

Water Loss 2024

April 14-17, 2024 San Sebastián

DRAFT FINAL PROGRAMME

Sunday, 14th April, 2024



| | ROOM TBC | DESCRIPTION |
|----------------------|--|--|
| 11:00 to 12:30 | WORKSHOP 1 DEVELOPING A PATHWAY TO A DIGITAL FUTURE Cor Merks, Francisco Arregui De-La-Cruz, Thorkil Bartholdy Neergaard | Static water meters provide a large amount of useful data. The use of this meter data to its fullest extent allows water operators to develop and operate a digital value chain. Frontrunner operators worldwide did already create added value for the utility and their customers and stakeholders. Other water operators are at the start of their digitalization journey. These water operators might be inspired by successful residential static water meter implementation projects or are hesitant when considering an unknown impact on their organisation. The workshop will provide the participants the full range of insights gained in a variety of countries so far. The panelists together with the participants will examine the opportunities and challenges that are related with the value creation process that is part of the implementation of static meters and the use of water meter data. |
| 13:30 to 15:00 | WORKSHOP 2 COMPARING LEVELS OF WATER LOSS INTERNATIONALLY Stuart Trow, David Pearson, Alan Wyatt, Joerg Koelbl | The aim of the workshop is to discuss the level of water loss in water supply organisations around the world and the measures used to assess and compare those levels. The presenters have been meeting regularly for several months on an initiative to collect water loss data from around the world and to consider the various indicators for making comparisons. As interest in water loss management grows, and targets are being set in many countries often based on comparative KPIs, it is important that water suppliers, consultants, and especially regulators and governments understand the relative merits of each measure. It is also necessary to have a better assessment of water loss levels internationally at a time when there is increased focus on this precious resource. |
| 15:30 to 17:00 | WORKSHOP 3 UNLOCKING CLIMATE FINANCE FOR WATER LOSS REDUCTION David Ehrhardt, Steve Cavanaugh, Gregory Koffi | Billions of dollars of climate finance are available. Water loss reduction mitigates greenhouse gas emissions while boosting resilience to climate change. How can water loss reduction projects benefit from climate finance? To answer that question, we will explore the centrality of robust measurement in making a credible case for climate finance and review the various types of climate finance on offer, providing you with practical information with which to craft strategies to finance your loss-reduction projects. |
| Evening | WELCOME COCKTAIL | DETAILS TO BE ANNOUNCED IN DUE COURSE |

| Room (TBC) | | | DESCRIPTION | | | | | | |
|-------------|----------------------|---|--|--------------------|---|------------|--|--|--------------|
| 08:45-09:15 | | | OPENING CEREMONY IWA Water Loss Specialist - Stuart Hamilton, Chair IWA WLSG San Sebastian Council - TBC | | | | | | |
| 09:15-10:15 | | | PLENARY SESSION NRW Climate Change Nexus <i>Description :</i> The plenary session will feature a panel discussion from industry experts who will share ideas, concepts, case studies, and the latest findings on how water loss reduction projects can effectively leverage climate finance and contribute to climate resilience and mitigation efforts <i>Moderator :</i> Stuart Hamilton - Climate Change Advocate, Chair IWA WLSG, Senior VP CWWA <i>Panelists :</i> Noam Komy - CEO Miya, over 1M tonnes of Global NRW Carbon savings on Projects executed David Ehrhardt - CEO and Owner of Castalia Gregory Koffi Kpegli - Water Supply and Sanitation Specialist, International Finance Corporation Steve Cavanaugh , P.E. - President/CEO Cavanaugh, Chair Leakage Emissions Initiative, IWA Water Loss Specialist Group | | | | | | |
| 10:15-10:50 | | | Coffee Break | | | | | | |
| 10:50-12:20 | | | ROOM 1 NRW ASSESSMENT 1 <i>Chair: Dewi Rogers</i> | | ROOM 2 METER MANAGEMENT & APPARENT LOSSES 1 <i>Chair: Francisco Arregui</i> | | ROOM 3 FINANCING & ECONOMICS <i>Chair: Steve Cavanaugh</i> | | |
| | Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| 10:50-11:10 | Dewi Rogers | Water Loss – what’s next? | ITALY | Mikal Willmott | Are metering inaccuracies likely to lead to wrong transmission zones being targeted for leakage detection? | UK | Gregory Koffi Kpegli | Collaborative development of an economic level of losses tool for optimal water loss reduction in a large utility | USA / BRAZIL |
| 11:10-11:30 | David Maisonneuve | Veolia water loss management solution | FRANCE | Francisco Arregui | Estudio sobre la metrología de medidores de estado sólido domésticos en condiciones reales de funcionamiento | SPAIN | Steve Cavanaugh | Outside investors paying for leakage, really? | USA |
| 11:30-11:50 | Richard Taylor | Update of the New Zealand Water Loss Guidelines - Managing water losses in New Zealand | NEW ZEALAND | Tugba Akdeniz | Assessment of apparent water losses in Turkey | TURKEY | Alan Wyatt | Development and application of an economic level of losses model with a large Brazilian water and wastewater utility | USA / BRAZIL |
| 11:50-12:10 | Fernando de la Calle | Harnessing the potential of digital transformation to drive non-revenue water reduction | SPAIN | Francesc J. Gavara | El contador protagonista en el agua no registrada? | SPAIN | David Ehrhardt | Innovative financing of NRW through climate finance | USA |
| 12:10-12:20 | Q&A | | Q&A | | Q&A | | Q&A | | |
| 12:20-13:30 | | | Lunch | | | | | | |
| 13:30-15:00 | | | NRW ASSESSMENT 2 <i>Chair: Marco Fantozzi</i> | | METER MANAGEMENT & APPARENT LOSSES 2 <i>Chair: Gary Wyeth</i> | | REGULATION <i>Chair: Reinhard Sturm</i> | | |
| | Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| 13:30-13:50 | Johana Beltran | Good practices in non revenue water at Veolia Colombia | COLOMBIA | H. Pernille Hansen | A business case for implementation of smart metering | DENMARK | Reinhard Sturm | Level 1 water audit validation Guidance Manual, second edition (Water Research Foundation project 5057) | USA |
| 13:50-14:10 | Annalisa Gaccione | The EU recovery plan - the opportunity to lead Italy to a full digitalization in the water industry and a NRW reduction | ITALY | Omar Valera | Reducing apparent losses: mechanical vs solid-state water meters | SPAIN | Will Jernigan | The North American Water Loss Report - 2024 Edition | USA |
| 14:10-14:30 | V. Grizelj Simic | Preparation of a draft national water loss reduction action plan | CROATIA | Dionisio Pérez | Determinación del patrón de consumo mediante el uso de medidores de agua inteligentes | COSTA RICA | Habib Muhammetoglu | A critical review of water losses control regulation in Turkey | TURKEY |
| 14:30-14:50 | Zdenek Svitak | Tabor - a long-term complex approach to the water loss reduction | CZECH REPUBLIC | Pedro Rodrigues | Estudio sobre errores de medición en contadores domésticos en la red de distribución de Beja (Portugal) | PORTUGAL | Kian Burdett | The Power of Apprentices in Reducing Leakage – A Case Study | UK |
| 14:50-15:00 | Q&A | | Q&A | | Q&A | | Q&A | | |
| 15:00-15:30 | | | Coffee break | | | | | | |
| 15:30-17:00 | | | WATER LOSS PERFORMANCE INDICATORS <i>Chair: Joerg Koelbl</i> | | COMBINING TECHNOLOGY & DATA ANALYTICS <i>Chair: Joe Dalton</i> | | NRW REDUCTION <i>Chair: Milene Aquiar</i> | | |
| | Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| 15:30-15:50 | Daniel Zipperer | Challenges in applying the ILI as a water loss indicator to water utilities in Rhineland-Palatinate | GERMANY | Torben Østergård | Using Machine Learning to find Leaks utilizing Smart Meter Based Acoustic Noise Data | DENMARK | Reid Butler | Water loss knowledge hub development , NSW Australia | AUSTRALIA |
| 15:50-16:10 | Joxemi Telleria | Indicadores y Líneas de Trabajo para mejora del Rendimiento en municipios del Consorcio de A. de Gipuzkoa | SPAIN | Laura Agustina | Explotación de datos de telelectura para la optimización de la gestión de los abastecimientos | SPAIN | A. Bojko F. Lupo | Physical water losses: How the city managed to stop the bleeding, Cali, Colombia 2019-2022 | COLOMBIA |
| 16:10-16:30 | Joerg Koelbl | Experience in the application of the Combined Real Loss Indicator (CRLI) in comparison to other Indicators | AUSTRIA | Pierre Bonardet | Leveraging remote meter reading and digital solutions for improved water utility management: Cases study in Béziers | FRANCE | Raisa Kyrönseppä | Evaluation of DMA sectorisation criteria: Case study in Helsinki metropolitan area | FINLAND |
| 16:30-16:50 | Arturo Albaladejo | Alternativas al IFE (ILI) para medir la eficiencia de las redes en municipios pequeños | SPAIN | Bruno Dura | Leakman: A holistic leakage management system for water efficiency | DENMARK | Jose Luis Badiola | Donostia-San Sebastian: Éxito en la reducción del ANR y control de indicadores de eficiencia | SPAIN |
| 16:50-17:00 | Q&A | | Q&A | | Q&A | | Q&A | | |
| 17:00-17:10 | | | Short Break | | | | | | |
| 17:10-17:50 | | | EXPRESS SESSION - SUMMARY OF SUNDAY WORKSHOPS <i>Chair: David Pearson</i> | | EXPRESS SESSION - DIGITALIZATION, AI AND ML APPLICATIONS <i>Chair: Gary Wyeth</i> | | EXPRESS SESSION - SMART WATER NETWORKS <i>Chair: Ricardo Cobacho</i> | | |
| | Presenter | Title | Workshop | Presenter | Title | Country | Presenter | Title | Country |
| 17:10-17:20 | Cor Merks | Developing a pathway to digital future | Workshop 1 | Nicole Kinsman | Stainless steel service lines for best total cost of ownership | BELGIUM | Ignacio Moreno | Digital transformation of GO focused on the NRW: The Case of success of the city of Burjassot (Valencia) | SPAIN |
| 17:20-17:30 | Stuart Trow | Comparing levels of Water Loss internationally | Workshop 2 | Kibum Kim | Strategic leakage management in water distribution network using varying coefficient binary regression model | USA | Pablo Delgado | Acoustic leak detection using an in-line free-floating multi-sensor device | CANADA |
| 17:30-17:40 | David Ehrhardt | Unlocking climate finance for water loss reduction | Workshop 3 | Haekeum Park | Developed a machine learning-based model to predict the condition assessment grade of water pipes | KOREA | Robbert Lodewijks | Research-backed approach to enhancing burst detection accuracy in water pipes using multiple existing sensor data | HOLLAND |
| 17:40-17:50 | Q&A | | Q&A | | Q&A | | Q&A | | |

| ROOM 1 | | | ROOM 2 | | | ROOM 3 | | |
|--|--|-----------|--|---|-----------|---|---|-------------------|
| 08:45-10:15 | | | 08:45-10:15 | | | 08:45-10:15 | | |
| LEAK DETECTION 1 <i>Chair: Stuart Trow</i> | | | TECHNOLOGY & INNOVATION <i>Chair: Cor Merks</i> | | | TRAINING AND CAPACITY BUILDING <i>Chair: Mary Ann Dickinson</i> | | |
| Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| Nele Philips | Utility De Watergroep investigates the use of alternative methods for leak detection | BELGIUM | Rudolf Ertl | Digital airvalve, the next part in the Smart Water Network | AUSTRIA | Tory Wagoner | The Florida Water Loss Program: Continuing the Trend of Voluntary WL Training and Technical Assistance Programs | USA |
| Kelvin Siew | Pressure transient monitoring and leak detection system on trunk mains | MALAYSIA | Daniel Mediano | New developments for big-diameter water networks management | SPAIN | Marco Fantozzi | The Italian Association of Non-Destructive Testing (AIPnD) and the certification of personnel engaged in Leak Detection | ITALY |
| Joseph Butterfield | Application of ML to improve leak detection and localisation using acoustic sensing in high noise environments | UK | Edmund Riehle | How Distributed Fiber Sensing complements existing leak detection technologies | GERMANY | Ayse Muhammetoglu | Capacity Building of the Turkish Municipalities for Water Losses Management | TURKEY |
| Stuart Trow | Background leakage - What is it? | UK | Mark Nicol | High-Speed Transient Detection and Analysis to reduce Burst Rates and Extend Asset Life | SINGAPORE | Jamie Peterson | Capacity Building on Non-Revenue Water Reduction Projects: Challenges and Opportunities | UK |
| 10:05-10:15 Q&A | | | 10:05-10:15 Q&A | | | 10:05-10:15 Q&A | | |
| 10:15-10:45 Coffee break | | | | | | | | |
| 10:45-12:15 | | | 10:45-12:15 | | | 10:45-12:15 | | |
| LEAK DETECTION 2 <i>Chair: Jamie Paterson</i> | | | DIGITALIZATION, AI & ML APPLICATIONS 1 <i>Chair: Raul Navas Martinez</i> | | | PERFORMANCE-BASED CONTRACTS & WATER LOSS <i>Chair: Fabio Garzon-Contreras</i> | | |
| Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| Martin Duff | A multimethod leak detection strategy to reduce the global water loss | UK | Ricardo Guimarães | WONE App – Active leak control in your hands; a Digital Tool for Asset Management | PORTUGAL | Fabio Garzon-Contreras | Risk allocation in NRW performance-based contracts | COLOMBIA |
| Jonathan Jacobi | Drought Resiliency: Securing Drinking Water Supply in Northern Italy with Satellite Leak Detection | ISRAEL | Raul Navas | Visión práctica de los gemelo digitales en redes de agua: casos de uso y experiencias reales. | SPAIN | Pedro Ramalho | AGS's journey through the implementation of a Performance Based Agreement in Romania to reduce non-revenue water | PORTUGAL |
| Moinak Bnaerjee | Robotic Leak Detection Technology For Water Distribution Pipelines | INDIA | Sofía Mendaza | 360 NRW Management: analysis, priority and monitoring of optimizacion plans for more sustainable and resilient services | SPAIN | K. Ashok Natarajan | Planning the Transformation of Chennai Metro water towards Reduction in NRW and increase in cost recovery through Smart Metering and services | INDIA |
| Thijs Lanckriet | Fiber optic sensing: leak detection method, asset management tool, digital connectivity solution, all of them? | BELGIUM | F. Perez A. Martínez | Strategic and Operational Decision-Making thought the Digitalization of the Water Supply Network in Donostia-S.S. | SPAIN | Juan Escobar | Hacia la definición integral de las metas de reducción de pérdidas de agua | COLOMBIA |
| 12:05-12:15 Q&A | | | 12:05-12:15 Q&A | | | 12:05-12:15 Q&A | | |
| 12:15-13:30 Lunch | | | | | | | | |
| 13:30-15:00 | | | 13:30-15:00 | | | 13:30-15:00 | | |
| ASSET MANAGEMENT 1 <i>Chair: Jo Parker</i> | | | DIGITALIZATION, AI & ML APPLICATIONS 2 <i>Chair: Igor Dundovic</i> | | | INTERNATIONAL CASE STUDIES 1 <i>Chair: Sofia Kanellopoulou</i> | | |
| Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| Jo Parker | The hole truth | UK | Yoojin Oh | Evaluating sampling techniques for developing a failure prediction model in water pipeline networks | KOREA | S. Kanellopoulou / S. Marco Msambazi | Obtaining sustainable key results for NRW reduction projects: A practical experience from Dar Es Salam, Tanzania | FRANCE / TANZANIA |
| Dooil Kim | Residual life assessment using 3D profiles and structural analysis | KOREA | Carlos Marco | Improving leak detection by using digital twin (ArcGIS) | SPAIN | François Figueres | Achievements on NRW reduction: 2 detailed use cases | FRANCE |
| Gerald Gangl | Multi utility risk-based asset management | GERMANY | Igor Dundovic | Hydraulic modelling and machine learning for pressure management process | CROATIA | Victor Pelin | How can AI DMAs, fiber optics, pressure management and smart hydrants help us reach ILI=2 by 2028? | SWEDEN |
| Andreu Fargas | Asset management of large pipes with a Digital Twin | SPAIN | Xavier Torret | Giswater, an open source tool to design dma and operational zoning to improve the NWR efficiency | SPAIN | Jorge Helmbrecht | How a British utility improved network management by integrating data from 6,000 sensors into a single platform | SPAIN |
| 14:50-15:00 Q&A | | | 14:50-15:00 Q&A | | | 14:50-15:00 Q&A | | |
| 15:00-15:30 Coffee break | | | | | | | | |
| 15:30-17:00 | | | 15:30-17:00 | | | 15:30-17:00 | | |
| ASSET MANAGEMENT 2 <i>Chair: Cor Merks</i> | | | DIGITALIZATION, AI & ML APPLICATIONS 3 <i>Chair: Francisco Arregui</i> | | | INTERNATIONAL CASE STUDIES 2 <i>Chair: Aurélie Chazerain</i> | | |
| Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| Ken Goraya | Service connections: The weakest link in the water distribution network | AUSTRALIA | Aisha Mamade | Digital twins: Democratizing network analysis with continuously updated models in a utility environment | PORTUGAL | Carmen Navarro | Transforming IWS supply for equitable and efficient service in Chihuahua | MEXICO |
| Filip Vancoillie | How De Watergroep's people in the field prioritize pipeline replacement | BELGIUM | Diego Naranjo | Monitoring and artificial intelligence in the water cycle-aWA | SPAIN | Aurélie Chazerain | Achieving High Performance in Water Networks: Case studies of AQUAVESC Network and Nuove Acque Network | FRANCE |
| Sara Cunha | Porto's Three-Step Campaign – An integrate strategy to reduce non-revenue water | PORTUGAL | Funda Kisacik | Digital ear for leak characterization with machine learning | FRANCE | Elisa Henning | Spatial characterization of the occurrence of fraud in the public water supply system in Joinville, Southern Brazil | BRAZIL |
| Taehyeon Kim | A proactive asset management approach through optimizing the diagnosis decision-making of water pipe networks | KOREA | David J. Vicente | An innovative approach to pre-locate leaks based on numerical modelling, machine learning and graph theory | SPAIN | Panagiotis Dimas | Estimating water losses and designing reduction strategies in large water supply systems: The case of Athens | GREECE |
| 16:50-17:00 Q&A | | | 16:50-17:00 Q&A | | | 16:50-17:00 Q&A | | |
| 17:15-18:00 OPEN MEETING of the IWA WATER LOSS SPECIALIST GROUP | | | 17:15-18:00 Activities, initiatives, discussions: Non-IWA WLSG members are MOST WELCOME | | | | | |

Water Loss 2024

April 14-17, 2024 San Sebastián

DRAFT FINAL PROGRAMME

Wednesday, 17th April, 2024



| | ROOM 1 | | | ROOM 2 | | | ROOM 3 | | |
|-------------|--|--|-----------|---|--|------------|--|---|---------|
| 08:45-10:15 | DMA DESIGN & MANAGEMENT <i>Chair: David Pearson</i> | | | SMART WATER NETWORKS 1 <i>Chair: Richard Taylor</i> | | | WATER LOSS MANAGEMENT 1 <i>Chair: Ricardo Cobacho</i> | | |
| | Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| 08:45-09:05 | Kim Belmans | Smart DMA-design with sub-dividing plan : Case Study | BELGIUM | Lai Kah Cheong | PUB's Smart Water Analytics Platform – Enhancing Operational Efficiency via Reliable Digital Twin & Advanced Analytics | SINGAPORE | Anna Klobut | Water balance calculation in HSY (Finland) – lessons learned through a new calculation method | FINLAND |
| 09:05-09:25 | Cecilia S. Chantada | Evolution of Management by DMA – Slow but convinced – From the Pilot to the Strategic Plan | ARGENTINA | Klavs Høgh | Implementing a WN Management System to Support Shifting from Empirical Operation to Data-Driven Decision-Making | DENMARK | Jaume Roquet | Balance of 15 years on the annual study of the hydraulic efficiency of the water transport network of ATL | SPAIN |
| 09:25-09:45 | Tomislav Vitovski | Virtual DMA – implementation and leak detection in it | CROATIA | Jan Van Cappellen | Permanent non-DMA based leak localization in WDN, using integrated sensors in smart watermeters | BELGIUM | Marcelo Depexe | Success of a Corporative Program in Water Loss Management in a Large Water and Sanitation Company | BRAZIL |
| 09:45-10:05 | Carlos Calatayud | Active management of drinking water supply systems through multi-agen systems (MAS) | SPAIN | Ramon Dolz | NRW control and DMA management through AMI/AMR integration with SCADA | SPAIN | Ricardo Cobacho | NRRL: Practical aspects and influencing factors | SPAIN |
| 10:05-10:15 | Q&A | | | Q&A | | | Q&A | | |
| 10:15-10:50 | Coffee break | | | | | | | | |
| 10:50-12:20 | PRESSURE MANAGEMENT 1 <i>Chair: Kate Stanton-Davies</i> | | | SMART WATER NETWORKS 2 <i>Chair: Mikal Willmott</i> | | | WATER LOSS MANAGEMENT 2 <i>Chair: Joseph Butterfield</i> | | |
| | Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| 10:50-11:10 | Kate Stanton-Davies | The Power of N1 | UK | Yaron Geller | AMR and water Utilities - technology leads change in management | ISRAEL | Adolfo Cuesta | Efficiency in the water cycle through Asset management systems | SPAIN |
| 11:10-11:30 | Alexandru Aldea | A case study of pressure management in over-pressured supply system – evolution of performance indicators | ROMANIA | Ruben M. Pereña | Reduction of NRW with smart metering in Canal de Isabel II | SPAIN | Andres Ortega | Control valves for NRW reduction and hydraulic network protection | SPAIN |
| 11:30-11:50 | David Sánchez | Optimizing Pressure Management in Intermittent Water Supply Systems | MEXICO | José Delgado | La inteligencia de negocios como impulsor de la transformación digital para la reducción de ANC | COSTA RICA | Zhou Sha | Feature study of leak-induced vibration | CHINA |
| 11:50-12:10 | Eva Martinez | Pressure transient management: Global trends, business case and introduction to a new global partnership program | SPAIN | Andross Pérez | Valencia Case Study: advanced water efficiency management through technology. | SPAIN | Ambrose Muhu | Thorough assessment of NRW for an effective, data driven campaign against water losses | KENYA |
| 12:10-12:20 | Q&A | | | Q&A | | | Q&A | | |
| 12:20-13:30 | Lunch | | | | | | | | |
| 13:30-15:00 | PRESSURE MANAGEMENT 2 <i>Chair: Stuart Stapely</i> | | | SMART WATER NETWORKS 3 <i>Chair: Milene Aguiar</i> | | | LEAKAGE MANAGEMENT <i>Chair: Andy Blackhall</i> | | |
| | Presenter | Title | Country | Presenter | Title | Country | Presenter | Title | Country |
| 13:30-13:50 | Stuart Stapely | The Difficulties of Pressure Management and How to Overcome Them | AUSTRALIA | Jinseok Hyung | Development of optimal WDNs design method using genetic algorithm and reliability analysis | KOREA | Andy Blackhall | Towards an Ethical Level of Leakage | UK |
| 13:50-14:10 | Eduardo Bulhoes | Evaluating the best pressure efficiency point | BRAZIL | Arsenio Mate | Experience in reducing commercial losses in the water supply system of Maputo Metropolitan regions | MOZAMBIQUE | José Antonio Iglesias | Digitalización de la detección de fugas de agua: Casos de éxito en España y UK | SPAIN |
| 14:10-14:30 | Giuliano Ceseri | An innovative approach for quick leakage detection and real-time adaptive pressure control in a PMZ | ITALY | M. Clemente Lloscos | GO Smart Meter Networks Evolution Since 2006 | SPAIN | Olgierd Wargowski | How the technology is helping to improve leak detection process | POLAND |
| 14:30-14:50 | Carmen Sánchez | Networks 2.0: sensorization, advanced pressure regulation and energy efficiency in the city of Valencia | SPAIN | Luiz R. Gravina | Improving the operational management of water supply systems through GIS integrated with hydraulic modeling | BRAZIL | Uri Gutermann | Europe is finally deploying the necessary funds to act on high water loss rates | GERMANY |
| 14:50-15:00 | Q&A | | | Q&A | | | Q&A | | |
| 15:00-15:30 | Coffee break | | | | | | | | |
| 15:30-16:30 | CLOSING CEREMONY <i>Stuart Hamilton & Gary Wyeth</i> | | | DETAILS TO BE ANNOUNCED IN DUE COURSE | | | | | |
| Evening | ROLAND LIEMBERGER GALA DINNER AND AWARDS | | | DETAILS TO BE ANNOUNCED IN DUE COURSE | | | | | |