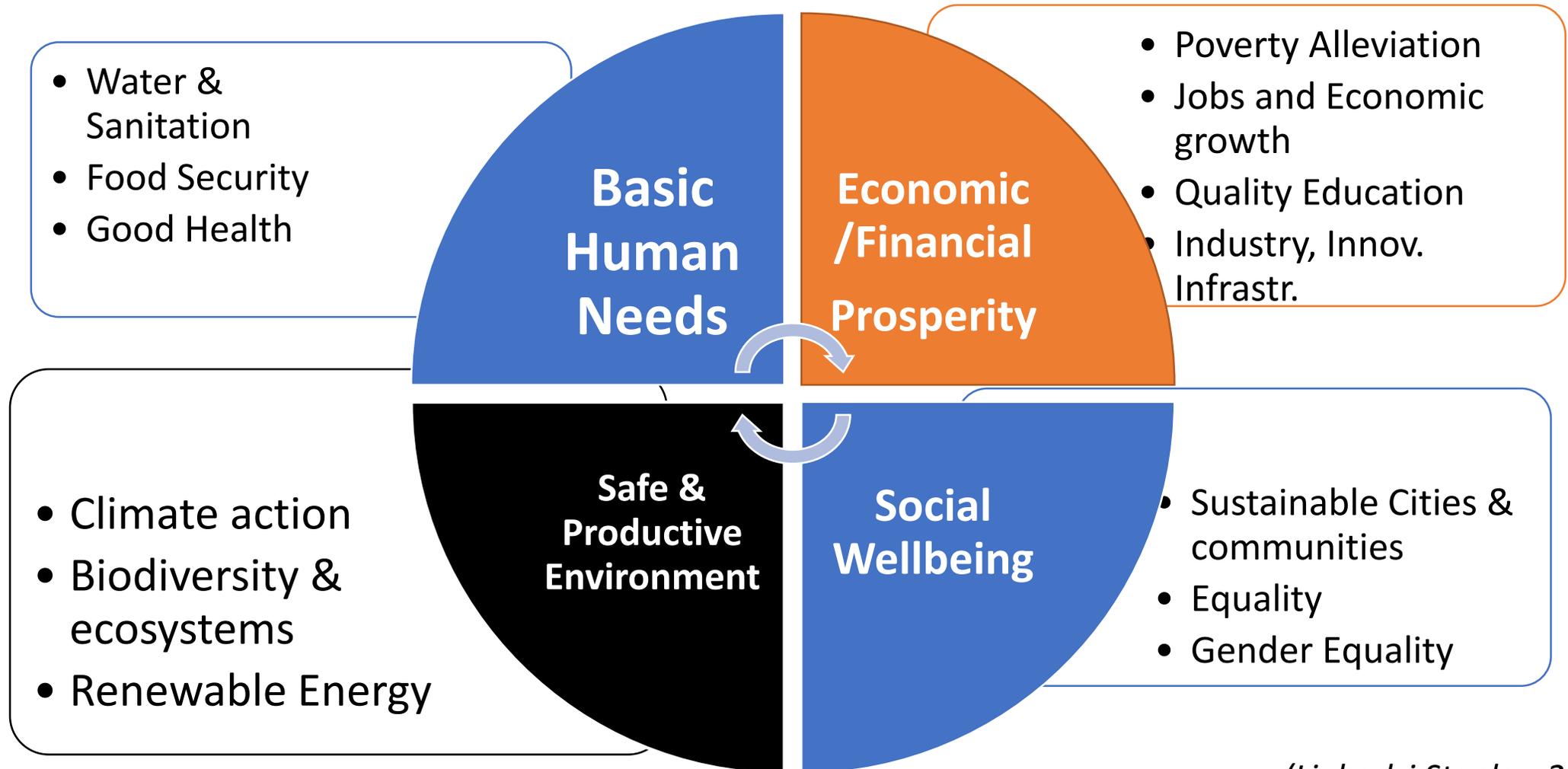
9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



8 GOOD JOBS AND
ECONOMIC GROWTH



SDGs Should be Impactful and Relevant



(Liphadzi Stanley, 2018)

WRC programmes & SDGs

Clean Water & Sanitation: SDG 6



- **What the WRC is doing?**

- ✓ Clean water technologies.
- ✓ Research prog. on **Alternative Water sources**.
 - ✓ Wastewater, mining water, sea water, rain harvesting, etc
- ✓ Developing **Water saving** tools and technologies
 - **Sanitation**: alternative options; beneficiation technologies, etc
 - **Agric**: high efficiency and productivity (irrigation and crop choices)
- ✓ Strengthening **sanitation improvement** programme.

- **Relevant products/knowledge available-WRC**

- ✓ Effective and sustainable drinking-water **service delivery within non-metropolitan** water distribution networks.
- ✓ Development of Low and Pour flush **toilets**.
- ✓ Improvement of **School Sanitation**.



No Poverty : SDG 1

1 NO POVERTY



• What the WRC is doing?

- ✓ Increase **support of SMMEs** involved in the water(sanitation) value chain.
- ✓ Increase agric **productivity** and **quality** of products.
- ✓ Increase **demonstration** of W&S technologies.

• Relevant products/Innovations available-WRC

- ✓ Expand our Innovation **Acceleration programme** (prototype to application).
- ✓ Programmes tailored to assist vulnerable groups.



No Hunger: SDG 2 (Food security)

2 NO HUNGER

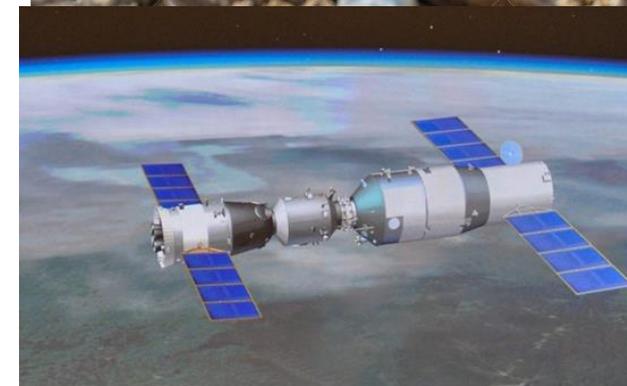


- **What the WRC is doing?**

- Increasing national and household food security.
- Improve the livelihoods of people on a farming, community and regional level.
 - through efficient and sustainable utilisation and development of water resources in agriculture

- **Relevant Innovations available-WRC**

- Method for Monitoring Waterlogging and Salt Accumulation on **Irrigation Schemes**
- Use of **Earth Observation Approach** towards Mapping Irrigated Areas and Quantifying Water Use by Irrigated Crops.





- **What the WRC is doing?**

- Water quality programme.
 - Human Health. (drinking water & food)
- Emerging contaminants and ARB.

- **Relevant Innovations available-WRC**

- ✓ Using novel, metal modified, natural clay adsorbents for groundwater **defluoridation**.
 - **High fluoride concentration in groundwater creates a problem** in safe drinking water supply and around the world has been associated with human health concerns.
- ✓ A scoping study on the levels of antimicrobials and **presence of antibiotic resistant bacteria** in drinking water
 - Is Drinking water a potential medium for the development and dissemination of drug resistant microorganisms?



Access to Quality Education: SDG 4



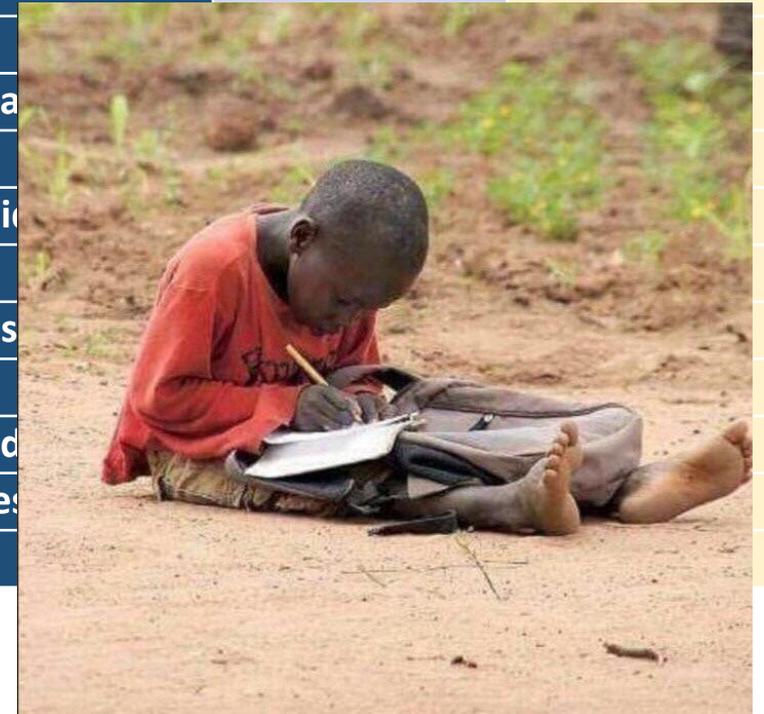
• What the WRC is doing?

- ✓ We keep about **300 research projects** per year. --Starting about **80 projects** & completing 80 proj per year.
- ✓ Each project has **postgrad students**
- ✓ Each has a **Ref Group** (experts and decision makers)

• Relevant products/ Innovations available-WRC

- ✓ The WRC has books, papers, and school materials to support school education.
- ✓ Support students development.

	2012–2014	
Countries (SADC)	No. of Papers	No. of Water-Related Papers
South Africa	45 378	702
Tanzania	2 911	54
Zimbabwe	1 306	47
Malawi	1 358	37
Zambia		5
Botswana		31
Congo		6
Mozambique		13
Namibia		20
Mauritius		3
Angola		0
Swaziland		3
Seychelles		2
Lesotho		3



Gender Equality: SDG 5

5 GENDER
EQUALITY



- **What the WRC is doing?**

- ✓ The WRC has “**Women in Water**” programme funded by DWS.
- ✓ We have increased the **No. of Women Researchers as PL** from 10% to more than 50%.

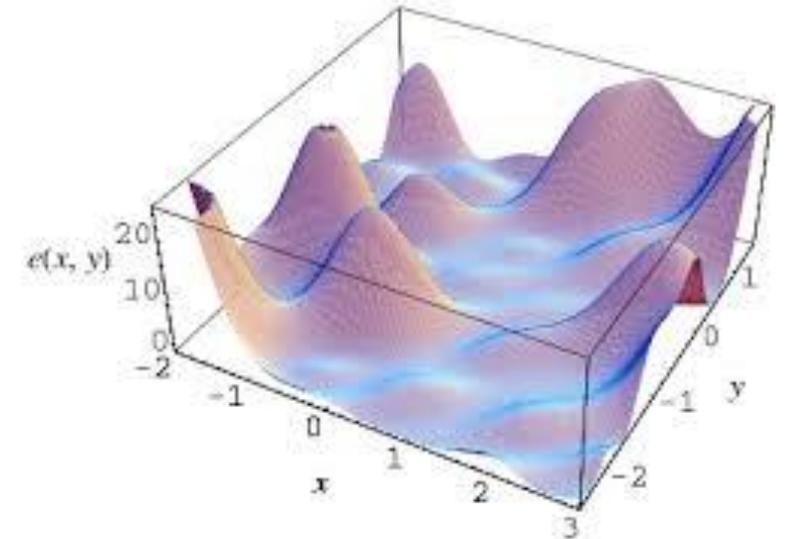


Renewable Energy: SDG 7

7 RENEWABLE ENERGY



- **What the WRC is doing?**
 - ✓ **Energy saving tech** in water plants.
 - ✓ Developing **process optimization** for different sectors
- **Relevant products/Innovations available-WRC**
 - ✓ Production of **electricity from lower head flows (conduit power generation)** in the municipality water supply infrastructure (used by BloemWater).
 - ✓ **Biogas production** from municipality waste and animals wastes.
 - ✓ Review of risks to water resources from **unconventional gas exploration** and production in South Africa



Good Jobs & Economic Growth: SDG 8

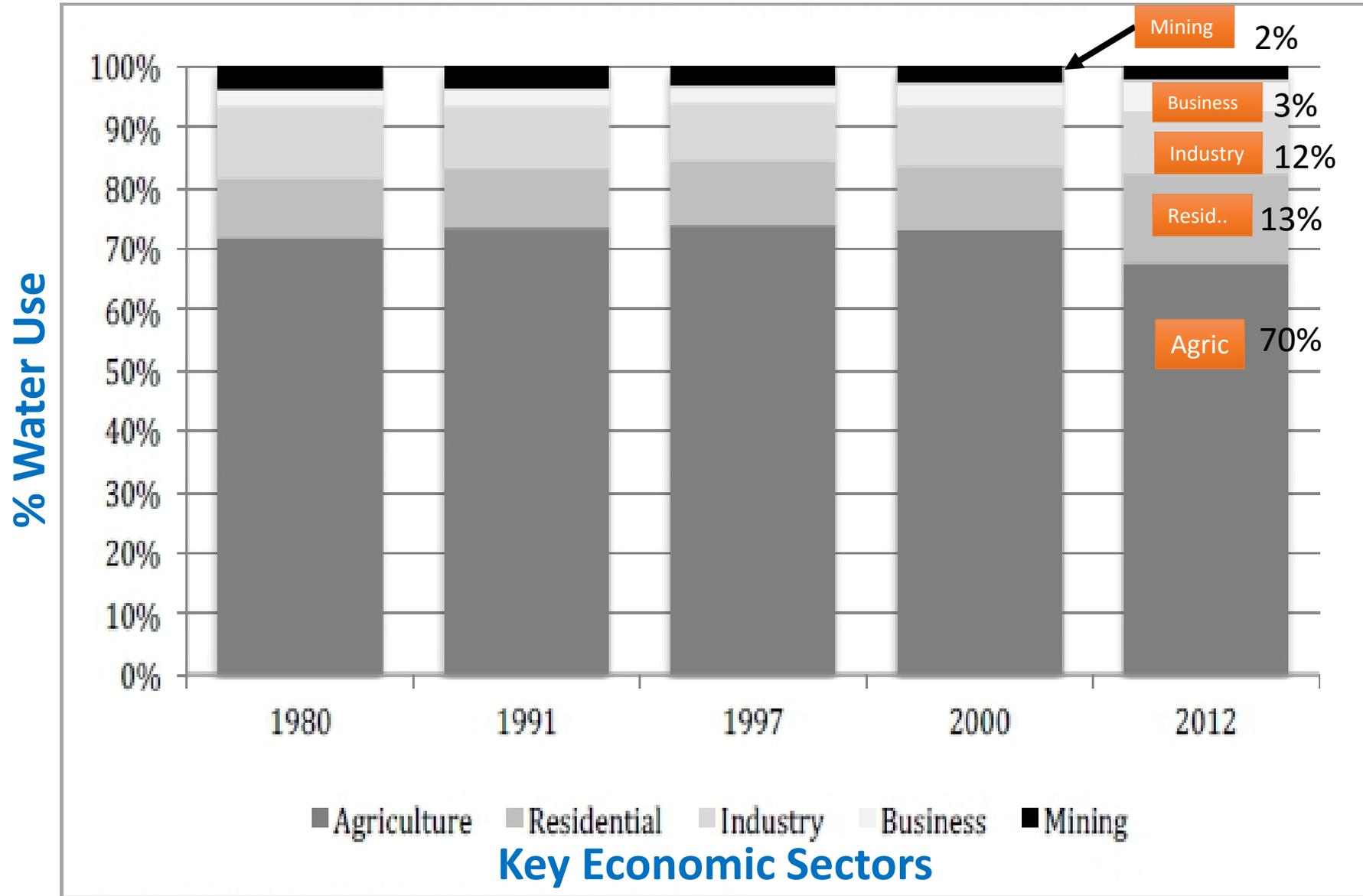
8 GOOD JOBS AND
ECONOMIC GROWTH



- **What the WRC is doing?**
 - ✓ **W&S IPAP chapter** is in place.
 - ✓ WRC Evaluate W&S **technologies for economic use.**
 - About 20 Tech were evaluated in 2017/18.
- **Relevant Innovations available-WRC**
 - ✓ The role of water and other services in growing an economy.
 - ✓ The challenge of inclusive growth in South Africa: Determinants and outcomes.



Water Use by Key Sectors



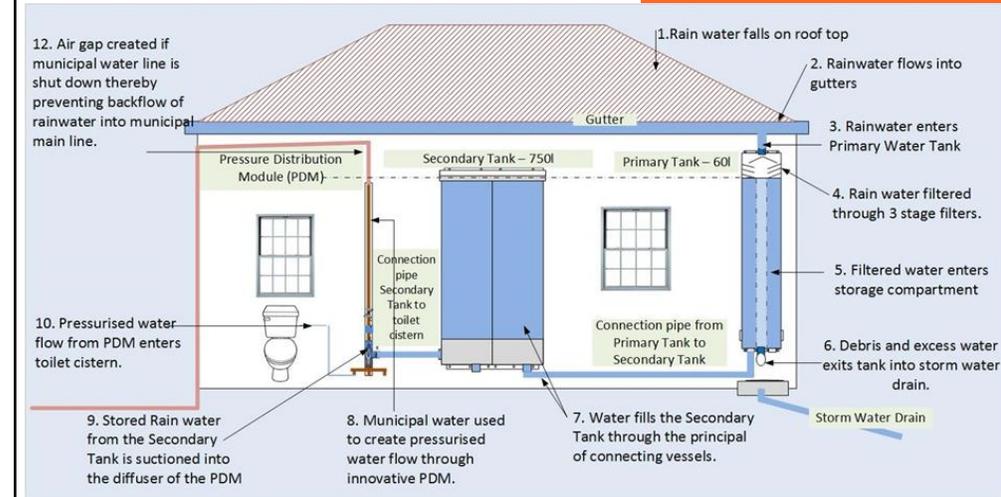


• What the WRC is doing?

- Business dev in W&S.
- Pushing the boundaries with regard Innovations development.

• Relevant Products/Innovations available-WRC

- ✓ Permanent rainwater harvesting system with no need for an electrical pump
- ✓ **AquaTrip**- A smart leak detection system shuts off supply automatically to protect the premises
- ✓ Pipe Condition Assessment Device: Detect and Stop Leaks.
- ✓ Improving the adequacy and performance of supply infrastructure



Reduce Inequalities: SDG 10

10 REDUCED INEQUALITIES



- **What the WRC is doing?**

- Increasing the **number of PDI** as project leaders.
- Improving **participation of HBU** as contractors for research projects.
- Implementing **Women in Water programme (DWS)**

- **Relevant Innovations available-WRC**

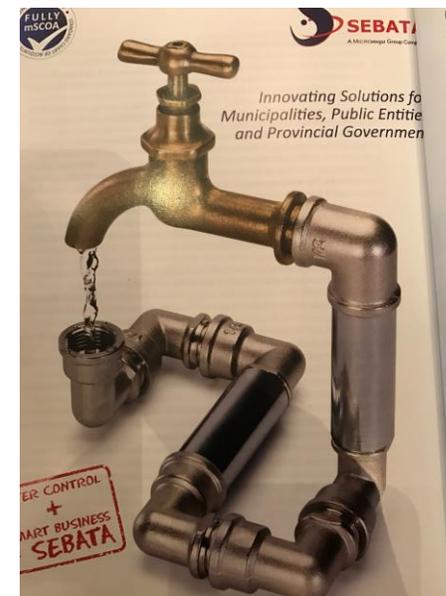
- Developing Innovation serving **Woman Interests** (Sanitation options)
- Technologies for **rural and vulnerable communities** (Sanitation-Toilets and agriculture-MUS).



Sustainable Cities and Communities: SDG 11



- **What the WRC is doing?**
 - Changing Water and Energy use behaviours- using case studies (nudges)
 - **Stormwater and GW management** to improve cities' water security
- **Relevant Innovations available-WRC**
 - ✓ Guideline on **Urban Water Sensitive Designs**.
 - ✓ **Implementation of RRR** (reuse, reduce, and recycling) of water (and wastewater).
 - ✓ **Power generation** from water supply infrastructure.
 - ✓ Reducing NRW (esp. leaks detection technologies).





• What the WRC is doing?

- ✓ WRC established a Lighthouse on **Climate Change and Extreme Weather Events**.
- ✓ The WRC has a **drought web-portal**.
- ✓ We have established an **Advisory Team of experts**.

• Relevant products/Innovations available

- Have Initiated **projects on Adaptations strategies**.
- **Weather forecasting and modelling** for adaptation purposes.
- Hydrological data gaps filled enabling better water resource planning, management and operations.



- **What the WRC is doing?**

- The WRC has programmes about **Ecosystems & Biodiversity**.

- **Relevant Innovations available-WRC**

- ✓ **Use of biodiversity** to determine the health integrity of aquatic ecosystem (e.g., Mini-SASS).- **Biomonitoring**
- ✓ Guideline about **delineation of Buffer zone** of water resources (for protection).
- ✓ Tools for use in Water use licensing (e.g., **Reserve determination**).
- ✓ Connectivity in the landscape (wetlands, GW, rivers, estuaries, and people).



Do we have relevant Indicators for South Africa?



*“Each of the SDGs is great but together they are
AMAZING”* Amina J. Mohammed, Deputy Sec General of UN



Thank you

MYTH

FACTS

