FRESHWATER ECOSYSTEM NETWORK (FEN) ANNUAL MEETING 2026

Refinement of Strategic Groundwater Source Areas of South Africa: Update on the Project Progress

Presented by: Dr Stanley Nzama
Designation: Scientist & Project Manager (SWSA-gw)
Chief Directorate: Water Ecosystems Management

Date: 11 November 2026

WATER IS LIFE - SANITATION IS DIGNITY

water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

RECAP: PROJECT OBJECTIVES & PERIOD

PROJECT TIME FRAME: 1 APRIL 2024 – 31 MARCH 2027

PROJECT OBJECTIVES

OBJ 1: Developing a scientifically sound methodology for delineating SWSA-gw for both national and transboundary aquifers/aquifer systems, incorporating considerations for groundwater quality. *(Methodology Enhancement)*

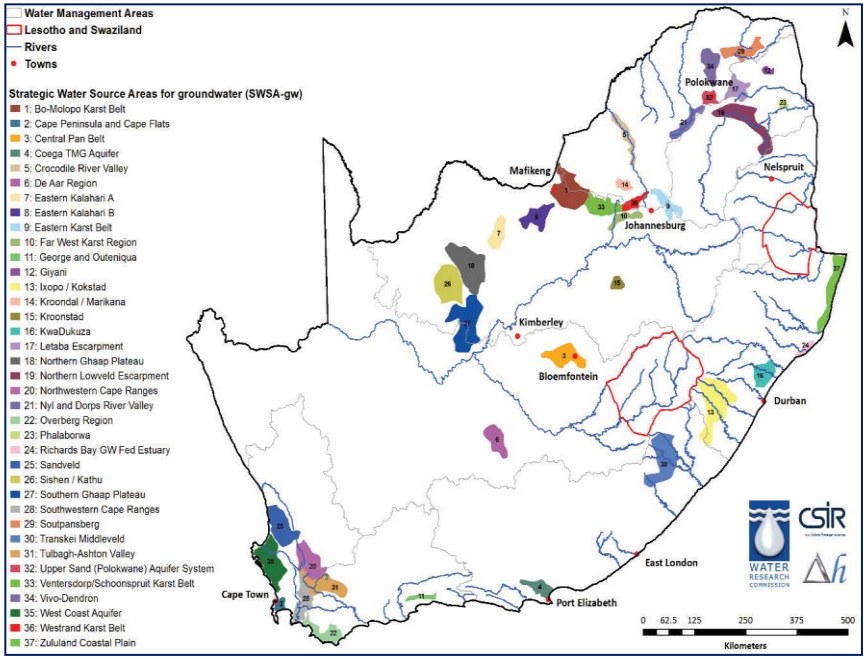
OBJ 2: Review and refine the scale of SWSA-gw to aquifer level. *(Application of the Improved Methodology)*

OBJ 3: Develop an approach for the protection and management of the refined SWSA-gw. *(Protection & Management Framework)*

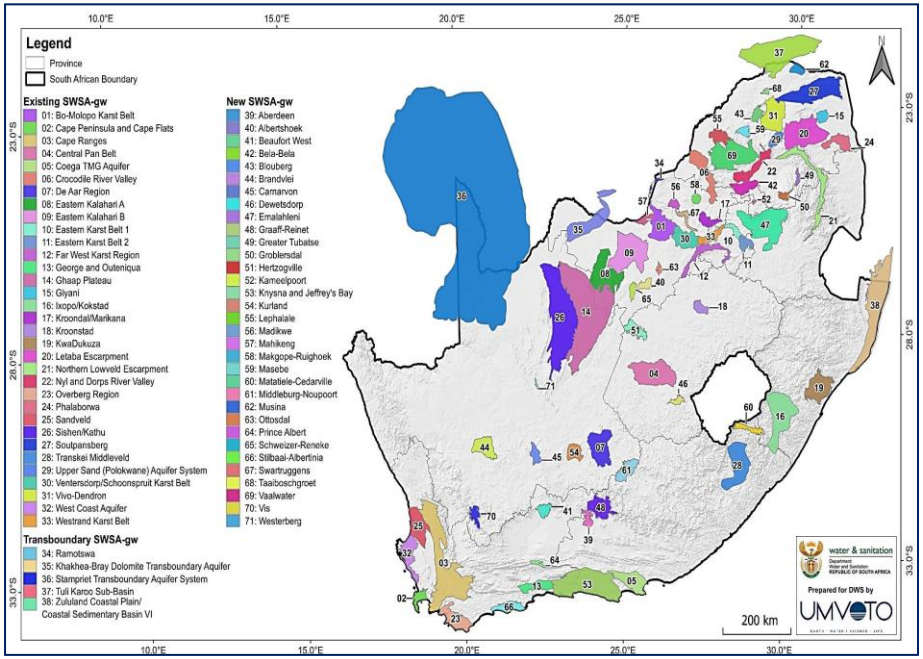
PRIMARY AIM

To enhance the delineation of SWSA-gw to an aquifer-specific scale, building upon the baseline information provided by the 2018 study

FROM NATIONAL BASELINE TO IMPROVED SPATIAL UNDERSTANDING



Source: Le Maitre, et al., 2018



Source: DWS, 2026

1. Le Maitre, D.C., Seyler, H., Holland, M., Smith-Adao, L., Nel, J.L., Maherry, A. and Witthüser, K. (2018) Identification, Delineation and Importance of the Strategic Water Source Areas of South Africa, Lesotho and Swaziland for Surface Water and Groundwater. Report No. TT 743/1/18, Water Research Commission, Pretoria. South Africa
2. Department of Water and Sanitation (DWS) (2026). Refinement of Strategic Groundwater Source Areas of South Africa – Delineation of Strategic Groundwater Source Areas of South Africa Report: Volume 1. Chief Directorate: Water Ecosystems Management, Report No. 1047/3.3/5/2026. Private Bag X 313, Pretoria, South Africa

WHAT MAKES A GROUNDWATER AREA STRATEGIC?

Thinking Beyond “Where Is Groundwater?”

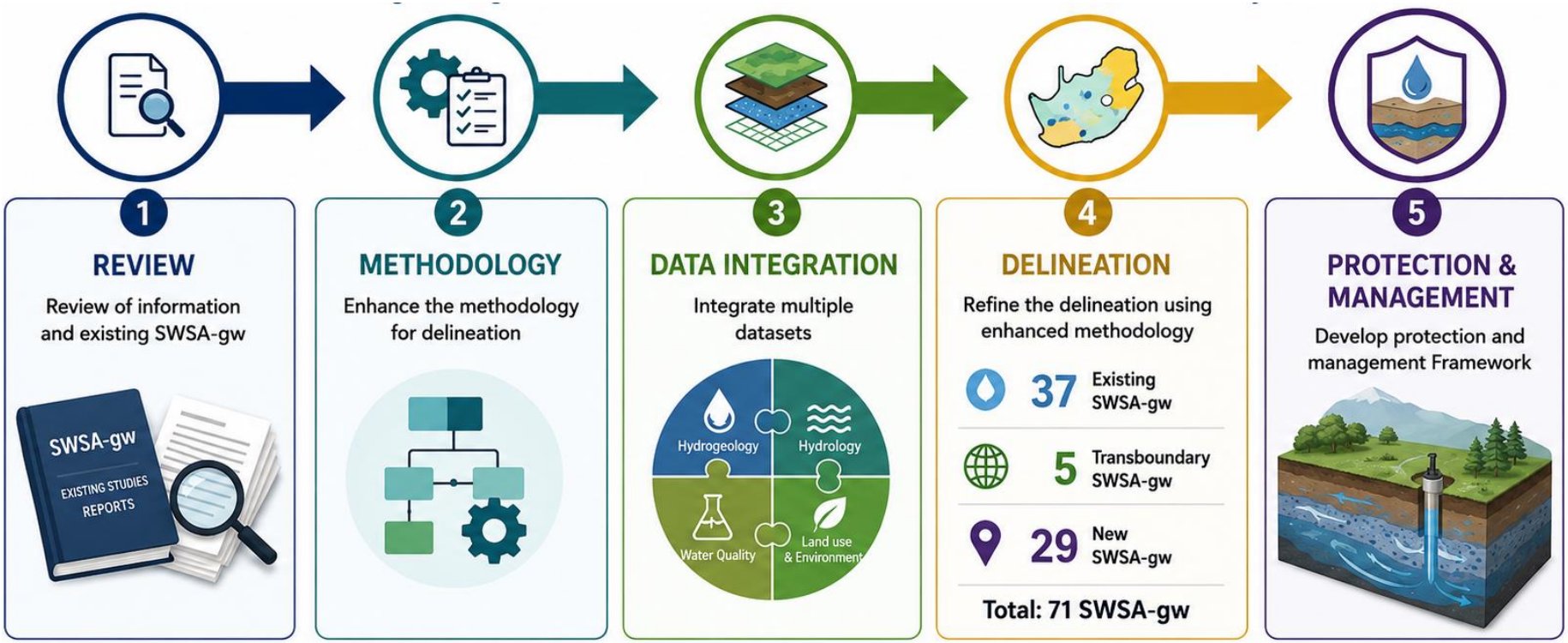
Groundwater Availability	Strategic Significance	Additional Considerations
Recharge	Current Demand	Groundwater Quality
Baseflow	Economic Significance	Future Developments
	Groundwater Reliance & Growth Pressure	
	Ecological Significance	
	Governance & Policy	

WHAT INFORMATION INFORMS THE REFINEMENT?

An Integrated Evidence Base for SWSA-gw Delineation



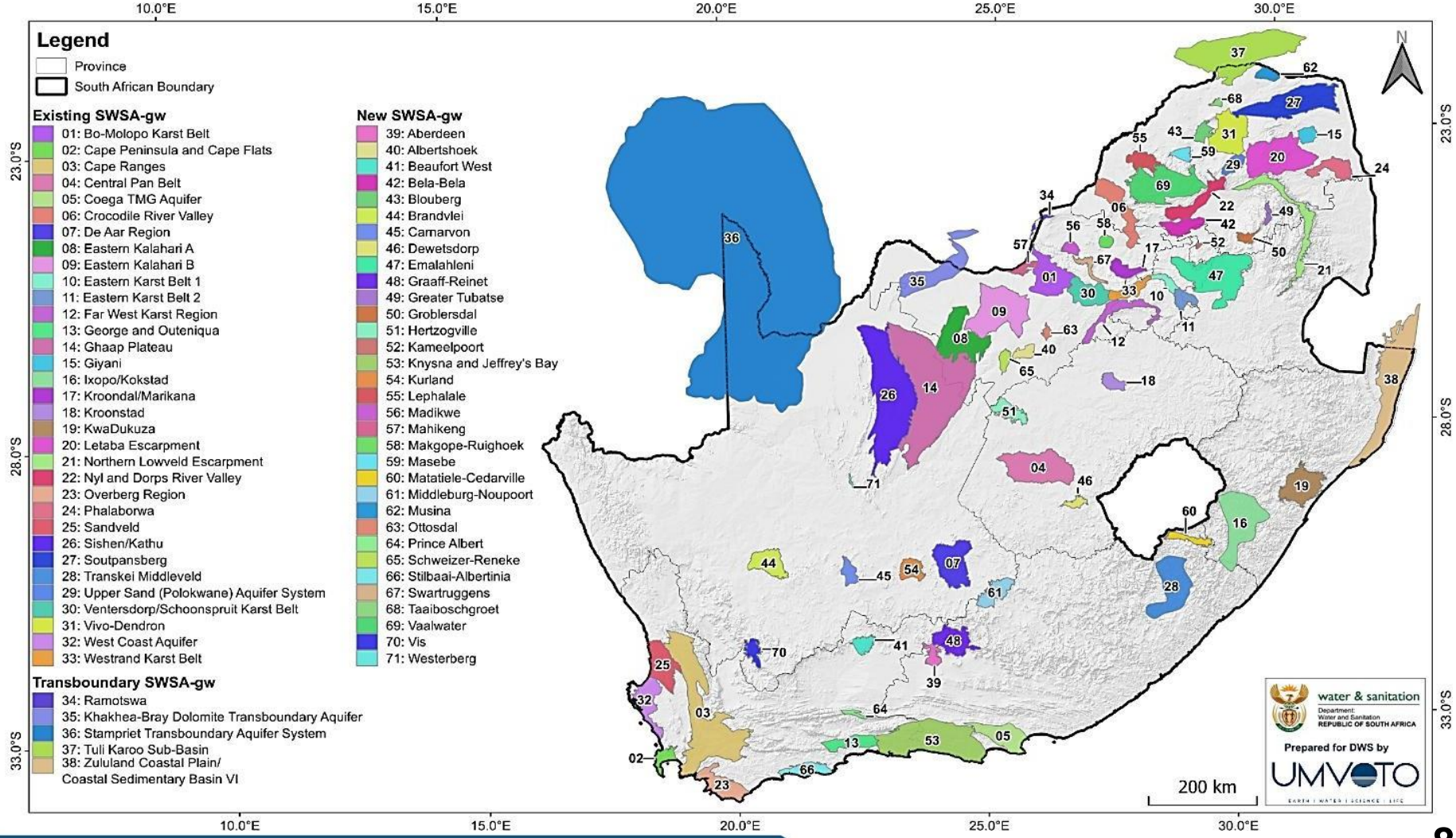
THE APPROACH TO THE REFINEMENT



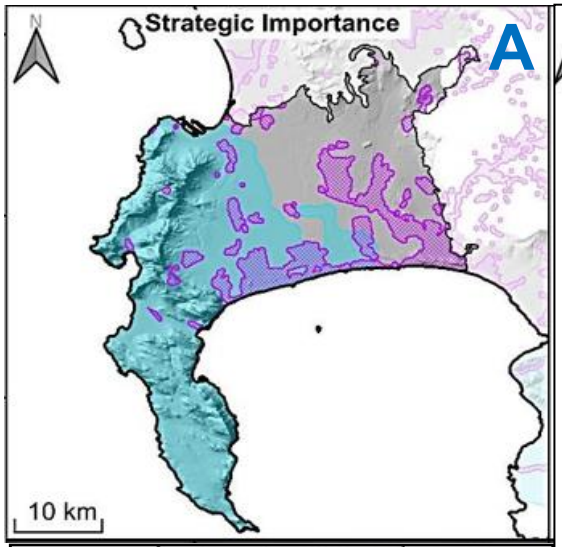
LIST OF STRATEGIC GROUNDWATER SOURCE AREAS OF SOUTH AFRICA

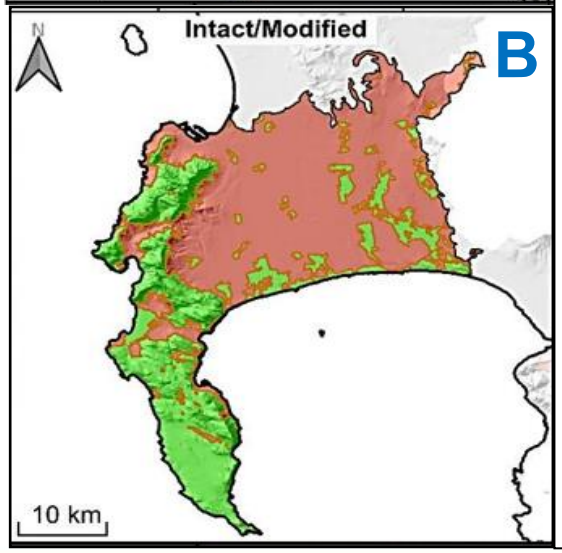
No.	SWSA-Name	No.	SWSA
1	Bo-Molopo Karst Belt	37	Tuli Karoo Sub-Basin
2	Cape Peninsula and Cape Flats	38	Zululand Coastal Plain / Coastal Sedimentary Basin VI
3	Cape Ranges	39	Aberdeen
4	Central Pan Belt	40	Albertshoek
5	Coega TMG Aquifer	41	Beaufort West
6	Crocodile River Valley	42	Bela-Bela
7	De Aar Region	43	Blouberg
8	Eastern Kalahari A	44	Brandvlei
9	Eastern Kalahari B	45	Carnarvon
10	Eastern Karst Belt 1	46	Dewetsdorp
11	Eastern Karst Belt 2	47	Emalahleni
12	Far West Karst Region	48	Graaff-Reinet
13	George and Outeniqua	49	Greater Tubatse
14	Ghaap Plateau	50	Groblersdal
15	Giyani	51	Hertzogville
16	Ixopo/Kokstad	52	Kameelpoort
17	Kroondal/Marikana	53	Knysna and Jeffrey's Bay
18	Kroonstad	54	Kurland
19	KwaDukuza	55	Lephalale
20	Letaba Escarpment	56	Madikwe
21	Northern Lowveld Escarpment	57	Mahikeng
22	Nyl and Dorps River Valley	58	Makgope-Ruighoek
23	Overberg Region	59	Masebe
24	Phalaborwa	60	Matatiele-Cedarville
25	Sandveld	61	Middleburg-Noupoort
26	Sishen/Kathu	62	Musina
27	Soutpansberg	63	Ottosdal
28	Transkei Middleveld	64	Prince Albert
29	Upper Sand (Polokwane) Aquifer System	65	Schweizer-Reneke
30	Ventersdorp / Schoonspruit Karst Belt	66	Stilbaai-Albertinia
31	Vivo-Dendron	67	Swartruggens
32	West Coast Aquifer	68	Taaiboschgroet
33	Westrand Karst Belt	69	Vaalwater
34	Ramotswa	70	Vis
35	Khakhea-Bray Dolomite Transboundary Aquifer	71	Westerberg
36	Stampriet Transboundary Aquifer System		

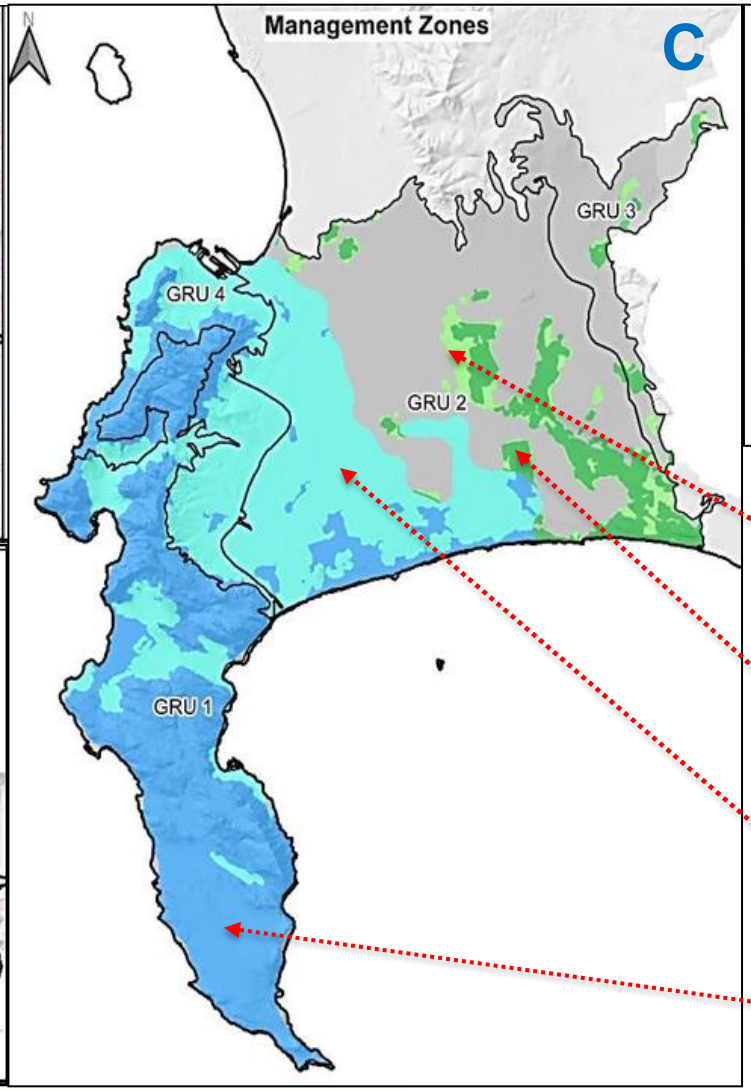
LIST OF STRATEGIC GROUNDWATER SOURCE AREAS OF SOUTH AFRICA



PROTECTION AND MANAGEMENT FRAMEWORK







Legend

- Groundwater Resource Units
- High Strategic Significance Area
- Recharge
- Modified Land
- Intact Land

Management Zones

- Groundwater Source Area - Intact
- Groundwater Source Area - Modified
- Reliance Area - Intact
- Reliance Area - Modified
- General Area

Modified Reliance Area	Risk Management Containment/Management of Existing Pressure
Intact Reliance Area	Prevention Protection Current & Future Reliance
Modified Source Area	Risk Management & Restoration Containment of Existing Pressure
Intact Source Area	Prevention Protection Recharge & Natural Land

PROTECTION AND MANAGEMENT FRAMEWORK

Management Zone	Management Posture	Primary Emphasis
Groundwater Source Area (Intact)	Preventive Protection	Maintain recharge and natural land cover, screen new activities carefully, avoid unnecessary transformation and promote stewardship.
Groundwater Source Area (Modified)	Risk Management and Restoration	Manage existing pressures affecting recharge and groundwater quality, reduce contamination risk, rehabilitate where practicable and monitor.
Reliance Area (Intact)	Preventive Protection focused on Resource Reliability	Protect groundwater quantity, quality and reliability, and avoid activities that could compromise existing or future reliance.
Reliance Area (Modified)	Risk Management focused on Resource Reliability	Manage existing pressures on groundwater relied upon by users or ecosystems, reduce identified risks and prioritise appropriate monitoring.
General Area	Groundwater-Sensitive Management	Maintain sustainable groundwater use, avoid further degradation and apply appropriate groundwater-sensitive planning and management.

PROJECT KEY MILESTONES & PROGRESS

MILESTONES	DUE DATE
1. Project Inception	May 2024 ✓
2. Gap Analysis	September 2024 ✓
3. Status Quo SWSA_gw Assessment	April 2025 ✓
4. Methodology Refinement	August 2025 ✓
5. Delineation of Refined SWSA_gw	March 2026 ✓
6. SWSA_gw Protection and Management	September 2026 ✓
7. Integrated Main Report	In progress (until November 2026)
8. External Review Report	December 2026
9. Electronic Database	February 2027
10. Close Out Report	March 2027

STAKEHOLDER ENGAGEMENT

- 3 x Public Stakeholder Engagements:
  - ✓ Initial stage, Mid-project & Final stage
  - ✓ Additional specific specialist meetings may take place at various regions

- The first PS meeting (PS 01):
  - ✓ Held as hybrid (**Date: 20 August 2024**)
  - ✓ Venue: DWS, Western Cape

- The second PS meeting (PS 02):
  - ✓ To be held hybrid (**Date: 02 December 2025**)
  - ✓ Venue: DFFE, Pretoria

- The third PS meeting (PS 03):
  - ✓ To be held hybrid (03 February 2027)
  - ✓ Venue: Durban, KZN

DWS CONTACT DETAILS

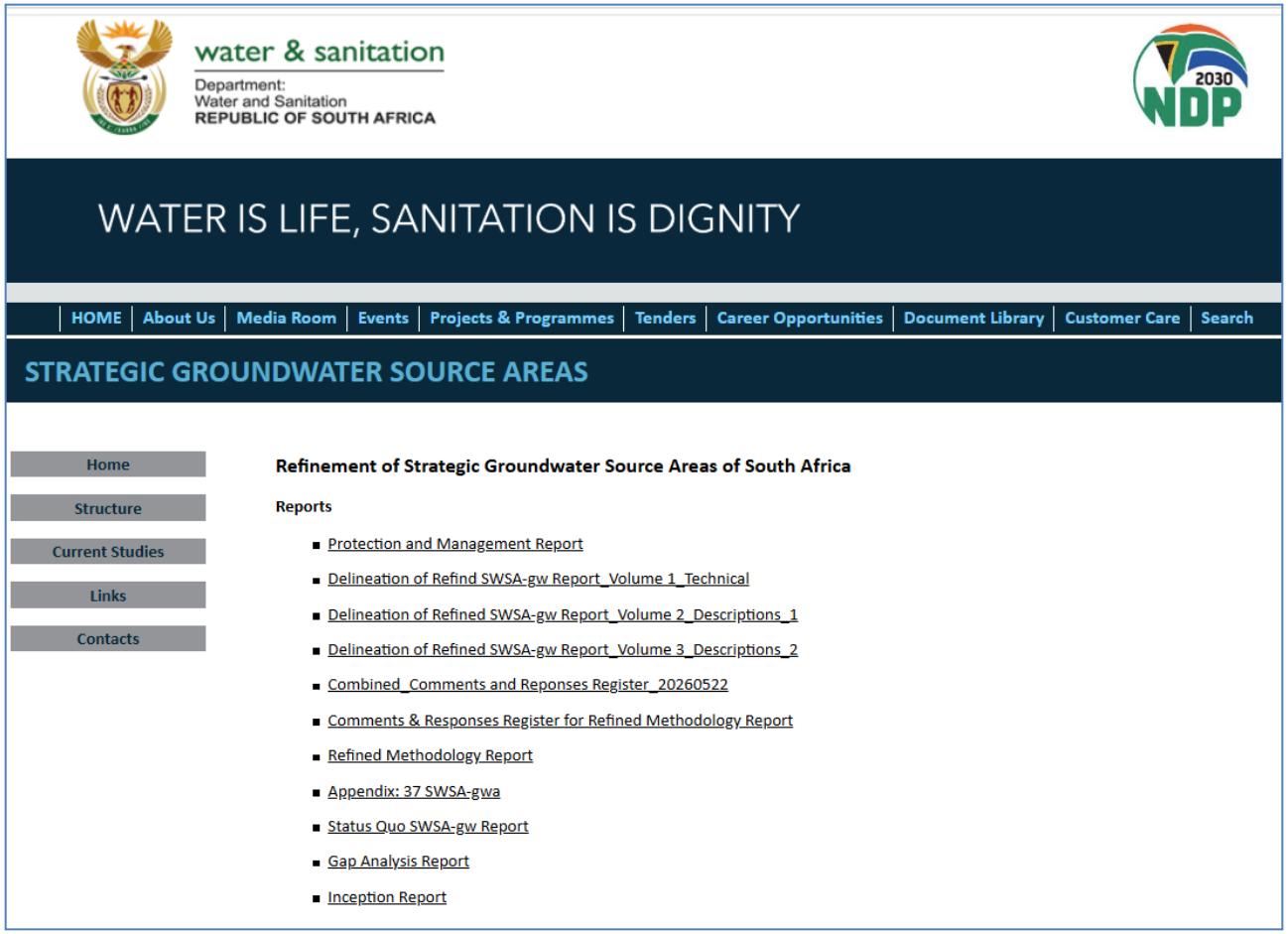
Stanley Nzama (Project Manager – DWS)
Tel: 012 336 6501
Email: NzamaS@dws.gov.za

Kwazikwakhe Majola (Scientific Manager – Groundwater Reserve Determination)
Tel: 012 336 7105
Email: MajolaK@dws.gov.za

Yakeen Atwaru (Director – Reserve Determination)
Tel: 012 336 7816
Email: AtwaruY@dws.gov.za

MORE INFORMATION & REPORTS

https://www.dws.gov.za/wem/sgsa.aspx



THE GDE REFINEMENT PROJECT

PROJECT: **Refinement of Groundwater Dependent Ecosystems Map of South Africa to a Water Management Area Level**

TIME FRAME: **1 MAY 2026 – 30 APRIL 2029**

KEY PROJECT OUTPUTS

The development of a national GDE Web Atlas. The Atlas is intended to provide a central platform for presenting, storing, managing and updating refined GDE information.

It will include spatial layers, metadata, supporting documentation and confidence level of information

Provide a mechanism through which future verified local-scale studies and improved datasets can be incorporated under DWS oversight.

PRIMARY AIM

To refine the national mapping of known and potential Aquatic and Terrestrial GDEs across South Africa's nine Water Management Areas (WMAs)

DWS CONTACT DETAILS

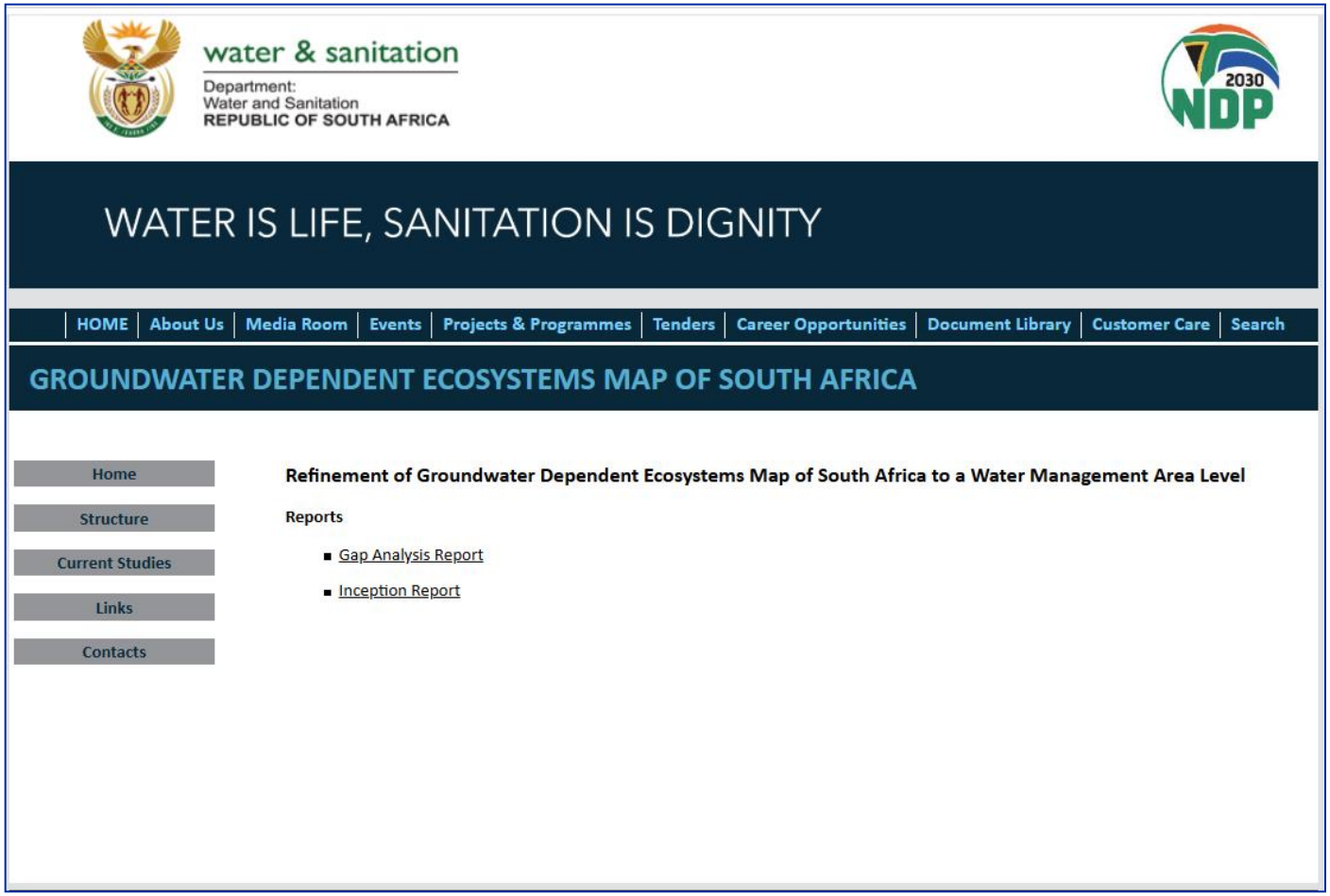
Ms Lerato Molokomme (Project Manager – DWS)
Tel: 012 336 8073
Email: MolokommeL@dws.gov.za

Kwazikwakhe Majola (Scientific Manager – Groundwater Reserve Determination)
Tel: 012 336 7105
Email: MajolaK@dws.gov.za

Yakeen Atwaru (Director – Reserve Determination)
Tel: 012 336 7816
Email: AtwaruY@dws.gov.za

MORE INFORMATION & REPORTS

https://www.dws.gov.za/wem/gwdemsa.aspx



THANK YOU