

<b>Name</b>	Ayesha Hamid
<b>Surname</b>	Laher
<b>Nationality</b>	South African
<b>HDI Status</b>	Indian Female
<b>Education</b>	BSc (Biological Sciences, University of South Africa - 200
	MSc (Water), University of North West (Potchefstroom) - 2006
	M Category of Raizcorp Comprehensive Enterprise Development Programme - 2018
<b>Professional Registration</b>	Professional Natural Scientist (No. 400197/12)
<b>Professional Bodies</b>	WISA, SACNASP, IWA
<b>Language</b>	English (home Language) Afrikaans (good)

## Overview

Ayesha is a professionally registered environmental scientist in the water stream. She has 12 years' experience in all aspects of water and wastewater treatment: treatment technologies, design, operation, maintenance, and management of water and wastewater supply system.

Her participation in various policy and planning projects including the development of the Second National Water Resources Strategy has contributed to understanding of policy, legislation, water resource planning and institutional requirements for management of the entire water cycle.

As a Lead Inspector for the Blue, Green and No Drop Certifications programs of the Department of Water and Sanitation, she has sound knowledge of best practise principles for operation and management of water and wastewater treatment systems with emphasis on risk-based management.

She has developed leadership, management and financial skills in her position as Hub-Sector Lead of the Water Systems division of AECOM for two years and is currently the sole director of AHL Water, a Level 1 BBBEE water and wastewater consultancy focusing on providing holistic solution to water services challenges for commercial and municipal clients.

Ayesha has gained entrepreneurship skills to manage her business by qualifying for and successfully completing the requirements for the one-year M Category of Raizcorp Comprehensive Enterprise Development Programme and receiving the Spirit of Raizcorp award for the 2018 program.

Ayesha is an active member of WISA, has contributed to several Water Research Publications, presented at numerous conferences and assists with social responsibility initiatives focusing on sector building and citizen support (technical support to Fresh.org).

## Work History

### 1. AHL WATER: November 2016 – Current

#### Self-employed – Director AHL Water

- **Upgrade/refurbishment of water treatment plants in Tswelopele Local Municipality**  
Upgrade of Bultfontein and Hoopstad WTW: design, tender, contract admin and closeout.
- **Process audits of for Tswelopele Local Municipality**  
Conducted detailed process audit and Blue Drop audits of two water treatment plants, develop risk-based implementation plan with costing for all items to serve as Pre-feasibility report for upgrade.
- **Water Quality Management of Koppies Water Supply System**

- Conducted process audit, risk assessment and blue drop audit; developed Water Safety Plan, Water Quality Incident Management Protocol, Blue Drop Improvement Plan and O&M Manual
- **Process audits for Harry Gwala LM**  
Appointed by Zimile Engineering to conduct process audits and risk assessment of two water treatment plants in Harry Gwala Local Municipality
  - **Process audits of Ventersdorp WWTW and Potchefstroom WWTW**  
Appointed by Korone Engineering to conduct Process audit and Risk assessment of two treatment plants in JB Marks Local municipality to identify process-limiting factors.
  - **Netcare Water Quality Verification support**  
Conducted process audit of Netcare Kroon WTW, development of Incident management protocol and water quality monitoring programs for all facilities to ensure delivery of safe drinking water, and development of legal compliance checklist for facilities with water treatment plants.
  - **Home Affairs Water Quality assessment**  
Risk assessment of water supply system in commercial building to verify water quality and provide recommendations to ensure compliance.
  - **eMondlo Water and Wastewater process audit and risk assessment**  
Appointed by Mangethe Group to conduct Process audit and comprehensive risk assessment of WTW and WWTW to assist with refurbishment/upgrade of these plants by MISA.
  - **PRASA Water Quality assessment**  
Risk assessment of water supply systems to identify root cause of failures and propose action plan for mitigating measures.
  - **Netcare review of O&M Plan**  
Evaluation of suitable service provider to undertake O&M of Christian Barnard Memorial Hospital WTW
  - **DWS Blue Drop PAT Report**  
Appointed by DWS (Regulations) to compile the Blue Drop Progress Assessment Tool (PAT) for 2017: moderate Blue Drop reports, write WSA regional and national overview to indicate performance and trends
  - **Netcare review of Desalination plant**  
Appointed to review desalination plant to be installed at hospital in Cape Town: focus on legal compliance, operations, maintenance, design and price, company experience
  - **Netcare review of proposed Blackwater Systems**  
Appointed to review proposed blackwater treatment plants for four hospitals in Western Cape: focus on legal compliance, operations, maintenance, design, acceptability.
  - **GSK Audit of treatment plant**  
Review of groundwater treatment plant at pharmaceutical factory (legal compliance, operations and management against norms and standards).
  - **ERWAT Green Drop Audits**  
Appointed with Watergroup as consortium to conduct quarterly Green Drop audits for 19 WWTW for a period of three years. Responsible as Technical lead, Lead Inspector, development of Green Drop Improvement plants, skills development and training, quarterly reports and presentation to EXCO.
  - **Murray and Roberts Water – Consultant**  
Appointed for 12-month period to with water and wastewater operations, maintenance, management, client liaison, marketing and development of best practise principles for containerised systems.  
Conducted borehole feasibility, design review, development of risk-based monitoring program, legal compliance, risk assessment, log sheets and incident protocol for Life Health Vincent Palotti Hospital water treatment plant.
  - **Sembcorp Silulumanzi - Review of Water Safety Plan and conduct process audits**  
Appointed as subconsultant to CSV Water to audit and review Water Safety plan for five supply systems and conduct process audits for three WTW as per Blue Drop requirements.
  - **Department of Public Works- Green Drop Project**

Responsible for Key Focus Area 8- Development of Green Drop Improvement Plans for 82 wastewater treatment plants and Blue Drop Improvement Plans for 11 water treatment plant. Evaluate current Green/Blue Drop status, identify gaps, develop implementation plan and determine projected scores for 10-year horizon

- **Bidvest SA Water/Improchem – Laboratory Testing for destruction of cyanide with ozone**  
Conducted lab testing on mine slurry to determine efficacy of ozone gas for destruction of cyanide to acceptable discharge limits. Awaiting approval from client to proceed with pilot-testing.

## 2. AECOM: January 2013 – October 2016

### Hub Sector Lead: Water Systems

Operations lead for Water Systems Division comprising three sub-sectors namely Water Infrastructure Services, Treatment and Bulk, and Water Governance and Planning.

Responsible for management of team including HR requirement (mentorship, performance and rewards, succession planning, training), quality management systems, H&S duties, daily operational requirement (resources, utilisation), financial management (profit & loss, monthly reports, billing and collections, EAC's), project management (skills, time, budget, schedule, quality), compliance (ethics, contractual, due diligence, DOA) and marketing (proposal, bids, client engagements, interdepartmental bids).

### Water Scientist

- **ERWAT verification of Green Drop Score**  
Project manager responsible for project proposal, execution and management. Complete GD evaluation and develop improvement plan per GD criteria for 19 WWTW
- **Upgrade of Temba WTW**  
Acting as Client engineer, provide lead on hazop on process control for all unit processes including ozone and GAC, provide lead on process-related queries from contractor.
- **Netcare Borehole Feasibility Study**  
Project Director responsible for conceptualisation of study, client relations, technical lead for project. Specific deliverables include evaluation of water quality, treatment technologies and legislative review.
- **Upgrade of Mogwase WWTP**  
Technical lead to develop and implement Wastewater Risk Abatement Plan (W<sub>2</sub>RAP) and action plan, review of sludge classification and sludge disposal, industrial effluent monitoring strategy, engagements with DWS and Water Utility to secure funding and support, report writing and review of technical reports.
- **Review of the National Water Resources Monitoring Network**  
Water Quality specialist responsible for review of 5 National Water Quality programs. Specific deliverables were User requirements, Network Inventory (GIS), National Objectives for monitoring, Data Integrity assessment, and scientific review to define critical and optimal network, development of National Monitoring Strategy. Tasks included mentorship of DWS staff, facilitation of consultation workshops and presentations to steering committee.
- **Implementation of National Water Resources Strategy**  
Project Manager responsible to provide assistance to DWS (Policy and Regulation Unit) to implement NWRS2. Specific deliverables were assisting SALGA to develop a NWRS2 implementation plan and a monitoring tool per KPI, developing an excel-based Consolidated Implementation Plan incorporating all sectors plans and Project Management.
- **Review of National Water Resources Strategy (NWRS2)**

Responsible for review of comments received from public consultation process, development of structure for reporting comments in centralised database, comments report summarising issues, feedback to DWA champions on comments received. Additional tasks included preparation of presentations, reports and communication material, and project administration.

- **Development of the Limpopo North Reconciliation Strategy**

Task team leader for water quality, water reuse and WCWDM. Activities include water quality overview- identify problem areas and pollution source, GIS maps of non-compliance, develop mitigating factors, resource quality objectives and use of RQO model to set limits; options for water reuse- technology costs, quantification of reuse in study area, comparison of cost; WCWDM – overview of current situation and mitigating measures.

- **Violsdrift Noordoewer Dam Feasibility**

Water quality task team leader, literature review, water quality analysis, treatment options, and client presentations.

- **Western Highveld Feasibility Study and IRS (RBIG)**

Responsible for process audits of treatment plants, performance-limiting overview and recommendations to upgrade treatment plants to ensure sustainable operations. Provide for technical input on network analysis and surface and ground water quality; literature review of IRS, report writing and review of technical reports.

- **UThungulu Integrated Asset Management Strategy:**

Conducted infrastructure assessment of water services in municipality including Operations, maintenance, monitoring, staff requirements, incident management and reporting. Responsible for site visits, report writing and review of technical reports.

- **ILembe Section 78 process**

Conducted infrastructure assessment of water services in municipality including Operations, maintenance, monitoring, staff requirements, incident management and reporting. Responsible for site visits, report writing and review of technical reports.

- **District Water Services Manger Forum (DWSMF) Peer Review Program**

Facilitation of peer review process and workshop to evaluate water management, technical input to compiling feedback presentation to municipality and final report outlining action plan for implementation and assist with project administration.

- **DWA Master Planning:**

Assisted with compiling Water Services Development Plan for Sekhukhune DM and Capricorn DM focusing on water quality, water conservation and demand management, Institutional arrangements, operations and maintenance, asset management, and customer services. Responsible for literature review, report writing and project meetings

- **Capricorn Water Treatment Audits**

Process audits of 11 water supply systems, development of water safety plans, incident management protocols and risk-based water quality monitoring programs. Duties include project management, client liaison, all deliverables and list of recommendations to improve all supply systems.

- **Modimolle WWTW Upgrade**

Responsible for client liaison, funding options, review of technical report and license requirements.

### 3. CSV WATER: 2008-2013

#### Director and Water Scientist

- **Blue, Green and No Drop Lead Inspector for Incentive-based Certification program**  
Program rolled out by Department of Water and Sanitation for water services authorities from 2007. Lead inspector responsible for auditing water and wastewater treatment plant, assisting municipalities with information and guidance to comply, checking and finalizing audit sheets of panel member, capacity building of panel members and site assessments. Duration from inception of program in 2007 to 2013, audited close to 45 municipalities throughout South Africa.
- **Technical support to municipalities to achieve Blue Drop and Green Drop Certification**  
Assisted several water services authorities to achieve Blue and Green Drop Certification by preparing various documents, assisting with implementation of management plans and capacity building and training for following requirements: Water safety plans, Wastewater risk abatement plans, Incident Management Protocols, O&M manuals. Municipalities include Steve Tshwete Local Municipality, City of Tshwane, Alfred Nzo Municipality, Westonaria Municipality, Dr JS Moroka Local Municipality. Duration from 2007-2013.
- **Process Audits of Water and Wastewater Treatment Plants**  
Clients include Lepelle Northern Water, Tzaneen Local Municipality, Dr. JS Moroka Local Municipality, Mogale City and EXXARO Lephalale. Tasks include operational evaluation against design of treatment process and each unit process, rated capacity of units, operations evaluation, process controller requirements, water quality assessment, administration assessment and recommendations to address performance-limiting factors.
- **Midvaal Water Plant Optimisation Plan**  
Detailed assessment of treatment plant with regards to water quality and quantity, unit process assessment and optimization report, rated capacity, coagulation, control, chemical cost evaluations, proposed upgrade of wastewater recycle unit, as per IWA plant assessment guidelines.

### 4. SA WATER CYCLE GROUP: 2007-2008

#### Water Scientist

- **Roodeplaat Pilot Plant**  
The project involved design and manufacture of a 1000l/hr pilot plant for Magalies Water (Roodeplaat), to test for the use of ozone at Roodeplaat. Responsible for design of ozone and GAC columns, review of water quality information, calculation of ozone dosage and contact time, commissioning of pilot plant.
- **Oxyzone Plant at Tower D, Air Products**  
The project involved containerised system to treat cooling towers using ozone only. A smaller pilot plant had been operating for over a year at Air Products Vanderbijlpark. Responsible for design and commissioning of operational unit, sizing of ozone generator and contactor, determination of required ozone dosage, site preparation including Hazop study, and sourcing of appropriate monitors.
- **Cyanide Removal Pilot Plant**  
Improchem approached SA Water to test if ozone can be used to remove cyanide from goldmine slurry from Harmony Gold, Randfontein. Duties included performing batch tests on the mine slurry by exposure to ozone, calibration of reactor, determination of theoretical applied ozone dosage. SA Water was subsequently appointed to design and manufacture a pilot plant on site: duties included determination of required ozone dosage, sizing of generator and oxygen generator, design of contact column and associated pipework, commissioning on site, operation and troubleshooting on site and assisting with trial runs.

## Publications, Presentations, Training and Media Activities

A: Presentations and Papers		
Date	Conference	Presentation
15 <sup>th</sup> October 2019	WISA Water Career Awareness Day, University of Pretoria,	Guest speaker, Presentation: <i>Careers in the Water Sector for Scientist</i>
18 <sup>th</sup> September 2019	Water Reuse Conference, Birchwood	Paper Presented: <i>Use of Risk management principles for sustainable water use</i>
18 <sup>th</sup> September 2019	SRK consulting, JHB	Guest speaker, Presentation: Risk Management of water supply systems
15 <sup>th</sup> August 2019	WISA Gauteng, Women Process Controllers day, ERWAT	Guest speaker, Presentation : <i>Are you prepared for the 4th Industrial Revolution in water/wastewater?</i>
27 <sup>th</sup> March 2019	Water Show Africa Sandton	Seminar presentation: <i>Is your water safe to drink?</i>
15 <sup>th</sup> Feb 2019	YWP DWS seminar Pretoria	Guest speaker, Presentation: <i>The Importance of a Holistic understanding of the South African Water Sector</i>
27 <sup>th</sup> September 2018	Power conference for Women in Water Utilities Riverside Incubation Hub, Fourways	Guest speaker, Presentation:: <i>How can I be Wrong? A perspective journey of your success</i>
27 <sup>th</sup> June 20018	WISA 2018 ICC Cape Town	Hosted Workshop and presentation: <i>“Challenges of Groundwater Use by the Commercial Sector in the Western Cape”</i>
30-31st May 2018	Africa Health: Hospital Build Conference Gallagher Estates. Midrand	Paper presented: <i>Sustainable Water Supply for Healthcare facilities</i>
8 <sup>th</sup> Nov 2017	UJ-ESKOM WORKSHOP PROGRAMME 2017. University of Johannesburg	Guest speaker, Presentation: <i>Chronicle of a scientist.</i>
16 <sup>th</sup> May 2016	WISA Conference, Durban ICC.	Workshop presented: <i>“Integrated asset management: cornerstone for sustainable water service delivery:</i> Chairperson of Session 49 on Capacity building
15 <sup>th</sup> September 2015	Water Quality Summit; Sandton City	Papers presented: <i>“Implementation of risk-based principles to achieve Blue Drop”, and “Green Drop requirements”</i>
8 <sup>th</sup> July 2013	Municipal Water Quality Conference, Sun City.	Paper Presented: <i>“A guide to developing a risk-based monitoring programme”.</i>
2011	Municipal Water Quality Conference, ICC Cape Town.	Papers Presented: <i>“A guide to process audits”, and “Why the need for a Water Safety Plan and Risk Abatement Plan”.</i>
2010	WISA Conference, ICC, Durban.	Paper presented: <i>” A guide to process audits leading to optimisation”.</i>
2009	WaterTech Africa, Gallagher Estates, Midrand.	Paper Presented: <i>“Guidelines for the evaluation of ozone for NOM removal: Case study at Midvaal Water”.</i>
2008	WISA Conference, Durban.	Paper Presented:

		<i>"The effect of pre-ozonation on the physical characteristics of raw water and natural organic matter (NOM) in raw water from different South African water resources"</i>
2005	Lower Orange River Remediation Forum.	Presentation title: <i>"Use of Ozone in Water Treatment"</i>
2004	Water Science Symposium, North West University.	Presentation title: <i>"The Effect of Ozone on Algal Cells and Natural Organic Matter in South African Waters"</i>
2004	Suid-Afrikaanse Akademie vir Wetenskap Jaarkongres.	Paper presented: <i>"Die invloed van osoon op alge en algelkomponente by watersuiwering"</i>

### B: Water Research Commission and other reviews

Date	Name of project	Position
2020	WRC Publication: <i>The impact of energy effluent processes and technologies on cost and compliance at municipal wastewater treatment plants</i>	Reference Group Member
2017	WRC Publication: <i>Guidance on drinking water supply systems performance assessment and optimization</i>	Reference Group member
2015 - 2016	WRC Publication: <i>Decision support tool for Wastewater Treatment Technology selection.</i>	Reference group member
August 2015	TOR 1008341: <i>Guidance on drinking water supply systems performance assessment and optimisation</i>	Request by WRC to review proposals submitted
2015	WRC sponsored workshop on <i>Wastewater Treatment Plant modelling to support the Green Drop program</i>	Invited by WRC to attend meeting as technical specialist
2014	Title: <i>Efficacy of conventional drinking water treatment processes in removing problem-causing phytoplankton and associated organic compounds.</i> H. Ewerts, A. Swanepoel and H.H. du Preez	Review of scientific article for Water SA
2013	WRC Publication: <i>Development of Web-enabled (and supportive spreadsheet-based) Wastewater Risk Abatement Planning Tools</i>	Reference group member
2011	WRC Publications: <i>Wastewater Risk abatement plan: A W<sub>2</sub>RAP guideline.</i>	Member of specialist review panel and contributed examples of W <sub>2</sub> RAP documents

### C: Training Courses Presented

Date	Name of project	Description
24 <sup>th</sup> July 2019	A One-day Training on Wastewater Audits, Risk Assessment (W <sub>2</sub> RAP), Green Drop Certification Requirements presented to Sasol staff at Secunda WWTW	Provided training on Green Drop Certification

18 <sup>th</sup> September 2019	On-line training for SRK Consulting-	Training provided on Risk management of Water systems
2-4 <sup>th</sup> March 2020	Custom-made 3 day Training Course for the Auditor-General, Jointly presented by CBSS and AHL Water. Title of course" Water Governance in South Africa"	Training provided on following: <ul style="list-style-type: none"> <li>•Blue Drop Certification</li> <li>•Water Treatment Technologies</li> <li>•Site visit to Daspoort WWTW</li> <li>•Risk identification procedures</li> </ul>

#### D: Social Responsibility Initiatives

Date	Event	Venue	Participation
Current	WISA 2020 Conference	N/A	Assisting technical committee with review of abstracts, arranging technical tours.
Current	WISA Gauteng Division	N/A	Active member of WISA Gauteng Division from 2019
26 <sup>th</sup> June 2018	WISA 2018	ICC Cape Town	Organised and hosted half day workshop for Water Science Workshop titled " Making a splash: How WISA can strengthen the social compact within the water sector?"
28 <sup>th</sup> November 2017	Handover of Hippo Rollers – WISA Water Science Division	Alexandra Food gardens and World Vision	Chairperson of WISA Water Science Division to hand over Hippo Rollers donated at Women in Water Conference
19 October 2017	WISA Women in Water Conference	Indaba Hotel	Facilitator of Conference
19 <sup>th</sup> October 2017	WISA Women in Water Conference 2017	Indaba Hotel	AHL Water - Sponsorship of prizes for water fun event

#### E: Media Articles

Date	Event	Link
LinkedIn Articles	<b>5 Feb 2109:</b> Is tap water safe to drink in South Africa? <b>29 May 2019:</b> Wate Quality Verification audits for your building, home, factory <b>30 April 2020:</b> Effect of Lockdown on water quality in buildings	<a href="https://www.linkedin.com/in/ayesha-laher-40745927/detail/recent-activity/posts/">https://www.linkedin.com/in/ayesha-laher-40745927/detail/recent-activity/posts/</a>
SA Profile Magazine	<b>Volume 2 2019, page 90-91.</b> Profile on AHL Water- Sustainably management is a reality <b>Volume 3 2020, page 62/64:</b> Risk Management for water services – the silver bullet to our current water woes	<a href="https://mediaxpose.co.za/publications/sa-profile-online/">https://mediaxpose.co.za/publications/sa-profile-online/</a>
Water and Sanitation Magazine - official magazine of the Water Institute of Southern Africa (WISA)	<b>Vol 13 No 3. May/June 2018. Page 23</b> Hospital off the grid – report on Life Health Vincent Palloti containerised plant	
	<b>Vol 13 .No 5. Sept/October 2018. Page 50-51</b> Giving Back to Communities- reporting on WISA WSD division handover of hippo rollers	
	<b>Vol 14 No 3. Page 13</b> Changing the Narrative – report back on WISA YWP event	
	<b>Vol 14 No 5. Sept/Oct 2019. Page 46 – 49</b>	



	Celebrating Women in Water – reporting on WISA Process Controllers Day	
	<b>Vol 14. No 5. Sept/Oct 2019. Page 22-24</b> Article: How Safe is your water?	<a href="https://issuu.com/glen.t/docs/wasa_september_2019_/24">https://issuu.com/glen.t/docs/wasa_september_2019_/24</a>
	<b>Vol 14 No 3. May/June 2020</b> Specialist contribution: Recapacitating our failing plants	<a href="https://issuu.com/glen.t/docs/wasa_may_2020/22">https://issuu.com/glen.t/docs/wasa_may_2020/22</a>

### F: Continuous Professional Development

Date	Name of Event	Description
12 July 2019	Train the Trainer Course offered by WISA: Anaerobic Digestion (1 CPD Point)	One- day short course for subject specialists to train them on offering training to municipalities, industries, etc
15-17 <sup>th</sup> October 2019	Water Governance Training offered by CBSS (2 CPD points)	Participated in 3 day training program on Water Governance