



## MINUTES OF THE EUTROPHICATION MANAGEMENT STRATEGY PUBLIC CONSULTATION MEETING

**Date:** 14 October 2022

**Time:** 10H00 – 13H00

**Venue:** Hybrid - Midrand Conference Centre  
Ms Teams

**Chairperson:** Ndileka Mohapi

**Secretariat:** Samkele Mnyango

ITEM NO	ITEM
1.	<p><b>OPENING AND WELCOME</b></p> <p>The Chairperson, <b>Ndileka Mohapi</b>, welcomed all stakeholders to the National Eutrophication Management Strategy Public Meeting and thanked everyone for attending. She further acknowledged all the stakeholders who have been providing inputs and guidance during the development process of the Eutrophication Strategy.</p> <p><b>Ndileka Mohapi</b> highlighted the objectives of the meeting as follows:</p> <ul style="list-style-type: none"><li>- To share the Eutrophication Management Strategy for South Africa with the Public; and</li><li>- To obtain inputs, commitments, and support from key water sector stakeholders in order to improve the management of water resources in the country.</li></ul>
2.	<p><b>ATTENDANCE AND APOLOGIES</b></p> <p><b>Ndileka Mohapi</b> indicated that the meeting was hybrid to accommodate stakeholders who were far from the venue; and opened the floor for members to introduce themselves as well as the organizations and institutions they represent.</p> <p>See the list of attendees and apologies in the attached <b>Annexures A and B</b>.</p>
3.	<p><b>ADOPTION OF THE AGENDA</b></p> <p>The agenda of the meeting was accepted with no additions.</p>
4.	<p><b>PRESENTATION OF THE PROJECT PROGRESS AND OUTPUTS</b></p> <p><b>Tovhowani Nyamande</b> presented the progress and outputs of the project. The presentation highlighted the following:</p> <ul style="list-style-type: none"><li>- <b>Background and introduction:</b> management tools (<i>i.e.</i> RDM and SDM/SDC) in place for water resource protection as well as the definition of eutrophication and the contributing factors.</li><li>- <b>Project development process:</b> four major phases of the project, namely, Project Inception, Situation Assessment and Gaps Analysis, Policy, and Strategy, and Strategy into Practice.</li><li>- <b>Stakeholder engagement plan:</b> list of platforms whereby the Eutrophication Management Strategy has been presented since its inception such as the National Water and Sanitation Summit, Project Steering</li></ul>

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	<p>Committee Meetings, and various Integrated Water Monitoring Committees including Catchment Management Forums.</p> <p><b><u>Discussion and Issues</u></b></p> <p><b>Ndileka Mohapi</b> thanked <b>Tovhowani Nyamande</b> for presenting on the progress with an emphasis on all the team members who were involved in developing the Strategy, especially the colleagues from the National Department of Water and Sanitation (DWS) within the Water Quality Planning Directorate, <b>Pieter Viljoen</b> and <b>Jurgo van Wyk</b>, for dedicating their effort and time in terms of contributions to the drafting of the Strategy.</p> <p><b>Ndileka Mohapi</b> in response to <b>Gary Bing</b>, indicated that the Team would be responding to all the comments raised in the chatbox and the issues raised will be addressed accordingly.</p> <p><b>Ndileka Mohapi</b> concluded by highlighting the partnership of the DWS and the Department of Science and Innovation in terms of the issue pertaining to the circular economy and made an example of the work done by <b>Peet Venter</b> and his Team in Hartbeespoort Dam which is the recycling of algae removed from the dam.</p> <p><b><u>Issues Raised on the Chatbox</u></b></p> <p><b>Gary Bing</b> made the following comments:</p> <ul style="list-style-type: none"> <li>- The ongoing eutrophication in water bodies is a failure by DWS on two fronts, a) regulation is not stopping the entry of nutrients, a large part from sewage spills, b) not changing inappropriate infrastructure development that channels pollution into water bodies.</li> <li>- What needs to be done has been covered in the water sciences literature for a long time and clearly the strategy has not worked.</li> <li>- Endless conferences are not going to change the situation</li> <li>- DWS needs to stop sources of pollution/nutrients, especially sewage spills across the country</li> <li>- An example of pure neglect by DWS and Water Services Authority (WSA) is the ongoing raw sewage that comes from Delmas that enters both groundwater (a very possible reason for the typhoid past / potential outbreak) in the dolomite under the town and the surface water that goes via Bronkhorstspuit River into the dam, currently with a hyacinth bloom.</li> <li>- Another topical example of the ongoing failure of regulation is the raw sewage spill from Cradock that enters the Gariep transfer scheme to Nelson Mandela Bay Metropolitan Municipality (NMB), which appears as the likely source of <i>e-coli</i> found in potable water produced, exacerbating the so-called water shortage situation there, a failure of bulk water supply planning by DWS.</li> <li>- Locally, Gauteng, is a massive dumping ground for pollution/nutrients, in the East Rand the ongoing sewage spill enters the Blesbokspruit, which enters the (once) Ramsar Marievale Bird Sanctuary, which conveniently enters downstream of Rand Water take-off point, joins the sewage from Emfuleni to go past Kimberly</li> <li>- There is too much so-called policy that basically consists of plenty more meetings, while the pollution/sewage continues to reek havoc</li> <li>- Cooperative governance in practice is about passing the buck.</li> <li>- Talking about the Hennops, not so far from the conference, this is a major source, with sewage flows from West Rand, the driver for hyacinth in Harties</li> </ul> <p><b>Paddy Waller</b> was interested in knowing whether details regarding rehabilitation and source management would be covered in the presentations.</p>

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5.	<p><b>PRESENTATION OF THE NATIONAL EUTROPHICATION MANAGEMENT STRATEGY</b></p> <p><b>Jurgo van Wyk</b> presented the Eutrophication Management Strategy for South Africa. The presentation highlighted the following:</p> <ul style="list-style-type: none"> <li>- <b>Part 1:</b> The South African Context focused on the concept of eutrophication, its challenges, and the status of eutrophication in the country;</li> <li>- <b>Part 2:</b> Eutrophication Management Policy for South Africa highlighted 19 Policy Statements that were customized for the management of eutrophication in the country</li> <li>- <b>Part 3:</b> Eutrophication Management Strategies which focused on the three mutual Strategies identified for eutrophication management, Viz: core, operational, and supporting strategies; as well as the priority areas to be addressed;</li> <li>- <b>Part 4:</b> Way forward</li> </ul> <p><b><u>Discussion and Issues</u></b></p> <p><b>Rodney Genricks</b> shared his concern regarding the consideration of the bioremediation of dams as the last resort and mentioned that bioremediation goes beyond dams and is often confused with flocculation. He added that bioremediation needs to be considered for both upstream and downstream of Wastewater Treatment Works (WWTW) to assist with reducing the impact of the WWTW as well as the management of sludge which causes more problems in the rivers. He concluded that they were not consulted at the high level with the eutrophication strategies plan and believes that there needs to be broader communication regarding the bioremediation and the common flocculation used in the WWTWs. <b>Ndileka Mohapi</b> responded and appreciated the input from someone who is dealing with issues on the ground and indicated that the team will check how much of that has been cited in the Strategy into Practice document and see if there is a need to enhance the document.</p> <p><b>Pule Makena</b> pleaded with the Department to assist with the challenges related to service delivery such as reinstating the green and blue drop scorecards for municipality managers and reviewing water use licences, particularly for treatment plants that are experiencing high levels of phosphate and nitrates. He also added that the challenge currently is compliance and enforcement officers who do not have an understanding of water quality issues.</p> <p><b>Ndileka Mohapi</b> asked all members why they wanted to be policed? She indicated that she was not expecting an answer but wanted members to reflect. She gave an example of the developed countries which have minimal policing.</p> <p><b>Esper Ncube</b> mentioned that we are dealing with a national strategic problem and that we must be realistic. She emphasized the point of getting to the root cause such as malfunctioning WWTWs and anthropogenic activities that exacerbate the eutrophication problem. The question should be on how we solve root causes such as problems related to WWTWs failing to remove nutrients in the systems. She also asked Department of Forestry, Fisheries and the Environment (DFFE) colleagues about the progress of the polluter pays principle, and if it is working or not? What successful implementation instruments are in place to tackle the problem, and are they working? This should not be the problem of the DWS but for all affected parties. She concluded that one can be proud of being in the sector for many years, but the question remains, what are you leaving, and what have you done?</p>

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	<p><b>Kyle Rogers</b> commented that the DWS being silent on the success stories related to cleaning and purifying polluted water to consumable water, and yet, with bioremediation, there are success stories associated with it. The DWS needs to share such success stories and duplicate and scale them because they have been going on for so many years- they need more time and strategy. <b>Ndileka Mohapi</b> concurred and added that this could assist with lessons learned and on a pilot scale in different areas.</p> <p><b>Peet Venter</b> highlighted that humans are facing the problem they have created themselves and indicated that the root cause is our anthropogenic impacts. He made an example of the Hartbeespoort dam, one treatment plant cannot solve problems created by other treatment works, the reality is that there is no replacement for dysfunctional WWTWs, and there is no quick fix for thousands of distorted users that are inputting into the dam and there are no wetlands left in the Hartbeespoort Catchment to purify water.</p> <p><b>Issue Raised on the Chatbox</b></p> <p><b>Gary Bing:</b></p> <ul style="list-style-type: none"> <li>- No need for extensive data, there is plenty in the water sciences literature on what needs to be done, and on how to manage with minimal data, i.e. learn by doing, the keyword: 'do';</li> <li>- The use of appropriate infrastructure, most of which consists of 'shaping' the landscape is hampered by ridiculous red tape. A major impactor is the WSAs, please don't blame the consumer.</li> </ul> <p><b>Paddy Waller</b> indicated that policing is necessary as governments do not comply with their own laws and regulations. <b>Gary Bing</b> was of the view that "why we want to be policed" is not the question, instead, the root cause is a neglect of duty by authorities. <b>Ndileka Mohapi</b> replied that she was trying to get all of us to have a conscience. <b>Rossali</b> added that Policing is necessary because officials are not complying.</p> <p><b>Jo Dreyer</b> commented that Hartbeespoort is the only dam in the country that has the percentage coverage of <i>sylvina minimalis</i>. This is a very big issue and there is more sludge under this water body due to the spraying of hyacinth. The bioremediation project is what needs to be implemented. <b>Cara Stokes</b> was of the view that if the DWS can expedite the rehabilitation and construction of wetlands to assist with nutrient loads that would really help. <b>Rossali</b> indicated that water hyacinth in the Hartbeespoort dam is managed biologically, not chemically. A biological control agent is in the pipeline for <i>Salvinia minimalis</i>. Reducing nutrient input is the main solution. <b>Jo Dreyer</b> added that unfortunately, chemicals have been a part of the hyacinth control, there is video and photographic evidence of the dam being sprayed over many years. Only recently the bugs were used and still what they don't consume goes to the bottom of the dam.</p> <p><b>Marlé M Kunneke</b> commented that WWTW must be a national priority to upgrade and bioremediation must be implemented for other urban runoff (polluted stormwater) in every town/city. <b>Tovhowani Nyamande</b> concurred with the upgrading of the WWTW and rehabilitation and mentioned that upgrading of the WWTW and Rehabilitation of water resources are amongst the Departmental priority management actions and Summit's resolutions.</p> <p><b>Fikile Guma</b> asked why we are not questioning the roles/responsibilities of Provincial and Local Government structures in the alleviation/prevention of these problems? Money is allocated to them to perform the function of wastewater management through equitable shares and various grants. Let us hear their explanation. <b>Gary Bing</b> responded that they have already heard a major metro, all of whom are WSAs with constitutional responsibilities, who will throw the ball back to DWS, and rightly so in many cases. <b>Fikile Guma</b> emphasized his point that this must be seriously challenged simply from the point of view of effective resource management. <b>Gary Bing</b> agreed and further mentioned that the problem that appears is that the urban areas as major sources is somehow seen as separate from catchment management.</p>

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6.	<p><b>PRESENTATION OF THE NATIONAL EUTROPHICATION MANAGEMENT STRATEGY</b></p> <p><b>6.1 Samkele Mnyango</b> presented Part 1 of the presentation, and highlighted the following:</p> <ul style="list-style-type: none"> <li>- Acknowledgments of the Authorship and technical working groups (Sub-TT, TTT, PMC, and PSC);</li> <li>- Purpose of EMSIP;</li> <li>- Layout of the EMSIP Report;</li> <li>- Role-players and responsibilities; and</li> <li>- Prioritized actions for Core Strategies (timeframes and responsible authorities)</li> </ul> <p><b>6.2 Mmaphefo Thwala</b> presented part 2 of the technical presentation, and highlighted the following:</p> <ul style="list-style-type: none"> <li>- Prioritized actions for Operational Strategies (Plan-Do-Check-Act) and responsible authorities; and</li> <li>- Prioritized actions for Supporting Strategies (Technical capacity, Research and Innovation, and Collaboration and Participation management), timeframes and responsible authorities.</li> </ul> <p><b><u>Discussion and Issues on</u></b></p> <p><b>Ndileka Mohapi</b> thanked the presenters and added that the presentations talked about how the DWS intends to translate the Eutrophication Strategy into Practice. She added that the DWS is known for developing documents, but the challenge is turning those documents into Practice.</p> <p><b>Marcus Selepe</b> raised his concern about the way municipalities fill their vacant posts. He indicated that municipalities tend to prioritize general workers instead of appointing qualified people to technical positions, which is also one of the root causes of poor operation of treatment works. He proposed that the DWS needs to influence the Department of Cooperative Governance and Traditional Affairs (COGTA) on the appointment of technical and qualified personnel. <b>Ndileka Mohapi</b> noted the comment and added that there is a lot of effort in involving the local government. She added that the DWS has been supporting the local government since the dawn of democracy, which might have been the problem that led us to where we are and maybe we need to re-look at how the DWS is supporting the local government.</p> <p><b>Vhahangwele Masindi</b> commented that we have a beautiful blueprint, that if implemented effectively, can yield the desired output. He also concurred with <b>Esper Ncube</b> on the diagnostic of the problem and highlighted some of the challenges leading to the problem including WWTWs that are operating above their design capacity. Secondly, the Government needs to re-look at the polluter pays principle. His proposal was that there needs to be a principle or operation that ceases operation if one pollutes, and the government will take over the operation of that facility. <b>Ndileka Mohapi</b> responded that we need to look at developing integrated planning as Government. She added that the cease-to-operate resolution is an interesting proposal, however she was not sure where the government would source the resources for intervention as it is already maxed out, but it is a consideration for the future.</p> <p><b>Pule Makena</b> indicated that the operational strategy talks to what the Blesbok strategy is doing and he pointed out to the Department of Mineral Resources and Energy (DMRE) as an issue on the blue deal project. DMRE needs to assist with some of the actions identified and so far we are struggling to obtain them on board</p>

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	<p><b>Ndileka Mohapi</b> advised members who are struggling to get hold of DMRE to communicate with the DWS team.</p> <p><b>Esper Ncube</b> commended the Directorate Sources Directed Studies (D: SDS) Team on the implementation actions, which are very strategic. She emphasized that you cannot manage what you do not know. Hence what is needed is annual reporting of the National status of eutrophication – on a national level and prioritized actions. She recommended the status of eutrophication at the national level to be prioritized; once we know this status, we can establish what needs to be done, with whom. Such a report needs to take into consideration both point and non-point sources as well as the eutrophication hotspots. This would assist in putting together the programme of action going forward. <b>Ndileka Mohapi</b> responded that the DWS has an annual National State of Water Report in place which covers the hotspots. She also indicated that there is a component within the DWS under National Water Resource Planning that generate water quality reports, highlighting the key pollutants in various areas and hotspots documented into the National State of Water Report.</p> <p><b>Ndileka Mohapi</b> reminded the meeting about the DWS website and pleaded with colleagues from the DWS Communication to keep on updating the website to make it more user-friendly.</p> <p><b>Stephan Veldsman</b> commented that there must be consequences for poor management such as taking accounting officers to court, otherwise there is nothing that is going to change.</p> <p><b>Zama Ndlovu</b> mentioned that we have policies and strategies in place, but the actual implementation is lacking, and the implementation should start at the lower levels. She added that the first step in managing eutrophication and water resources is educating the communities about such problems. For example, people are not aware, and they think using soaps and other detergents cleans water meanwhile it is the opposite. <b>Pieter Viljoen</b> responded that the amount of phosphate has been reduced by at least 30% because companies are moving away from the use of expensive phosphate in their products (detergents). He concluded that the problem starts when people are using imported detergents which might still contain phosphates that we cannot quantify because it is not regulated in other countries. <b>Ndileka Mohapi</b> added that in the regulation space it is beyond the DWS, we need departments such as the Department of Trade Industry and Competition (DTIC) to come on board.</p> <p><b>Lors Coogan</b> was concerned about the informal settlements that are situated next to the rivers, which have a huge impact on river systems. Hence, the construction of informal settlements next to rivers has to be done away with. Her second concern was on the leakage of sewerage lines and malfunctioning WWTWs and at what stage are we going to say this is unacceptable, instead of complaining about cable theft and power outages. We need to look at other plans such as applying bioremediations within the WWTWs. <b>Ndileka Mohapi</b> acknowledged the comment and indicated that the DWS team might need to liaise with her further.</p> <p><b>Mbali Dlamini</b> reiterated the issue of informal settlements and highlighted that the informal settlements have their own reticulation systems which feed directly into the rivers. In addition, there are issues of lack of service delivery in connection with solid waste not being collected and their last resort is to dump waste in the rivers. Lastly, she read a comment from one of the Catchment Management Forum (CMF) members, with the hope that there will be a way forward from the Head Office. The comment read as follows <i>“the latest green drop reporting is silent on the proportion of the waste generated as a contribution of cleaner potable water that is flushed, that is reaching the WWTW because these major gaps mean that waste that doesn’t reach the WWTW lands up in our rivers as an untreated sewage”</i>.</p>

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	<p><b>Issue Raised on the Chatbox</b></p> <p><b>Cara Stokes</b> Officials and Project Consultants who oversee expensive WWTW upgrades must be held accountable for quality outputs over the long term. Handing a brand-new plant to a municipality that has no capacity to manage it, doesn't help. <b>Gary Bing</b> responded that it does not help that engineers and technicians have been de-prioritized, in WSAs. In short term, use current powers to stop pollution sources. So, the long term still supports inappropriate, linear type 'big infrastructure'. Best practices are well documented in international literature, please don't re-invent the wheel.</p> <p><b>Gary Bing</b> further mentioned that Water Services Development Plans (WSDPs): just operating the WWTWs well by WSAs is all that is needed, it does not make sense that this is a long term by that time we would have lost all our biodiversity. Regional monitoring, that is already being done by civil society who are working effortlessly. The water forums are not being listened to; an example is the situation with the Delmas raw sewage leak. The WSAs may be autonomous but they are subject to the law. He also asked if the priority report includes Delmas WWTWs? <b>Ndileka Mohapi</b> responded that the presentations of the day were at the national level and the localized priorities will be looked into by the various regional offices, hence, <b>Gary Bing</b> would not pick up a strategy for Delmas but the Mpumalanga Provincial Head was attending who has a vested interest and will ensure that the Strategy is effectively implemented by his office, as well as the officials from the Inkomati-Usutu Catchment Management Agency (IU-CMA).</p> <p><b>Cara Stokes</b> added that unfortunately there is no more time, we have almost lost everything already. As we speak, sewerage flows through Tembisa into the Kaalspruit, and wastewater from agriculture and WWTWs in Delmas flows into the Bronkhorstspruit. Tshwane then further pollutes Bronkies town. The Vaal has already passed the tipping point of Eutrophication - Gauteng's water source. Rooiwaal WWTW is destroying the Agricultural economy. Tourism is destroyed at Hartbeespoort, Roodeplaat dam, and Bronkies dam. If it's not the water quality it's an invasive weed taking over as a result of nutrients, in most cases, it's both. She further indicated that Cyanobacteria is deadly, expensive to fix, and detrimental to a local economy and should be prioritised as a national urgency. Lastly, interventions such as LG Sonics, Phoslock, floating wetlands, artificial wetlands, natural wetlands, pump and treat, desludging, and bioremediation are available for use. Some sewerage from farms will take years to upgrade and pollute worsens while doing so. We can't see upgrading the plants as the only solution, there has to be multiple approaches to keeping the catchment clean.</p> <p><b>Robert Siebritz</b> concurred that the Educational drives, can start at the grassroots and the DWS should intensify the education outreach programmes at school levels and then beyond.</p> <p><b>Gary Bing</b> thanked the Chairperson for responding on Delmas, noting that groundwater is being polluted and that makes water supply very vulnerable to typhoid / cholera. Note also that Delmas local industry to my knowledge has been overloading the works for quite a while.</p> <p><b>Paddy Waller</b> highlighted that after listening to the proposed strategy, the actual situation on the ground, and likely ongoing failure of the government to implement, he is fearful that this is just more talk from the DWS and no action. Citizens need to drive corrective actions with government support, not the other way around.</p> <p><b>Gary Bing</b> mentioned that the informal settlements runoff is a good place to start with appropriate stormwater runoff with infrastructure that treats it, as indicated in the graphic above on biofilters.</p> <p><b>Cara Stokes</b> concluded by thanking the DWS for allowing public members to give input and indicated that we must work together to fix this problem.</p>

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7.	<p><b>WAY FORWARD</b></p> <p><b>Tovhowani Nyamande</b> thanked all stakeholders, both physical and virtual, for attending and for their effort and valuable contribution to the meeting which will be incorporated in the output. She also noted that implementation is key and that it's time for management actions, it's time for us to do. Let's use the resources available.</p> <p>She indicated that the reports have been uploaded to the SDS website for public comments due on 30 November 2022. She also noted that some of the comments on the actions that need to be prioritized were put under long-term instead of short-term. She pleaded with members to let the Team have those details in writing so that they will be addressed accordingly.</p> <p>She noted all the challenges and issues raised by stakeholders and indicated that there is no single approach to this problem but the DWS relies on a range of adaptive management approaches. She also noted that there was an emphasis on the inclusion of Catchment Management Forums, and mentioned that needs to change as the world is shifting to citizen science and quoted the following: <i>"you cannot talk about us without us"</i>.</p> <p><b>Ndileka Mohapi</b> thanked all stakeholders and closed the meeting.</p>
8.	<p><b>CLOSING REMARKS</b></p> <p><b>Ndileka Mohapi</b> thanked all the stakeholders for their attendance and adjourned the meeting.</p>

<p><b>Scribers</b></p> <p><b>Mr Kgotso Mahlahlane</b> Production Scientist: SDS</p> <p><b>Ms Koleka Makanda</b> Production Scientist: Water Resource Classification</p> <p>Compiled by</p>  <hr/> <p><b>Mr Samkele Mnyango (Project Coordinator)</b> Production Scientist: SDS Department of Water and Sanitation Date: 13 December 2022</p>	<p><b>Approval</b></p>  <hr/> <p><b>Ms Tovhowani Nyamande (Project Manager)</b> Director: SDS Department of Water and Sanitation Date: 15 December 2022</p>
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## Annexure A: Attendance Register

No.	Name	Institution/ Organization	Designation
<b>PHYSICAL ATTENDEES</b>			
1.	Ndileka Mohapi	DWS: Water Ecosystems Management	Chief Director
2.	Tovhowani Nyamande	DWS: Sources Directed Studies (SDS)	Director
3.	Mmaphefo Thwala	DWS: SDS	Scientific Manager
4.	Samkele Mnyango	DWS: SDS	Production Scientist
5.	Kgotso Mahlahlane	DWS: SDS	Production Scientist
6.	Jurgo van Wyk	DWS: Water Quality Planning	Scientific Manager
7.	Mxolisi Mukhawana	DWS: Water Information Program	Scientific Manager
8.	Rachel Mpe	DWS: North-West	Production Scientist
9.	Kama Meso	DWS: Resource Protection	Specialised Environmental Officer
10.	Lesiba Ramolobeng	DWS: Limpopo Province	Production Scientist
11.	Candice Mahlangu	DWS: Communication	Deputy Director
12.	Henry Roman	Department of Science and Technology	Director
13.	Lebohang Matlala	DWS: Water Resource Classification (WRC)	Director
14.	Mahadi Mofokeng	DWS: Strategy	Director (Acting)
15.	Liliha Mamoza	Myeza Environmental Management Services	Intern
16.	Rodney Genricks	Eco tabs Gauteng	CEO and Bio-remediation specialist
17.	Pule Makena	City of Ekurhuleni	Specialist
18.	Tsheamo Mogale	Gauteng Department of Agriculture, Rural Development & Environment (GDARD)	-
19.	Mpho Kadi	GDARD	Environmental Officer: Specialised Production
20.	Pieter Viljoen	DWS: Water Quality Planning	Scientific Manager
21.	Ondela Tywakadi	City of Joburg	Principal Specialist
22.	Ledile Nyama	DWS: Gauteng Province (GP)	Control Environmental Officer
23.	Tshinyadzo Mphephu	City of Tshwane (CoT)	-
24.	Zama Ndlovu	Green Cape	-
25.	Leonard Baloyi	City of Joburg (CoJ)	-
26.	Marika van der Walt	Law Water Consulting	Director (Water Law specialist)
27.	Stephan Veldsman	GDARD	Conservation Planner
28.	Marc De Fontaine	Rand Water	Senior Water Quality Advisor - Barrage Catchment
29.	Panday Rivash	SASOL	Senior Specialist
30.	Eddie Chabalala	Sedibeng District Municipality	-
31.	Mashudu Mukwevho	DALRRD	-
32.	Lebogang Mannya	Larfage industries	-
33.	Lizwi Labase	Larfage industries	-
34.	Kulani Maluleke	Omnia	Environmental Officer
35.	Ndumiso Masilela	DWS: WIP	Graduate Trainee
36.	Mantsho Modisane	DFFE: North-West	PC
37.	Marcus Selepe	Inkomati-Usuthu Catchment Management Agency (IU-CMA)	Manager: Resource Quality Monitoring
38.	Wisane Mavasa	DWS: Communication	Director
39.	Konanani Khorommbi	DWS: GP	Director
40.	Lettah Koki	Goldfields South Deep Mine	Environmental Supervisor
41.	Mandla Mathebula	DWS: Communication	Chief Director
42.	Sameul Nangammbi	Rheinmetall Remediation	Environmental Manager
43.	Koleka Makanda	DWS: WRC	Production Scientist

No.	Name	Institution/ Organization	Designation
44.	Jacque Swanepoel	ESG	Scientist
45.	Maipato Thoola	Magalies Water	WQ Process Specialist
46.	Lors Coogan	CoJ	Councillor
47.	Justice Maluleke	DWS: GP	Provincial Head
48.	Esper Ncube	Rand Water	Acting General Manager SS
49.	Petrus Venter	DWS: NW	DRD: NW
50.	Molefi Mazibuko	DWS: Reserve Determination	Production Scientist
51.	Annelie Swanepoel	Rand Water	Principal Scientist
52.	Mashiane Tebogo	DWS: GP	ASD
53.	Vhahangwele Masindi	Magalies Water	Research Scientist
54.	Ruphus Gavhi	DFFE: NW	-
55.	Camagwini Ngodi	DWS	Candidate Scientist
56.	Portia Mahlangu	DWS: Communication	Director
57.	Happy Khumalo	GDARD	Scientist
58.	Mbali Dhlamini	DWS: GP	Control Environmental Officer
59.	Mlungisi Segone	DFFE: NW	Coordinator
60.	Kyle Rogers	Hennops CMF	Chairman
<b>ONLINE ATTENDEES</b>			
61.	Antonie van Staden	ZZZ	-
62.	Cara Stokes	CS Environmental - Bronkies Catchment Forum & ARMOUR	-
63.	Smuts Marais	City of Ekurhuleni	Water Quality Manager South West
64.	Kim Hodgson	Umgeni Water	Scientist – Water Quality Management
65.	Jo Dreyer	WESSA – Birdlife Harties	
66.	Heather Booyesen	Samancor Chrome	Environmental Manager
67.	Mashudu Nemutandani	Department of Economic Development, Environment, Conservation (DEDECT) – North West	-
68.	Mudziri Busisiwe	DWS: Mpumalanga (MP)	Chief Community Liaison Officer
69.	Guma Fikile	DWS: MP	Provincial Head
70.	Lucia Marais	Midvaal Water Co	
71.	Popo Maleka	Zijin Nkwe Platinum Mine	
72.	Nomvuzo Mjadu	Department of Agriculture, Land Reform and Rural Development (DALRRD)	Deputy Director: Water Management
73.	Gary Bing	Independent consultant, specializing in Integrated Urban Water Management	Professional engineer
74.	Sinazo Mgozeli	Samancor Chrome Ferrometals	-
75.	Refiloe Moletjie	City of Ekurhuleni	-
76.	Neil Griffin	University of Rhodes	Researcher
77.	Aluwani Khuswana	Arnot Opco Coal Mine	-
78.	Veleko Thami	DWS: GBD	-
79.	Jacques Venter	City of Joburg	-
80.	Vukile Fada	Foskor Mine	Senior Manager Environmental Management
81.	Robert Siebritz	City of Cape Town	Senior Professional Officer
82.	Tharina Boshoff	NW-DEDECT	-
83.	Thobekile Gambu	Umgeni Water	-
84.	Gilbert	-	-

No.	Name	Institution/ Organization	Designation
85.	Bernadette van Heerden	Klipfontein Mine - Emalahleni	Environmental Officer
86.	Marlé M Kunneke	Western Cape Department of Environmental Affairs and Development Planning	Task Manager: Water Quality Monitoring
87.	Malefyane Mosadi	DEDECT: NW	-
88.	Chantel Petersen	City of Cape Town	Senior Professional Officer
89.	Gideon	Innovar Legacy Media	-
90.	Mlondi Ngcobo	-	-
91.	Matome Makwela	Minerals Council SA	Policy advisor
92.	Elsie van Staden	City of Ekurhuleni	-
93.	Annamarie Maurizi	City of Ekurhuleni	-
94.	Adriaan v Straaten	DEDECT-NW	Control Environmental Officer Grade B
95.	Siphumelele Mwandla	-	-
96.	Dolly Ziphelele Mthethwa	Thungela	-
97.	Swastika Surujlal-Naicker	City of Cape Town	Head: Analytical Laboratory
98.	Sazi Mthembu	DWS: RQIS	Production Scientist
99.	Riaan Wolvaardt	-	-
100.	Mmakgang Enele	DWS: Enforcement	Director
101.	Nokulunga Memela	DWS: Western Cape (WC)	Production Scientist
102.	Mabada Hangwani Donald	DWS: GP	Director
103.	Sidzatane Lisakhanya	DWS: WRMP	Candidate Scientist
104.	Monique du Plessis	Harmony Gold Mine	Environmental Coordinator
105.	Thobile Sithole	-	-
106.	Dzambukeri Prudence Kurhula	DWS: MP	-
107.	Michelle Proude	Strategic Water Partners Network	Programme Coordinator
108.	Wandile Nomquphu	WRC	Research Manager
109.	Engelbrecht Bentley	DWS: WC	Production Scientist
110.	Eunice Ubomba-Jaswa	WRC	Research Manager: Water Resources Quality and Management
111.	Refilwe Letsolo	-	-
112.	Norman Nokeri	Lepelle	-
113.	Phemelo Tselaakgothu	DFFE - Ngaka Modiri Molema District Municipality	Control Environment Officer
114.	morwawarabothata	-	-
115.	Siwelane Lilian	DWS: NW	Control Environmental Officer
116.	Nomsa Masemola	DALRRD	-
117.	Lebogang Moffat	City of Ekurhuleni	-
118.	Lucia Marias	Midvaal Water Co	-
119.	Elijah Mogakabe	DWS: RQIS	Scientific Manager
120.	Itanje Seymore	McCain Foods Delmas and Springs	Regional Environmental Manager
121.	Sithembiso Sangweni	DUCT	-
122.	Ashwin Seetal	CSIR	Specialist: Strategic Water Management
123.	Sanele Vilakazi	Umngeni	-
124.	Mpho Zwane	City of Johannesburg	-
125.	Stephinah Mudau	Minerals Council SA	Environmental Advisor
126.	Hennie K	-	-

No.	Name	Institution/ Organization	Designation
127.	Paddy Waller	Bronkhorstspruit Catchment Management Forum	-
128.	Kelebogile Lynette Lecoge		-
129.	Phumelele Sokhulu	Umgeni Water	-
130.	Wiseman Ndlala		-
131.	Melissa Lintnaar-Strauss	DWS: WC	Scientist Manager
132.	Paul Oberholster	University of the Free State: Centre for Environmental Management	Director
133.	Tharina Boshoff	NW-DEDECT	-
134.	Nombulelo Hlophe	Umgeni Water	-
135.	Sputnik Ratau	DWS: Communication	Director
136.	Amanda Nyawose	-	-
137.	Katlego David Kunutu	DEDECT: NW	Biodiversity Officer Specialized Production: Protected Areas Regulation
138.	Ravele Khathutshelo	DWS: Water Regulation & Use	Production Scientist
139.	Sinaz Mgozeli	-	-
140.	Shayna Cuthbertson	-	-
141.	Jacob Malesa	ESKOM	-
142.	Rosali Smith	Rhodes University: Centre for Biological Control	-
143.	Julie Coetzee	Rhodes University: Centre for Biological Control	Deputy Director
144.	Noloyiso Mbiza	DWS: RQIS	Production Scientist
145.	Swelihle Dyani	-	-
146.	Malefyane Mosadi	NW-DEDECT	-
147.	Weston Barbara	DWS: Reserve Determination	Scientific Manager
148.	Zamokuhle Buthelezi	Umgeni Water	-
149.	Lesailane Mphafudi	Umgeni Water	-
150.	Vuyolwethu Ndaleni	DWS: NW	Graduate Trainee
151.	Yakeen Atwaru	DWS: Reserve	Director

## Annexure B: Apologies

No	Name	Institution/ Organization	Designation
1.	Melissa Naiker	DEA: WC	Control Environmental Officer
2.	Chris Brooker	I Africa	-
3.	Johann Tempelhoff	North-West University	Extraordinary Professor
4.	Amanda Ramotsho	DWS	Production Scientist
5.	Elize Mare	-	-
6.	Patricia Molehe	-	-
7.	Mark Bannister	DWS	Chief Director: Water Services
8.	Gustav Engelbrecht	-	-
9.	Kwazi Majola	DWS	Scientific Manager
10.	Nomasonto Nsibande	ESKOM	-
11.	Annalie Harmse	-	-
12.	Kobus Fell	National Water Monitor NPC	-
13.	Nkateko Mokhoromeng	-	-
14.	Simone Liefferink	Sibanye Stillwater	Water Health and Biodiversity Specialist
15.	Aaron Kharivhe	DMRE	Director: Compliance and Enforcement
16.	William Chitsa	Rand Water	-
17.	Eddie Riddell	SANParks	Manager: Water Resources
18.	William Mosefowa	DWS	Environmental Control Grade B
19.	Susan Stoffberg	West Rand District Municipality	-
20.	Faan Kruger	Indigo Fruit	-
21.	Norman Maiwashe	ARC-AP	-
22.	Shalene Janse van Rensburg	Midvaal Water Co.	-