POSITIVE PROSPECTS OF THE JUST TRANSITION TO THE IRRIGATION SECTOR IN SOUTH AFRICA

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Presentation Outline

• Origins of the Just Transition
• Impacts of Climate Change on Water Resources
• Water Availability and Utilisation
• Just Transition Opportunities
• Concluding Remarks
Origins of the Just Transition

- National Development Plan 2012
- 2030 Agenda for Sustainable Development
National Development Plan (2012)

• To guide and frame all policy and planning for the country up to 2030.
• A blueprint to eliminate poverty and reduce inequality by 2030.
• Ensuring environmental sustainability and equitable transition to low carbon, climate resilient economy and society (Just Transition).
2030 Agenda for Sustainable Development
Sustainable Development Goals (SDGs)

• SDG 6 is about ensuring availability and sustainable management of water and sanitation for all
• Target 6.4 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
Sustainable Development Goals (SDGs)

- SDG 13 – taking urgent action to combat climate change and its impacts
- Target 13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
- Target 13.2 Integrate climate change measures into national policies, strategies and planning
United Nations Framework on Climate Change (UNFCC) – Paris Agreement

• Central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase even further to 1.5 degrees Celsius.

• To strengthen the ability of countries to deal with the impacts of climate change.

• Water is the primary medium through which climate impacts are felt.
United Nations Framework on Climate Change (UNFCC) – Paris Agreement

• Many climate change mitigation and adaptation activities would centre on water ecosystems.
• The protection and management of water resources is fundamental- it is at the centre of adaptation
• SA’s Climate Change Response Strategy - Nationally Determined Contributions - Greenhouse gas emissions to peak (2025), plateau (2025-2035) and decline (2035): expressed as trajectory range of 398 to 614 Mt CO2

- Water supports development and the elimination of poverty and inequality
- Water contributes to the economy and job creation,
- Water is protected, used, developed, conserved, managed and controlled sustainably and equitably.
- Water Conservation and Water Demand Management
- Managing water for climate change
- Financial support for water based rural livelihoods and food security

• Aims to ensure sustainable food production (security), poverty alleviation, job creation and skills development through sustainable and efficient water use in the irrigation sector.

• Operationalises the NDP and NWRS 2, among other government wide policies.
Water Availability and Utilisation
The World’s Surface Water
Precipitation, Evaporation and Runoff by Region

- **Asia**: 32,200 km³
  - Evaporation: 55%
  - Runoff: 20%

- **Europe**: 8,290 km³
  - Evaporation: 65%
  - Runoff: 45%

- **North America**: 18,300 km³
  - Evaporation: 55%
  - Runoff: 43%

- **South America**: 28,400 km³
  - Evaporation: 57%
  - Runoff: 35%

- **Africa**: 22,300 km³
  - Evaporation: 80%
  - Runoff: 20%

- **Australia and Oceania**: 7,080 km³
  - Evaporation: 65%
  - Runoff: 35%
Water Availability

Mean Annual Rainfall (SADC)

Water Use in SA

- Total natural runoff averages at 50 billion m$^3$ per annum
- Of the 50 billion only 14 billion m$^3$ is available for use through dams, basin transfers and other resource developments
- The total consumption for SA was reported to be 15 billion m$^3$ in 2016
- It is projected that the consumption would be around 18 billion m$^3$ in 2030 with 17% deficit
Rainfall and Evaporations across SA
Utilisable Groundwater Exploitation Potential

Utilisable Groundwater Exploitation Potential (UGEPE) (m³/km²/a)

- < 2,500
- 2,501 - 4,000
- 4,001 - 6,000
- 6,001 - 10,000
- 10,001 - 15,000
- 15,001 - 25,000
- 25,001 - 50,000
- 50,001 - 100,000
- > 100,000

Map of South Africa showing the levels of utilisable groundwater exploitation potential.
Water Use in SA

- Irrigation: 62%
- Urban: 27%
- Domestic: 3%
- Power generation: 2%
- Industrial: 3%
- Mining: 3%
- Afforestation: 3%
Impacts of Climate Change on Water Resources

- Water is the primary medium through which the impacts of climate change are being felt in South Africa.

- Changes in rainfall patterns, with more-intense storms, floods and droughts; soil moisture and runoff; and the effects of increasing evaporation and changing temperatures on aquatic systems negatively affects water quality and quantity (availability) (scarcity).

- (Secondary Impacts of CC) The 2015 drought resulted in crop losses, water restrictions, and impacts on food and water security.
Just Transition Opportunities

- Water Use Efficiency (Innovation and Technology)
- Integration of surface and groundwater use
- Wastewater Reuse
- Renewable Energy
- Drought Tolerant Crops
- Green Climate Fund
Statistics on Water Use Efficiency

One of the ways that farmers are improving their water use efficiency is by switching over to more efficient methods of irrigation.

**In 1990, approximately:**
- 32.8% of irrigation was flood irrigation;
- 54.4% sprinkler irrigation; and
- 11.8% micro/drip irrigation

**By 2007, marked shift towards efficient methods as:**
- 23.3% practiced flood irrigation;
- 54.9% sprinkler irrigation; and
- 21.8% drip irrigation.
Groundwater Use in SA

- The estimated utilisable groundwater exploitation potential is 10 343 Km$^3$ per year on average (IMWI Country report).
- Currently the country uses between 2000-4000 km$^3$ of groundwater.
- However, Stats SA attributes 64% of groundwater use to the Irrigation sector.
- Nevertheless, groundwater use differ substantially across the country as shown on the map.
Integration of Surface and Groundwater Use

- There is a need to develop groundwater knowledge and its use for agricultural purposes as 78% of irrigated land is currently irrigated from surface water.
Concluding Remarks

• Just Transition would severely affect the irrigation sector as it depends mainly on water and energy.
• Food and Job security would be threatened.
• The irrigation sector should adapt to the new normal of less water and expensive energy and transition to renewable energy and water use efficient irrigation systems
• The sector should organise itself to seize the just transition opportunities, especially innovation and technology.
Thank you