












































































	Hall A	Hall B	Hall C
08:30 - 10:00	Opening Ceremony		
08:30 - 08:45	Performance		
08:45 - 08:50	Opening of Session <i>Caryn Seago</i>		
08:50 - 09:05	Official Opening of Conference <i>Department of Water and Sanitation</i>		
09:05 - 09:20	Welcome to Cape Town <i>City of Cape Town</i>		
09:20 - 10:00	Water Conservation/Water Demand Management in South Africa: 20 Years On <i>Ronnie Mckenzie</i>		
10:00 - 10:30	Coffee Break		
10:30 - 12:00	Plenary Session <i>Chair: Ronnie Mckenzie</i>		
10:30 - 10:50	Developing a Water Saving Device: Lessons Learned <i>Motebele Moshadi</i>		
10:50 - 11:10	A New Normal: Building resilience through improving efficiencies <i>Dhesigen Naidoo</i>		
11:10 - 11:30	Challenges Faced by South African Municipalities: Where Theory and Practice meet <i>Mbali Matiwane</i>		
11:30 - 11:50	A Ten Point Plan for Managing Crisis Situations Where The Total Water Supply Is At Risk <i>Tim Waldron</i>		
12:00-13:30	Lunch		
13:30-15:00	Different ideas - a controversial session! <i>Chair: Tim Waldron</i>	Theory - Important to know <i>Chair: Dave Pearson</i>	Focus on South Africa (1) <i>Chair: Thabo Masike</i>
13:30-13:50	★ Simulator for NRW and real loss estimation in water distribution systems for developing countries A.1.1 Parag Gurav India	FAVAD, N1 and NDF calculations for practitioners are now better, simpler and more versatile B.1.1 Mark Shepherd South Africa	Recover and Protect More Revenue, Think Beyond the Leaks C.1.1 Travis Smith South Africa
13:50-14:10	A Workable, Lasting Solution to reduce Water Losses through Leaking Water Pipes A.1.2 Hyunseok Cho Belgium	★ Development of a two-tier prioritisation algorithm for water reticulation pipe replacement B.1.2 Andre van Zyl South Africa	★ Water Loss Management in the mining industry C.1.2 Andre Laubscher South Africa
14:10-14:30	Comparative Analysis of Non-Revenue Water Assessment Methods in Three Cases in Developing Countries A.1.3 Taha Al-Washali Yemen	Leakage characterization of pipes in water distribution systems B.1.3 Rene Nsanzubuhoro South Africa	★ A Continual Integrated Quality Improvement Model for standardised Policies and Procedures in local government in South Africa C.1.3 Nokhanyo Madliwa South Africa
14:30-14:50	★ Inequitable Water Supply in Developing Countries : Factors and Feasible Solutions A.1.4 Roshni Gopal India	The Effect of the Pipe Material on the Behaviour of Water Leakage through Longitudinal Cracks under Pressure. B.1.4 Didier Ilunga South Africa	Development of the No Drop incentive-based regulation programme to improve non-revenue water and efficiencies in South Africa C.1.4 Moloko Raletjena South Africa
14:50-15:00	Q&A	Q&A	Q&A
15:00-15:30	Coffee Break		
15:30-17:00	Pressure Management (1) <i>Chair: Ignacio Peña</i>	Case Studies from around the World (1) <i>Chair: Roland Liemberger</i>	Workshop on the No Drop Programme: <i>Chair: Willem Wegelin</i>
15:30-15:50	First Tool in Reducing NRW is Pressure Management. First Tool in Pressure Management is PRV Optimization & Maintenance A.1.5 Charl Myburgh South Africa	Learning and Innovation from New Zealand B.1.5 Richard Taylor New Zealand	Workshop on the recently developed guideline relating to the No Drop Programme: DWS and Danish Government
15:50-16:10	Smart pressure optimisation to address major water network challenges A.1.6 Mark Loveday United Kingdom	★ Reducing Water Loss from Water Distribution Systems: China's Challenges and Endeavours B.1.6 Qiang Xu China	
16:10-16:30	Monitoring the trends in water reticulation pressure and its effects on Non-Revenue water A.1.7 Stacy Mbeba Zimbabwe	Using logging results to resolve operational problems in a municipal water network to reduce water loss B.1.7 Boeta Swart South Africa	
16:30-16:50	Pressure Reduction – A Study Case A.1.8 Francisco Paracampos Brazil	Water losses evaluation for real time monitoring of water supply network B.1.8 Osama Al Gahtani Saudi Arabia	
16:50-17:00	Q&A	Q&A	

★ Presenter < 35 years

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	Hall A	Hall B	Hall C
08:30-10:00	A truly global look at Non-Revenue Water <i>Chair: Malcolm Farley</i>	The Cape Town Water Crisis <i>Chair: Ronnie Mckenzie</i>	Metering (1) <i>Chair: Stuart Hamilton</i>
08:30-08:50	World's Largest Level 1 Validated Water Audit Data Set compels US utilities and regulators to mandate Best Practices – A state to state Domino A.2.1 Will Jernigan United States 	The IWA's Water Loss Specialist Group brings together officials from the City of Cape Town and specialists from around the world to discuss the present water crisis and experience from elsewhere. A high calibre panel made up Fransisco Paracampos (Brazil), Bambos Charalambous (Cyprus), Tim Waldron (Australia) and Peter Flower (Cape Town) will discuss solutions to prepare for future droughts. 	Lessons Learnt From Two Decades of Meter Verification In Severn Trent Water C.2.1 Mikal Willmott United Kingdom 
08:50-09:10	South East Europe - a success story in regional acceptance of modern water loss management A.2.2 Jurica Kovac Croatia 		Assessment of apparent water losses due to metering errors using an alternative, validated methodology C.2.2 Mthokozisi Ncube South Africa 
09:10-09:30	Implementation and recent development of holistic non-revenue water programs in China A.2.3 Shuming Liu China 		Effectiveness of data science technology in reducing apparent loss caused by meter under-registration C.2.3 Janani Mohanakrishnan United States 
09:30-09:50	Quantifying the Global Non-Revenue Water Problem A.2.4 Roland Liemberger Austria 		Quality control experiences of new residential water meters C.2.4 Francisco Arregui Spain 
09:50-10:00	Q&A		Q&A
10:00-10:30	Coffee Break		
10:30-12:00	Performance based NRW reduction <i>Chair: Roland Liemberger</i>	Focus on South Africa (1) <i>Chair: Nanga Mathabela</i>	Is this the future? <i>Chair: Will Jernigan</i>
10:30-10:50	Performance Based Contracts for NRW Reduction Project – An overview of The World Bank current initiatives in Africa A.2.5 Ignacio Peña Argentina 	Use of a Non-Revenue Water Pre-Feasibility Assessment Tool to Mobilise Support and Guide Decision-Making B.2.1 Philip de Souza South Africa 	Going Beyond ELL in Strategic Infrastructure Asset Management C.2.5 Ross Fisher United Kingdom 
10:50-11:10	A Comparison of Turnkey and Co-Management Performance-Based Non-Revenue Water Reduction Contracts A.2.6 Paul Fanner United Kingdom 	A Holistic Approach in the Analysis of and Turn-Around Strategies for Municipal Water Supply Systems - The Perspectives of a Financier B.2.2 Konstant Bruinette South Africa 	The Future of Utility Companies C.2.6 Phil Stone United Kingdom 
11:10-11:30	Performance Contract for Non-Revenue Water Reduction - Case Study Bahrain A.2.7 Joe Dalton Bahrain 	Launching a Holistic WCWDM Programme B.2.3 Derek Hazelton South Africa 	The Future of Hydraulic Control in Water-Systems C.2.7 Assaf Heimann Israel 
11:30-11:50	Implications of the Costs of Leak Repair for Performance Contracts in Intermittent Water Systems A.2.8 David Taylor United States 	Going Digital – Implementing a People, Process and Technology Strategy in Water Management B.2.4 Eckart Zollner South Africa 	From 'economic levels of leakage' to 'making leakage reduction economic': a quiet revolution C.2.8 Andy Blackhall United Kingdom 
11:50-12:00	Q&A	Q&A	Q&A
12:00-13:30	Lunch		
13:30-15:00	Performance Based NRW Reduction <i>Chair: Gerard Soppe, World Bank</i>	Benchmarking and Water Audits <i>Chair: Ken Brothers</i>	Metering (2) <i>Chair: Francisco Arregui</i>
13:30-13:50	Several speakers from the World Bank will introduce the initiative on performance based NRW reduction contracting and the present approach and structure of PBCs that the World Bank is developing. A high calibre panel will discuss the approach from their perspective interest and there will be room for debate with the audience. 	Using the AWWA Free Water Audit Software to Compile the Standard Water Audit for Waterbedrijf Groningen, the Netherlands B.2.5 Cor Merks Netherlands 	★ The use of Automatic Meter Readers (AMRs) to better understand water use on residential properties, Gauteng, South Africa C.2.9 Samanta Stelli South Africa 
13:50-14:10		Ratio of Real to Apparent Losses in Brazil B.2.6 Italo Lima Brazil 	The Value of Metering C.2.10 Mark Shamley South Africa 
14:10-14:30		Empirical Analysis of Non-Revenue Water in the Latin America / Caribbean Region B.2.7 Alan Wyatt United States 	Establishing Meter under Registration on domestic premises with Roof Tanks C.2.11 David Pearson United Kingdom 
14:30-14:50		Benchmarking of water losses, non-revenue water and efficiencies in South Africa over the past decade B.2.8 Allestair Wensley South Africa 	★ Can Smart Meters increase billed consumption: Lessons from meter audits and replacements in South Africa C.2.12 Pieter Crous South Africa 
14:50-15:00		Q&A	Q&A
15:00-15:30	Coffee Break		
15:30-16:40	The importance of geospatial information <i>Chair: Paul Fanner</i>	Pressure Management (2) <i>Chair: Richard Taylor</i>	Hydraulic Modelling and DMAs <i>Chair: Caryn Seago</i>
15:30-15:50	Five ways to use geographical information A.2.9 Edwin Nyirenda Zambia 	★ Optimised water distribution, reduce leakage loss and energy cost B.2.9 Katrina Zlobich South Africa 	Distribution Pressure Management based on Hydraulic Model for Intermittent Supply A.2.13 Shinsuke Takahashi Japan 
15:50-16:10	★ Using spatially located municipal billing data to determine apparent losses in South African municipalities A.2.10 Pieter Wessels South Africa 	Pressure Management - Not Your Father's Approach B.2.10 Carl Yates Canada 	The Importance of District Metered Areas in Water Loss Reduction – Case Study of Blantyre Water Board of Malawi A.2.14 Verson Kafodya Malawi 
16:10-16:30	★ The benefits of the House to House Survey for NRW reduction in Beira, Mozambique A.2.11 Reinder Van den Brink-Bil Mozambique 	The impact of pressure adjustment on consumer water demand B.2.11 Niel Meyer South Africa 	Methods to correct the power equation for realistic leakage modelling A.2.15 Asaph Kabaasha South Africa 
16:30-16:40	Q&A	Q&A	Q&A
17:00 - 18:00	Open Meeting of IWA Waterloss Specialist Group: Activities, Initiative, Discussions		

★ Presenter < 35 years

	Hall A	Hall B	Hall C
08:30-10:00	Latest Technologies (1) <i>Chair: Mbali Matiwane</i>	Top speakers from around the world <i>Chair: Tim Waldron</i>	Very different NRW issues! <i>Chair: Moloko Raletjena</i>
08:30-08:50	Latest technologies or is there an elephant in the room A.3.1 Stuart Hamilton United Kingdom 	Ten Reasons to avoid Intermittent Water Supply B.3.1 Bambos Charalambous Cyprus 	Non-Revenue Water in Zimbabwe. Overview of the Challenges and Opportunities for Reduction of Non-Revenue Water. C.3.1 Anesu Takaendesa Zimbabwe 
08:50-09:10	★ The Case Study in Leak Detection by Using Satellite-based Technology: Metropolitan Waterworks Authority (Thailand) A.3.2 Boonlue Singbubpha Thailand 	The on-going challenge of maintaining low levels of Non-Revenue Water in distribution networks B.3.2 Andrew Donnelly Portugal 	How can utilities successfully implement a non revenue water reduction to serve low-income urban areas? C.3.2 Rosemary Campbell United Kingdom 
09:10-09:30	Smart Water Networks – A holistic approach to managing assets, NRW, operations and service A.3.3 Andy Smith United Kingdom 	Operational and Structural Alignments to Achieve Sustained Success in a Water Loss Reduction Program B.3.3 Ken Brothers Canada 	Development of a leakage control system at the water supply network of the city of Patras C.3.3 Irene Karathanasi Greece 
09:30-09:50	Development of Smart Water Network in Hong Kong A.3.4 Tony Lau Hong Kong 	Front Line Coaching, a personalised approach for repair operatives B.3.4 Jo Parker United Kingdom 	Governance bottlenecks for reducing NRW (oh and opportunities!) C.3.4 Nick Tandi South Africa 
09:50-10:00	Q&A	Q&A	Q&A
10:00-10:30	Coffee Break		
10:30-12:00	Latest Technologies (2) <i>Chair: Bambos Charalambous</i>	Focus on South Africa (2) <i>Chair: Niel Meyer</i>	Case Studies from around the World (2) <i>Chair: Jurica Kovac</i>
10:30-10:50	★ Machine learning for the deconvolution of factors affecting real losses A.3.5 Carmen Snowdon United Kingdom 	Implementation, monitoring and evaluation of water conservation and demand management in Kwazulu-Natal B.3.5 Ntuthuko Ngcamu South Africa 	Implementation of a program to combat water losses in Luanda - Angola C.3.5 Ricardo Guimarães Angola 
10:50-11:10	Acoustic Monitoring Minimises Water Loss and Risks of Pipeline Failures A.3.6 Mark Nicol Singapore 	Development of a municipal operational guideline to assist with the preparation of a WCWDM strategic plan B.3.6 Willem Wegelin South Africa 	Active Leakage Control and New Leak Detection Technologies Application in China C.3.6 Jin Junwei China 
11:10-11:30	★ Leaks can be detected from space A.3.7 Jonathan Jacobi Israel 	The Critical Role of Water Demand Management in Water Resources Planning and Management in South Africa B.3.7 Caryn Seago South Africa 	How to know how efficient is our water distribution network? A case study from Bahrain C.3.7 Hana Al Maskati Bahrain 
11:30-11:50	A cost effective solution for the permanent monitoring of water pipelines A.3.8 Steve Gilham United Kingdom 	Managing Large Consumer Leakage in a Time of Drought B.3.8 Brad Astrup South Africa 	Active Leakage Control Applying in Liantang Utility C.3.8 Yu Chen Lu China 
11:50-12:00	Q&A	Q&A	Q&A
12:00-13:30	Lunch		
13:30-15:00	Latest Technologies (3) <i>Chair: Carl Yates</i>	Focus on South Africa (3) <i>Chair: Brad Astrup</i>	Transmission Mains <i>Chair: Francisco Paracampas</i>
13:30-13:50	Experiences with Virtual DMAs and Smart Leak Detection A.3.9 Raúl Navas Spain 	Using near-live telemetry data in managing the allocation of water resources during drought conditions – Western Cape Case Study B.3.9 Alexander Sinske South Africa 	Water Loss Assessment on Transmission Mains C.3.9 Joerg Koelbl Austria 
13:50-14:10	★ Application of machine learning models to predict the area of leak from accelerometer measurements A.3.10 Joseph Butterfield United Kingdom 	Non-revenue Water and Water Loss Management: A Critical Review B.3.10 Samuel Molekoa South Africa 	The application of inline leak detection technology in large diameter pipelines: statistics and cases studies C.3.10 Pedro Pina Portugal 
14:10-14:30	FlowSure Leakage Detection System Trial at Portsmouth Water A.3.11 Alan Cunningham United Kingdom 	Sasol Partnerships Drive Water Loss Reduction at Metsimaholo Local Municipality B.3.11 Rivash Panday South Africa 	Global overview of condition assessment technologies and expert reviews from water utility asset managers C.3.11 Erik Driessen Netherlands 
14:30-14:50	Technology out of this world: Preventing infrastructure failure and water loss with geospatial data A.3.12 Dave Johnson South Africa 	Water Savings in Schools in South Africa B.3.12 David Dalling South Africa 	★ Pipeline leak detection using fibre optic sensors C.3.12 Sebastian Jahnke South Africa 
14:50-15:00	Q&A	Q&A	Q&A
15:00-15:30	Coffee Break		
15:30-16:30	Closing Ceremony <i>Chair: Ronnie McKenzie</i>		
15:30-16:30	Closing		