

Yearbook 2016/2017



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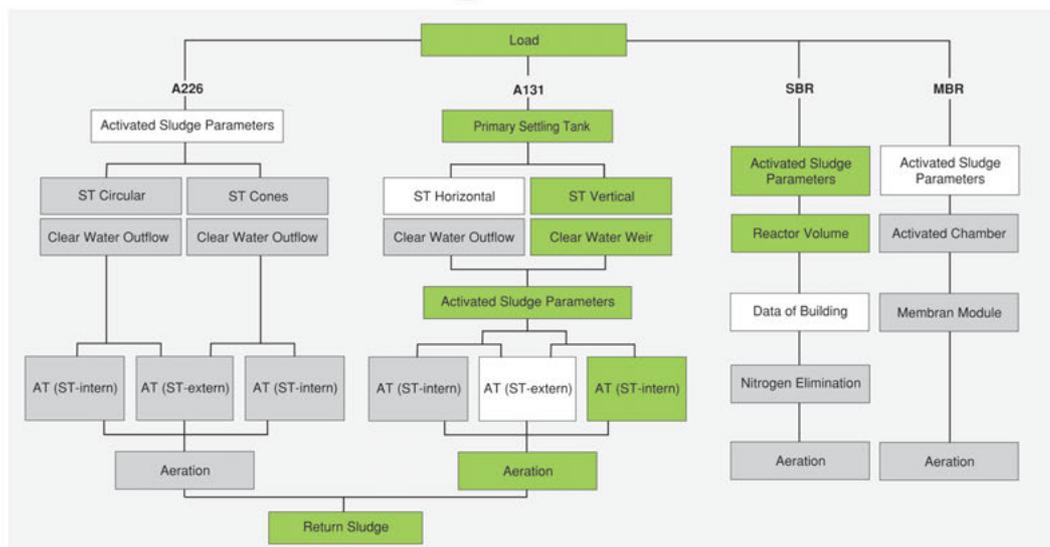
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Károly Kovács

EWA President 2015 – 2017

Welcome to the 2016/2017 Yearbook of EWA, the European Water Association!

It is a great pleasure to present our aims and activities through this new edition of our bi-annual Yearbook. With this edition we are focusing on co-operation, visibility, awareness raising and fostering communication and the exchange of our main messages.

It is now 35 years ago that the European Water Association (in 1981 still called the European Water Pollution Control Association) was established by representatives of 6 national professional associations during the IFAT. EWA was established to act as a platform for and to facilitate the exchange of knowledge and experience in the waste water treatment sector.

Since its foundation, EWA has been developing and growing significantly, extending its field of action to all aspects of the water cycle management. Today our members represent 26 European countries, with more than 50 000 individuals working in various water sector organizations. Furthermore, EWA is also increasingly contributing to the development and implementation of European environmental policies and legislations. Our Association is recognized as the independent representative European NGO in the field of water management, and is invited by the European Commission to support its activity.

This year EWA is and will continue to be responsible for a general but wide-ranging active contribution to water related decisions, discussions and regulations, while highlighting the value of water.

In the spirit of Paris Climate Agreement and the Climate Summit of last year, EWA is working to promote the value of water, positioning it as a treasure, especially considering the fact that water is the primary medium through which the effects of climate change influence Earth's ecosystem and our everyday lives. Water professionals warmly welcome initiatives that result in a growing recognition of the value of water as they assist awareness-raising and water protection. Water-related expertise and technical knowledge is essential to guard and conserve one of our most precious natural resource.

This year's World Water Day focused on the topic of Water & Jobs. The European Water Association used this opportunity to highlight the essential connection between water and employment. 'Water & Jobs' has wide-ranging implications, among others the transfer of know-how and the exchange of knowledge that can be converted into real and new sources of employment in the entire water sector. EWA is committed to support young professionals, and the education of the next generation of interdisciplinary, well-trained and highly skilled professionals to preserve and protect our natural resources.

EWA also focuses, among other initiatives, on the impact of investments made in the water management sector. When investing in the water sector, it is imperative to determine and compare the life cycle costs of the best economic solutions, and to provide cost recovery for the utility services.

In connection with the ongoing EU Public Procurement Reform, EWA has started promising negotiation with relevant, high level representatives of the EU Commission about the possible application Life Cycle Costing (LCC) in public water infrastructure procurements.

As the issue of aging infrastructure and efficient infrastructure development is high on the agenda of both the EU institutions and of EWA, the management board together with the ETSC and EPC decided to create a working group on water economics. As a key European water-related umbrella organization, EWA is frequently invited by EU institutions to participate in professional discussions on the economic aspects of the implementation of water related EU regulations such as, among others, the Water Framework Directive.

Besides economic and regulatory practices, EWA grants special importance to broadening experience and transferring knowledge in the field of innovative professional solutions as well. This issue will provide information about the report of EWA Brussels conference and about the workshop on heavy rainfalls and stormwater management, too. Furthermore the Yearbook also contains an insightful review of the WFD by Pavel Misiga, Head of Unit for Environment and Industry, DG Environment, European Commission, and Member of European Parliament (MEP) Collin-Langen, as well as various thought-provoking technical articles. Moreover, the Yearbook takes the opportunity to introduce EWA's National and Corporate Members.

With years and significant efforts behind us, we continue our efforts to serve our waters.

I would like to express my sincere thanks to our team in Hennef led by Secretary General Johannes Lohaus, also to our Vice-President Prof. José Saldanha Matos, our Past President Werner Flögl, our Management Committee and Standing Committees, our Council members and our experts in the working groups for their dedication, time and energy.

Károly Kovács

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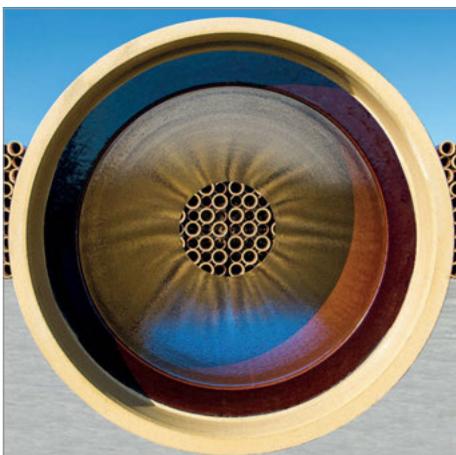
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THE EUROPEAN WATER ASSOCIATION

Clean Water for Europe

The European Water Association (EWA) is an independent non-governmental and non-profit organization promoting the sustainable and improved management of the total water cycle and hence the environment as a whole.

It is one of the major professional associations in Europe that covers the whole water cycle, wastewater as well as drinking water and water and wastewater treatment related wastes. With member associations from nearly all European Countries, EWA includes most of the current European Union Member States as well as Norway and Switzerland. Today, EWA consists of 23 European leading professional organisations in their respective countries, each representing professionals and technicians for water and wastewater utilities, academics, consultants and contractors as non-governmental and well as a growing number of corporate member firms and enterprises. Thus EWA represents about 50,000 professional individuals working in the broad field of water and environmental management.

Organisation and Structure

The highest authority of the EWA is the Council – it has the executive power of decision. Each member association (23) is represented on the Council and these representatives meet annually to discuss and plan the activities of the association. The smaller Management Committee has the responsibility for developing policy and is in charge of the daily work of the association, supported by the Secretariat. The Association is represented by the President, who chairs the Council and the Management Committee. The Secretary General executes the day-to-day operations of the Association. In addition, Standing Committees and Working Groups support the work of the Association.

The EWA Standing Committees

From the very beginning the Association has laid emphasis on the exchange of information and knowledge between professional experts. Through this exchange of knowledge, the EWA contributes to a sustainable water management: safe water supply and the protection of water and the environment. This was achieved by the organisation of numerous conferences and workshops taking place all over Europe and covering a very broad range of water related topics such as European legislation (themed areas such as Water Framework Directive, Groundwater Directive, Sewage Sludge Directive etc.), technical questions like for example the significance of small wastewater treatment plants in rural areas, or scientific conferences, like Waters in Protected Areas and other integrated approaches. The European Water Association organizes conferences and symposia at regular intervals, on events such as the International Trade Fair (IFAT) in Munich, as well as its own annual EWA Brussels conference. An increase in the number of members from Central and Eastern Europe (accession countries), has raised the interest for events dealing with water protection issues.

All this work is achieved through the different Committees and Working Groups that were established and which are adapting their scope according to the needs. They are based on voluntary work of experts coming from the different National Member Associations and working together on various subjects of current interest in the water and environmental field.





European Policy Committee (EPC)

The committee follows the work of the European Commission and arranges regular meetings with officials in the Commission, responsible for activities of relevance to water management. The committee gives comments and advice to official European institutions on behalf of its members. The EWA is attending meetings of the Strategic Co-ordination Group under the WFD Common Implementation Strategy. Furthermore the EWA is in close contact with other European associations and institutions.

The objectives and responsibilities of the European Policy Committee (EPC), under the guidance of the governing bodies of the European Water Association, and within its rules of procedure, are the following:

- Organise and coordinate relationships of EWA with European level bodies, and especially with bodies of the European Union;
- Facilitate and create the necessary and useful flows of information amongst the persons and groups representing EWA towards European level bodies, as well as between the former and the National Associations (NA), members of EWA;
- Identify emerging issues and important trends in water related European policies and issues, which are of interest to EWA and its members, in order to allow EWA to anticipate future changes and to contribute efficiently to European policy development;
- In consequence, and in conjunction with the European Technical and Scientific Committee (ETSC), propose the evolution of thematic activities and actions of EWA.

European Technical and Scientific Committee (ETSC)

The ETSC provides a focal point for communication and co-operation between European practitioners and researchers concerned. Under the ETSC several working groups are organised. These working groups are installed according to the needs of the association. Currently there are working groups on: Climate Change, Groundwater, River Morphology, Sewage Sludge and Sustainable Flood Management. The work results in technical and scientific papers and documents.

The committee is also responsible for the organisation and sponsorship of workshops, seminars, conferences and symposia.

The Network of Experts

Although the working groups already present a focal point for the exchange of information, they only involve a limited number of persons out of the approximately 50,000 members assembled in the EWA National Member Associations. Additionally, the working groups cover mainly specific topics.



EWA Working Group on Water Economics

As the problem of aging infrastructure, financial sustainability and affordability of water services is high on the agenda of both the EU institutions and also of EWA, the management board, together with the ETSC and EPC, decided to create a working group on water economics. As a key European water-related umbrella organization, EWA is regularly invited by EU institutions to participate in professional discussions in connection with the economic aspects of the implementation of water related EU regulations like the Water Framework Directive and many others.

Furthermore, in line with the recent developments of the public procurement directives, EWA aims to encourage and contribute to applying Life Cycle Costing (LCC) in public procurement procedures of water infrastructure.

EWA WG Economics has 14 members from 11 countries, at the moment, and its primary areas of focus are:

- evaluation of cost efficiency of water utility services
- measurement and indicators of cost recovery of water utility services
- value of water infrastructure, asset management issues
- applying Dynamic Cost Comparison (DCC) in the decision-making process of water investments
- applying Life Cycle Costing (LCC) on public procurement procedures.

Objectives of the EWA WG Economics:

- Formulation of a cohesive EWA opinion and recommendations on the professional issues of the above issues, in order to improve long term sustainability of water utility services.
- Contribution to the creation of EU level legislation, methodologies and guidelines.
- Use and spread the DCC method Europe wide, with involvement of the national associations.
- Larger engagement of professionals and experts in the field related to the economics of water management and the facilitation of a broader, international discussion in the subject matter
- Sharing of knowledge and up-to-date information resulting from EWA's participation in EU level professional discourse.

Chairman: Károly Kovács, EWA President

Coordination: Ildikó Czeglédi Msc Economist



EU Water Alliance

The EU Water Alliance is an informal coalition of the different water-related umbrella organizations on the EU level that aims to facilitate the collaboration and coordination between the participating organizations with as the final objective to achieve a better representation and visibility of water issues at the level of the European Union.

The key European water-related umbrella organizations are jointly asking the Juncker Commission to prioritize water during the next 5 years due to its importance for EU's economy, environment, and quality of life of the European citizens. These organizations increased their collaboration and coordination in the form of a European Water Alliance, with the objective to achieve a more coherent and thus more effective representation and visibility for water at the European Union level.

The Water Alliance developed these key messages for the new Commissioners highlighting the importance of water to the European economy, environment and society.

- The sustainable management of Europe's water resources is essential to ensure a resilient Energy Union and a forward looking Climate Change policy. The actual importance of water is often diluted out by the fact that water shows up in so many different sectors of society. It is only when one starts looking at the support from the water sector to all other sectors of the economy that one starts to realize its quintessential position for jobs, growth and investment.
- Europe has one of the longest track records in water management in the world and is still a global industrial leader in terms of service provision and technology development. This history has also led to Europe having a wide spectrum of leading expertise in the various aspects of water resource management. Hundreds of European institutions, public and private water service providers, SMEs, engineering and consulting companies have developed and continue to develop highly technical concepts to address water problems in the EU and around the globe.

- With the Water Framework Directive, the Floods Directive and related policies, the EU has one of the most ambitious and challenging pieces of water legislation in the world, thus providing a unique regulatory driver for innovation in the water-dependent economy, offering us a competitive advantages comparing to other regions.

The EU Water Alliance highlights the following key issues for the water sector in Europe:

1. The overriding importance of the water sector for smart, sustainable and inclusive growth has to be reflected as a vital and cross-cutting theme in systemic research and innovation policies and financing instruments. Water needs to be integrated within other EU policies through water-energy-food-land resources nexuses.
2. The European Innovation Partnership on Water as a strategic driver for systemic changes in European water sector has to be reinforced, and adequately resourced. Closer collaboration between all Innovation Partnerships has to be fortified.
3. The EU water policy should be based on resource efficiency and recovery, pollution source control via full implementation of a polluter-pays principle, and the promotion of sustainable water management as a driver for a circular and green economy stimulating industrial symbiosis.
4. The principle of cost recovery and price transparency needs to be ensured and the value of water in all its dimensions needs to be recognised.
5. Regulation and voluntary incentives on water stewardship should go hand in hand. EU policies need to ensure that water is taken into account along the whole value chain across the production/product/service cycle.

From left to right: Ipo Ritsema (EwAqua), Carl-Emil Larsen (Eureau), Durk Krol (VWSTP), Karmenu Vella (European Commissioner for Environment, Maritime Affairs and Fisheries), Wendy Francken (EWA), Tom Vereijken (EWP)



Recent activities:

EWA President Károly Kovács

The EWA President Károly Kovács assumed the 2-year presidency at the EWA Council in Tirana, Albania. Kovács is a member of the Hungarian Council of Engineers, currently the President of the Hungarian Wastewater Association, MaSzeSz. Member of the WWater Working Group of the Hungarian Academy of Science 2001, Member of the Mensa Hungarica 2007. After President Kovács established a start up company with branches in different EEC countries, he established the companies PURECO and BDL, of which he is the Managing Director today.

Joint WEF/JSWA/EWA Conference on Water and Energy 2015

On the 7-10 of June, 2015, in Washington, D.C., the Joint WEF/JSWA/EWA Conference took place. The Japan Sewage Works Association, the Water Environment Federation co-organises this event every three years, dedicated to collaborate on key issues such as opportunities for energy and resource recovery in our modern changing world. The EWA General Secretary attended and held a key note speech at the opening of the conference Water and Energy 2015: Opportunities for Energy and Resource Recovery in the Changing World.

11th EWA Brussels Conference

The 11th EWA Brussels Conference: Water Challenges in Europe was organised on 16-17 November, 2015, in Brussels, Belgium. The two-day conference was organised in cooperation with DG

Environment at the European Commission. On day one, the topic of “Striving for Good Status of European Waters” was discussed. MEP Collin-Langen held a welcome speech and Head of Unit Water at DG Environment, Pavel Misiga, gave a review of the 2nd Management Cycle of the WFD. On day two, presentations on Storm Water Management and Flood Protection were given. The second part dealt with the Management and Economic Aspects of the Good Status of European Waters. Proceedings from the conference can be found on the EWA website: <http://www.ewa-online.eu/proceedings-reports.html>

Dunbar Medal Award Ceremony

On the eve of the 11th EWA Brussels Conference, the Dunbar Medal Ceremony was held. The William Dunbar Medal, sponsored by the Messe München International GmbH, is awarded in recognition of an outstanding contribution in applied technical development in the field of sewage and waste treatment and disposal. The winner of the 2015 Dunbar Medal was awarded to Prof. László Somlyódy, a professor emeritus from the Department of Sanitary and Environmental Engineering at the Budapest University of Technology and Economics. For more information about the awardee and the Dunbar Medal, please go to the chapter in the EWA Yearbook about the Dunbar Medal.

The EWA Seminar on EU Water Policy

The EWA Seminars on EU Water Policy were initiated with the intention to give an overview of all the players in the European water sector, the EU institutions and the EU decision making process, how policies are initiated, adoption of legislation, and implementing acts. The seminars deal with the core elements of legislation and funding instruments that are shaping the water environment, how to get involved, to get information and to contribute to the process. In November 2015, the EWA Seminar provided an exhaustive introduction to the Water Framework Directive, the Urban Wastewater Directive, the Drinking Water Directive and the Nitrates Directive. However, novices were able to follow the seminar without any difficulties. The seminars are still very popular and will be continued in the future as well.

EWA Workshop on Heavy Rainfalls

The challenges brought by climate change force drastic changes in city and regional flood management. Innovative solutions are required alongside the traditional measures. Continued investments in the infrastructure are essential to ensure that basic requirements of the current EU legislation are met for the next generations. Integrated urban water management is a key to safeguard high quality sanitation and drinking water services in cities and make our cities climate change resilient.

The EWA-ETSC Workshop on “Heavy Rainfalls in the Cities and Flood Risk Management” brought experience from different part of Europe on the topics of flood protection in cities, showed the lessons learned and the way forward for adaptation to and protection from flash floods as a climate change impact.

For more information, see report about workshop in this issue of the Yearbook.

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Upcoming Activities

IFAT 2016

The European Water Association, in close cooperation with the German Association for Wastewater, Water and Waste, will be represented at the world's leading trade event for environmental technology. As IFAT is celebrating its 50th anniversary this year, its actual enduring success shows that this trade fair has grown to be one of the leading fairs for water, wastewater, waste and raw material industry. Situated in the Entrance Hall West traditionally since the early eighties, the EWA will invite existing and new members for a chat in nice surroundings. At the stand, other international associations will be represented alongside with members of the DWA at the big booth.

18th EWA International Symposium

The 18th EWA International Symposium's title is: "Challenges arising from Micro-Pollutants in Wastewater, Water, and Environment". The Symposium will be found in Hall Bo, close to the booth at the Entrance Hall West. This implies that environmental pollution with micro-pollutants and their metabolites is mainly caused by municipal wastewater, pharmaceutical industry, and agriculture. The conventional wastewater treatment is not able to eliminate most of the xenobiotic compounds, neither in the aerobic stage, nor in the anaerobic digestion. In future, micro-pollutants could become even more critical as an increasing consumption of pharmaceuticals, herbicides, and personal care products can be assumed. The proceedings for the 18th EWA International Symposium can be found on the EWA Website <http://www.ewa-online.eu>

IFAT Event: Applying Life Cycle Costing (LCC) in public procurement procedures of water infrastructure

On 2 June the EWA will organise an event on the premises of IFAT. New directives (2014/24/EU; 2014/25/EU) on Public Procurement „... promote a life-cycle costing approach" according to the EU Public Procurement Reform. Application of this approach however, raises several sector specific questions and faces a variety of practical challenges.

The symposium focuses on Life Cycle Costing (LCC), its role and application in water infrastructure investment projects. Understanding and application of Life Cycle Costing (LCC) in public procurement procedures are emphasized through international best practices and examples presented by lecturers of different

disciplines and stakeholder groups (service providers, industry, academia, public sector). The event aims to provide a multi-stakeholder overview on the topic as well as to draw up current and future challenges that should be overcome in order to improve decision-making of the field. The obvious need for methodological development and capacity building, and adequate tools for the application of LCC – such as Dynamic Cost Comparison Calculation (DCCC) – are moreover highlighted. For more information, please visit <http://www.ewa-online.eu/events.html>

Post-Conference in Spitsbergen

The Post Conference "Water and Wastewater Management in Cold Climates", together with an excursion, will take place in Longyearbyen city on the island of Spitsbergen on 25-27 June, 2016. Water and wastewater management in cold climates need specific design and operational requirements, and the impacts of Climate Change make them even more challenging for the future. Thus, the conference will be arranged under the auspices of the European Water Association (EWA) and is organized as a post-conference event of IWA Specialist conference "Advances in particle science and separation: Meeting tomorrow's challenges". An attractive all-inclusive conference tour package will be presented together with more information. Please follow the conference webpage for updates www.ewa-wmcc2016.org.

Green Capital of Europe in 2016: EWA Workshop in Ljubljana

The initiative "Green Capital Award" is launched by the European Commission to promote and reward the efforts of cities that are improving their urban environment. The award is open to any city with over 100,000 inhabitants from EU Member States and the EFTA countries. Cities which have been awarded are Stockholm, Hamburg, Vitoria-Gasteiz in Spain, Nantes, Copenhagen and Bristol. This year, Ljubljana, Slovenia has been awarded. Due to this, many events on environmental topics evolve from this. Within the programme of the upcoming Green Capital of Europe, the EWA, in close cooperation with its Slovenian member, the Slovenian Water Pollution Control Association (SDZV), will organise a workshop. The working title of this workshop is currently "Energy Efficiency and Sustainability in the Water and Wastewater Sectors". The workshop will be held at the City Museum of Ljubljana, situated at the heart of the Capital of Slovenia on 12 September 2016. For more information about this event, please visit <http://www.ewa-online.eu/events.html>

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12th EWA Brussels Conference: EU Water Policy and Sustainable Development

The 12th EWA Brussels Conference will be organised at the Representation of North-Rhine Westphalia again. The one-day conference, which is set to the 8 November 2016, be dealing with topics such as European Water Bodies, the Water Framework Directive and expectations from the 2nd Management Cycle, Sustainable Water Treatment and Sustainable Stormwater Treatment. The conference will end with a small get-together. For more information, visit the EWA website <http://www.ewa-online.eu/events.html>. The information is expected in due course.

EWA Seminar on EU Water Policy

The successful seminar will be held on 9 November on the premises of the Representation of North-Rhine Westphalia, the same venue as the 12th EWA Brussels Conference. For more information please visit the EWA website: <http://www.ewa-online.eu/events.html>

Spring Conference 2017 in Lisbon, Portugal

Every two years the EWA organises a Spring Conference in a different country. The city of choice for 2017 is Lisbon, which is the city where the EWA President elect, Professor José Matos is based in. For more information please visit the EWA website: <http://www.ewa-online.eu/events.html>

Green Capital of Europe 2017: Workshop in Essen

Within the programme of the Green Capital of Europe of the awarded city in 2017; Essen, the EWA will be organising a workshop. The scope and the venue will be published on the event page on the EWA website: <http://www.ewa-online.eu/events.html>

Ongoing Activities

EWA Newsletter

The newsletter was set up in 2012 and is set up by the EWA Secretariat and Dr Helmut Blöch. With the high quality contents and interesting information from Brussels and the European Commission, the newsletter has already over 1100 subscribers. The newsletter is free of charge and open to the public.

Finances

Revenues	2015 €	2014 €
1: Members' subscriptions	70,975.00	80,115.00
2. Events/seminars	55,867.27	59,905.25
3. Other revenues	19,459.22	17,797.13
Total revenues	146,301.49	157,817.38

Expenses	2015 €	2014 €
1. Personnel costs	79,673.73	90,466.49
2. Travel costs	9,761.64	6,734.57
3. Accommodation costs and furnishing	11,368.95	10,713.83
4. Purchased services	7,115.95	12,950.96
5. Events/seminars	21,130.63	14,260.44
6. Other costs	11,992.43	14,943.30
7. Transfers to reserves	5,258.16	7,747.79
Total expenses	146,301.49	157,817.38
Surplus/Defecit	0.00	0.00

Members of the EWA Management Committee (MC) for the period July 2015 – May 2017

President Elect
Károly Kovács



**Chair Woman of the
“European Policy Committee” (EPC)**
Wendy Francken



Vice president
Prof. José Saldanha Matos



Past President
Dr. Werner Flögl



MC Member
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The William Dunbar Medal

This prestigious medal is awarded to an individual of a member country of the EWA, in recognition of his or her outstanding contribution in applied technical development in the field of sewage and waste treatment and disposal. This Award, donated by IFAT, the international trade fair for water, sewage, refuse, and recycling, which is organised by the Messe München International, has been adopted by the European Water Association. It was previously presented every two years on the occasion of the EWA Symposium held in conjunction with the IFAT event, has now become a highlight at the EWA Brussels Conference which was organised in 2015.

The award consists of a gold medal and a certificate. The medal bears the portrait of William Dunbar on one side and on the other the logos of the EWA and IFAT. It is given in remembrance of William Philips Dunbar, born in 1863 in Minnesota (USA), who was appointed as Director of the Government Hygienic Institute in Hamburg in September 1892 to assist in managing the disastrous cholera epidemic. Dunbar improved the detection procedure for cholera and other pathogens and his pioneering improvements in city sanitation made him an authority that is still internationally recognised in the sector.

William Dunbar Medal – Award Winners

Year	Award Winner	Country
1975	Dr. A. L. Downing	UK
1978	Dr. Ir. Aale Pasveer	NL
1981	Prof. Dr. sc. nat. E. A. Thomas	CH
1984	Herbert A. Hawkes	UK
1987	Prof. Dr.-Ing. Wilhelm von der Emde	AT
1990	em. o. Prof. Dr.-Ing. habil. Franz Pöpel	DE
1993	Geoffrey Ashworth Truesdale	UK
1996	Prof. Dr.-Ing. E.h. Klaus R. Imhoff	DE
1999	Prof. Mogens Henze	DK
2002	Prof. Dr.-Ing. Rolf Kayser	DE
2005	o. Prof. Dipl.-Ing. Dr. techn. Helmut Kroiss	AT
2008	Prof. MSc, PhD, DSc Jiří Wanner	CZ
2010	Prof. OBE, PHD, FCIWEM, CWEM, CEnv Peter Matthews	UK
2012	Philippe Duchène	FR
2013	Prof. Dr.-Ing. Karl-Heinz Rosenwinkel	DE
2015	Prof. Dr. László Sómlyódy	HU

The recipient of the William Dunbar Medal 2015: László Somlyódy

Professor László Somlyódy was born in Kecsekemet in 1943. He was the Head of Department of Sanitary and Environmental Engineering at the Budapest University of Technology and Economics. As the President of the IWA, Professor Somlyódy managed the integration of the previous water and wastewater related association into one. He has also been the Director of the Hungarian Water Research Institute (VITUKI), is still a member of the Hungarian Academy of Science and was the first President of the Hungarian Water Association (MaSzeSz).

Professor Somlyódy has shown his excellence in working out several modelling approaches and decision support systems which helps overcome catchment scale water management problems. Most of his work is strongly related to the prevention of water pollution through the understanding and numerical modelling of the transport of classical pollutants in water systems. Some of his most important achievements in his academic career are, the design of axial ventilators based on fluid dynamics, mixing of waste water in streams, numerical modelling of stream flow.

Professor Sómlyódy has published an extensive list of publications, of which studies with a strong emphasis on strategic water management. From this list is worth mentioning “The Strategic Questions of National Water Management”, written and edited by Professor Somlyódy and published in 2000. This academic paper has become very important within water management in Hungary. The study was updated 11 years later and turned into a book called “Water Management in Hungary: Look-around and Strategic Objectives”. With his scientific and leadership skills and experiences in numerous scientific and civil institutions and organisations, he has contributed to the integration of East European, especially Hungarian knowledge and expertise in to the European water-related wisdom base.

He has received numerous prestigious national honours, including the Szécheny award in 2002 from the State of Hungary, the Flood Control Award in 2007 and received the Middle Cross of the Hungarian Order of Merit in 2010.



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Current Water Challenges and European Answers

Water is one of the most precious resources we have. As Saint-Exupery stated in *Wind, Sand and Stars*, „water is not necessary to life, but rather life itself“. It is fundamental for economic and social development and essential for meeting basic needs.

The access to clean and safe water is a matter of human dignity and part of the broader question of respect for basic human rights. According to the European Water Framework Directive „water is not a commercial product like any other but, rather, a heritage which must be protected“¹.

The way we treat water shows the maturity and responsibility of our society. Failure to address unsustainable water use and irresponsible water management today will mean a real threat for the coming generations and will cause even greater struggles in the future to achieve development goals.

Water resources in Europe face myriad of challenges: climate and demographic changes, intensification of agriculture activities, degradation and depletion of natural resources. These trends threaten ecosystems and environments that protect resources, by progressively limiting access and degrading their quality.

In this respect the crucial question is whether the EU legal framework and policies are able to deliver the right answers to the challenges and changing trends which impact water resources.

1. Framing the water challenges in Europe

1.1. Climate change

Climate and water are elaborately interlinked. Any changes of the climate system provoke alterations in the water cycle. Elevating Earth temperature increases the intensity of water cycling, leads to rising sea levels, altered precipitation patterns and multiplied frequencies of extreme weather events such as floods and droughts.

In Europe water is unevenly distributed in both time and space. While the Southern and Mediterranean regions suffer from increasing water scarcity and droughts, Northern areas are susceptible to floods. Over the coming decades climate change is predicted to reinforce the frequency, geographic expansion and severity of both droughts and floods which endanger the security of access and quality of water.

1.2. Demographic change

Changing demographic trends, namely global population growing, changes in the age structure of the population and exponential increase of the urban areas are becoming a significant challenge for the environment.

Additionally, due to the increase of general migration, Europe is confronted with more people from outside Europa flowing into the EU and the migration of elderly people from north to south. This will impact water consumption in very dry zones as well as result in unplanned developments of new residential and tourist resorts.

Rapidly growing urban population provokes also an uneven demand for water. The change of land use influences the distribution and functioning of our ecosystem: The degradation, fragmentation and unsustainable use of land is threatening biodiversity and increasing Europe's vulnerability to climate change and natural disasters. It is also exacerbating soil degradation and desertification².

Growing elderly population and the tendency to acquire a „second residency“ is another challenging trend in Europe.

Linked to the growing presence of pharmaceuticals and other emerging contaminants, namely personal care products in waste water „wealthier and healthier“ Europeans, are additionally one major cause for endangering the quality of natural resources.

1.3. Impact of Agriculture

Consuming almost half of the abstracted freshwater (44%)³, agriculture is the biggest water user in Europe. Agriculture presents a multiple challenge for the water sector, impacting in various ways the good chemical and good quantitative status of ground- and surface waters.

Over the last century the intensive use of pesticides, nutrients and livestock production system, including irrigation, facilitated the expansion of the agricultural production. The use of these supportive resources in agricultural production was not very efficient and has furthermore led to degraded fragile soils, removal of vegetation from land, increased land drainage and other changes altering the natural environment.

These changes, together with other climate impacts, have caused important exports of nutrients, pesticides, soils and other pollutants from agriculture into water⁴.

Agriculture together with other human activities (urbanisation, hydropower using reservoirs, navigation, flood protection and defence, mineral extraction, fishing, tourism, etc.) may result in physical modifications and eventually habitat alterations of water resources. These alterations or „hydromorphological alterations“ are changes to the natural flow regime and structure of surface waters. The consequences of these pressures could impact on aquatic ecological fauna and flora and could henceforth significantly impact the water status.

1 (Directive 2000/60/EC)

2 The European environment — state and outlook 2015: <http://www.eea.europa.eu/soer-2015/synthesis/report/3-naturalcapital>
3 Agriculture and water: http://ec.europa.eu/agriculture/envir/water/index_en.htm
4 Water Quality and Agriculture: Meeting the policy Challenge // OECD 2012

2. EU Water Governance

2.1. WFD and supporting directives as the overall legal framework

European and national water policy's main objective is to ensure that a sufficient quantity of good-quality water is available for people's needs and for the environment. The first initiatives in the EU-water legislation date back to the early 70s. The main focus at that time was laid on quality standards for bathing and drinking water. The second round addressed key sources of water pollution.

Since these first steps, the EU has made significant progress in adjusting its water legislation in the field of water management. The adoption of the Water Framework Directive (WFD) in October 2000 and its supporting directives permitted the EU to establish an EU-wide framework for the management, protection and improvement of the quality of water resources.

According to the WFD the concept of the „water status“ comprises five different levels: „high“, „good“, „moderate“, „poor“ and „bad“. The main objective of Article 4 of the WFD is that all surface and ground waters should hold „a good status“ by 2015 with further improvements until 2021.

Main innovation of the Water Framework Directive is the introduction of the river basin management plans (RBMPs), according to which rivers and lakes can be managed as natural geographic and hydrological unit.

The Water Framework Directive is complimented by eight directives and important Commission's decisions regulating specific aspects of water use: the Groundwater Directive⁵, the Environmental Quality Standards Directive⁶, the Urban Wastewater Directive⁷, the Nitrates Directive⁸, the new Bathing Water Directive⁹, the Drinking Water Directive¹⁰, the Floods Directive¹¹, the Marine Strategy Framework Directive¹², two Commission Decisions (2005 and 2008) on ecological status.

With regards to the chemical status of water, the Water Framework Directive is linked to other EU legislation such as the REACH Regulation¹³ on chemicals and the Directive on Integrated Pollution and Prevention Control¹⁴ for industrial installations.

2.2. EU-Water Legislation: Implementation challenges and enforcement

Despite all the efforts by 2015, European surface waters are already much cleaner than 25 years ago, but roughly 50% of Europe's waters still have a poor ecological status.

By 2012 the creation and implementation of the RBMPs was still in a relatively early stage. Even though 75% of the foreseen RBMPs were reported to the Commission, the information provided by Member States was not adequate and detailed enough for proper assessment and monitoring. Member States made excessive use of exemptions to the guidelines set out under the Water Framework Directive in order to justify current levels of abstraction or management practices¹⁵. Today, the linkage between the RBMPs and other policy domains and legislations such as agriculture and flood management is still missing. Another issue is the gap in the deployment of EU-level instruments to control emissions of pollutants.

2.3. Review of the legislative framework

Over the last 40 years the European Union has developed ambitious water legislation, covering different human use and different parts of the aquatic environment. Aiming to perform the fitness check of the water legislation, the European Commission included the Drinking Water Directive and the Water Framework Directive in the Commissions' Working Plan „A new Start“¹⁶, the REFIT Programme. To ensure the efficient use of water resources the European Commission is planning to propose legislative action in the field of the water reuse under the new Circular Economy package.

3. Looking for right answers

The pressure on the quality and the quantity of freshwater resources is rapidly growing in view of climate and demographic change and the challenges of all intensive human activities. Water is part of the healthy environment to which EU Citizens are entitled. Therefore water-related issues are of high public interest. The first successful European citizens' initiative „Right to water“ supported by almost 1.9 million people all over the Europe makes this even more evident.

The Water Framework Directive is the most overarching piece of the EU-water legislation. It defines many long-term and ambitious objectives. Completed by the supportive directives it provides a complete legislative background for an effective and sustainable water management at EU level. Unfortunately the implementation of the water policy legislation appears to be quite slow and inconsistent across Europe.

The European continent faces climate and demographic changes in different ways: the Southern countries struggle with water scarcity and the Northern countries experience more precipitation and face extreme weather events. Demographic fluctuations unevenly impact the continent as well. As a result, the increasing demand for water resources in the Southern countries juxtaposes decreasing water consumption in the Northern part of the continent.

To face these changing patterns and challenges, it is important to provide the coherence between sector and water policies, as well as an effective co-relation between different water policies. The European Institutions play an important role in ensuring clarity, interoperability and enforceability of European legislation.

5 Directive 2006/118/EC

6 Directive 2008/105/EC

7 Directive 91/271/EEC

8 Directive 91/676/EEC

9 Directive 2006/7/EC

10 Directive 98/83/EC

11 Directive 2007/60/EC

12 Directive 2008/56/EC

13 REACH Regulation (EC) NO 1907/2006

14 Directive 2008/1/EC

15 Thomas Zandstra. Water Legislation. Cost of non-Europe Report// EPRS May 2015

16 COM(2014) 910 final of 16 Dec. 2014, Annex 3

While Member States will have to correctly transpose all water related legislation properly, the European Commission in its role as Guardian of the Treaties shall enforce the implementation process and improve its cooperation with Member States. The European Parliament as co-legislator needs to focus on concrete problems, help to tackle a „business-as usual approach“ and make its contribution finding tailor-made solutions.

The enforcement and rapid implementation are important tools. European Policy makers and all the relevant stakeholders have to ensure that the revision and further developments of the legal framework incorporate public concerns and make it fit for challenges and opportunities.

Water is an absolute necessity for life. Clean and „good“ water is an absolute necessity for a „good“ life. This requires indispensable commitment and responsibility from everyone.



Birgit Collin-Langen

Since 2012 Birgit Collin-Langen is Member of the European Parliament. She is Member of the Environment Committee (ENVI) and one of her main focuses are water issues.

Before her career in the European Parliament, Mrs Collin-Langen was Lord Mayor of the city of Bingen for 14 years. Focus of her activity were the protection of public interests and boosting the community engagement in water management.

2016: A Milestone in Water Management

The year 2016 is an important year for water managers in the EU. It is the beginning of the second cycle of the implementation of the EU Water Framework Directive (WFD). In March 2016 all Member States should report their new River Basin Management Plans (RBMPs) and with that they should reveal what the status of water bodies is, explain when and how they will achieve good status and describe what measures they will take in the period 2016-2021.

The first RBMP period 2010-2015 was a learning period. Many Member States were late and in fact, the last few RBMPs were only adopted in 2015. Often the RBMPs missed one or more important elements: sometimes the analysis of pressures was flawed because the insufficient monitoring system failed to provide data on pressures to water bodies; sometimes the measures planned were ineffective to tackle the identified problems or measures were absent all together. It almost seemed as some of the first RBMPs were a formal exercise in a system that continued to do business as usual.

There are many expectations from the new RBMPs. The WFD adopted in 2000 foresaw that the objective – good water status – would be achieved by the end of 2015. Today it is clear that no Member State attained this objective by the deadline. But it will be important to see that six years of implementation of national Programmes of Measures have improved the status of rivers, lakes, groundwater aquifers and coastal waters. It is expected that there will be only a slight improvement in the overall water status due to the composite character of the status indicator and the strict one-out-all-out principle but there will be a significant progress in partial indicators corresponding to major pressures that Member States decided to focus on. It

is important that this progress is well described in the RBMPs' so that it can be recognised by all stakeholders.

The fact that no Member States will achieve the objective set in the EU legislation means that all Member States will have to apply exemptions in the future. Exemptions are possible under the WFD under certain conditions. The new RBMPs will have to analyse the cause of non-achievement and suggest actions that will lead to correction. Hopefully, this will stimulate Member States to analyse the pressures and problems better and correct their strategies and propose more complete and effective Programmes of Measures.

One possible consequence of such an approach is that Member States will apply economic instruments to stimulate water efficiency and generate funding for necessary investments and other actions. The argument of lacking funds is often used to justify the slow pace in the implementation of planned measures. On the other hand in many countries there are still water services where the environmental and resource costs are not properly reflected in the price of water. It will not be possible for Member States to apply exemptions due to the lack of funding and at the same time not to apply the provision of article 9 of the WFD on cost recovery.

Another consequence is that Member States will have to see how effective their institutions are in addressing water issues. The silo attitude was present in the first RBMP and can be seen also in more recent sectoral strategies. A typical example is the

¹ In the context of the WFD Common Implementation Strategy the Member States developed a guidance document <https://circabc.europa.eu/w/browse/f4f6725f-967e-4fd1-b315-c48b6a945501>

agricultural pollution of water bodies. The first RBMPs rarely included measures to tackle the diffuse pollution from agriculture as it was seen difficult for water management authorities to plan actions that must be implemented by farmers. On the other hand agricultural strategies such as the Rural Development Programmes for the use of EU agricultural funds do not include sufficient measures on water. Again the main argument is that it is expensive for farmers to prevent pollution of water bodies. At the same time, none of the Member States applies article 30 of the Regulation on European Agricultural Fund for Rural Development² that allows payments of EU funds to farmers for implementation of measures specified in the RBMPs.

The European Commission will try to assist Member States in the implementation of the second RBMPs in three ways. Firstly, it will carry out a series of studies to analyse the state of implementation and the progress achieved. The most important study will be the assessment of the second RBMPs – their compliance with the directive and, in particular the way how the intervention logic was followed and how effective the programmes of measures are. This study will be complemented by the analysis of other relevant policies on how they contribute or undermine the implementation of EU water policy, an economic study and a study of water governance systems. These studies will provide a feedback to Member States in the form of bilateral dialogues as well as horizontal implementation reports such as the WFD Implementation Report scheduled for early 2018 that will be presented at the EU Water Conference in spring of that year. This will also mark the beginning of the review of the WFD planned for 2019.

Secondly, the Commission will continue to work with Member States in the framework of the Common Implementation Strategy according to the agreed work programme for 2016-2018³. In this context hundreds of experts will share their knowledge and exchange their experience with the implementation, develop guidance and best practice documents, and peer review their practices. The CIS will also be a platform for expert discussions on various aspects of the WFD review. The Commission will continue to support structured cooperation within river basins such as the Rhine and Danube Commissions.

Thirdly, the Commission will support the implementation of the WFD by stimulating water innovation, notably via the European Innovation Partnership on Water and by improving access to finance for water projects in the EU financial programmes such as the LIFE+, Horizon 2020, the Natural Capital Financial Facility, the European Agricultural Fund for Rural Development, the European Regional Development Fund and the European Fund for Strategic Investment. The initiatives on water reuse and pharmaceuticals in the environment will address new opportunities and threats and may be complemented by other actions in the future.

Let us hope that all the effort associated with the new RBMPs will bring accelerated implementation of Programmes of Measures, break down of sectoral silos and better application of economic instruments, and ultimately result in significant improvement of the status of European waters.

² REGULATION (EU) No 1305/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 december 2013 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD) and repealing Council Regulation (EC) No 1698/2005 (<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1305&qid=1459268588975&from=EN>)

³ <https://circabc.europa.eu/sd/a/6b94f19b-97e5-4e46-97f0-817822859b5f/CIS%20Work%20Programme%202016-2018.pdf>



Pavel Misiga

Pavel Misiga is a graduate of Comenius University, London School of Economics and Princeton University. He worked as an environmental consultant and a government official in his home country Slovakia. He served as a director at the Ministry of Environment and advisor to the State Secretary for Environment. In the period 2000-2003 he represented his country in the EU accession negotiations on environmental issues. He joined the European Commission in 2003. In the period 2003-2006 he was responsible for the implementation of environmental projects financed by the Cohesion Fund. Between 2006 and 2014 he was the head of unit that developed and implemented policy in the areas of Sustainable Consumption and Production, Eco-innovation and Circular Economy. Since June 2014 he has been the head of the „Water“ unit in Directorate-General for Environment responsible for the implementation of the Water Framework Directive.

Heavy Rainfall in the Cities and Flood Risk Management EWA, Hennes, Germany, 3rd December 2015

Overview

The EWA workshop on “Heavy Rainfall in the Cities” brought together people from many European countries with a common interest in flooding in cities and other urban areas, with the academic, public and private sectors all represented.

There have been multiple high profile fluvial flood events across Europe over the last decade, several of which have made international news. However, at a more local level pluvial flood events have occurred in many cities and towns characterised by short duration, high intensity rainfall events resulting in rapid flooding with little warning. The focus of the conference presentations drew together perspectives from Germany, Belgium, Czech Republic and the UK, each considering the lessons from some recent experiences and some of the challenges raised.

Some of the themes raised through the workshop included: impacts of urbanisation; direct climate change impacts; communicating flood risk amongst communities; operation of urban drainage systems at capacity and managing over design events; vulnerability and resilience of infrastructure; environmental impacts; and dealing with uncertainty in a changing climate.

Synopsis of Presentations

Evaluation and communication of pluvial flood risks in urban areas. Professor Dr-Ing. Theo Schmitt, University of Kaiserslautern, Germany.

Professor Schmidt set out the broad principles of how pluvial flood risk is managed in Germany through a hierarchy of management principles to deal with increasing severity events. Rainfall events typically up to the 5 or 10 year return period would be considered a normal design event for sewerage systems. In the range 10-30 year return period, there is a focus on surface conveyance and appropriate overland flow routes (often roads) and the use of open space for temporary storage to protect against flooding. Above this level is considered “extreme rainfall”, and the focus shifts to local protection measures.

Consideration of flood risk takes account of both the likelihood of the flood hazard occurring and the vulnerability and impacts of the flood. However, communication of flood risk is often challenging, not least because understanding of terms such as “return period” can be confusing to non-practitioners, and this language is often interpreted as an event that only happens once in 50 years. This communication issue is further challenged when we consider the changing nature of a time series in the light of new rainfall event data, so that what was a 50 year return period event becomes, for example, a 30 year return period event. A further communication challenge is that a rainfall event is defined by two parameters (depth and duration). Professor Schmidt proposed a Rainfall Severity Index on a scale of 1-12, not dissimilar to other magnitude based scales such as the Richter scale for earthquakes, whereby the RSI is defined by the rainfall depth and duration, not its estimated statistical frequency.

In developing flood mitigation responses to extreme rainfall, Professor Schmidt cited Berlin as an example, in which 1D-2D modelling that has integrated drainage and surface water com-

ponents has provided a basis for applying GIS tools to support development of options that are then tested within the model, and verified as far as is practicable using data such as media reports and firefighter call outs / pumping records.

Urban pluvial flood risks and climate change. Ir. Els Van Uytven, Ir. Jan De Niel, Dr. Ir. Victor Ntegeka, Prof. Dr. Ir. Patrick Willems, University of Leuven, Belgium.

This paper focused on direct impacts of climate change on rainfall extremes and the effects of urbanisation which, together, impact on urban drainage systems and pluvial flood risk. An outline of the climate models used in the analysis was presented with the results interpreted for Antwerp.

From a climatic perspective, the uncertainty in projected increases in rainfall intensity was noted, with estimates varying from +10% to +60% to 2100. However, compounding this potential climatic impact is the rapid urbanisation that Antwerp (and Flanders as a whole) has experienced over the last few decades. It is estimated that in 1976 around 5% of Flanders was covered in impermeable surfaces, increasing to around 10% by 2000, with further significant urbanisation anticipated over the coming decades. The combined effects of intense rainfall and urbanisation are already being witnessed with at least five significant pluvial flood events in Antwerp since 2013, predominantly in the summer. The Urban Heat Island effect is also apparent in observed temperature differences of around 3-4 deg. C on hot days in summer between the urban centre and rural fringes, further exacerbating the potential for extreme rainfall over urban areas.

With this context for future climatic changes, the hydraulic capacity of sewers is an important consideration in the development of upgrades, and adapting to a future climate within heavily constrained urban areas. A tool to visualise pluvial flood risk across a city was presented using colour coded mapping based on the return period of an event at which the drainage system capacity would be exceeded resulting in surface water flooding. The classification of risk ranges from “Very High” which represents flooding at the surface in the 2 year return period event through to “Very Low” as indicated by freeboard >0.2m in the sewer system during a 20 year return period event. This visualisation demonstrates the value of relatively simple GIS tools to support a strategic overview of potential vulnerability, and therefore areas of focus for developing adaptation and resilience measures. The presenters also highlighted the importance of good pluvial forecasting data in order to effectively plan a response to an event, noting that lead time and accuracy are significant challenges with regard to pluvial flood warning.

Pluvial Flood Risk Management - Mapping, Methods and Measures, UK Case Studies. Mr Iain Blackwell, Jacobs UK Ltd

Mr Blackwell presented a range of tools and approaches to support pluvial flood risk management both in large urban areas as well as smaller towns and villages, which can also suffer from pluvial events that have a high impact locally. At the regional, city or town level scale, GIS mapping of flow pathways, contributing areas, identification of depressions, and identification of critical receptors can provide a rapid assessment of potentially vulnerable areas without the need for any hydraulic

Iain Blackwell

Iain Blackwell is a Chartered Engineer and Chartered Water and Environmental Manager with 23 years' experience in water and environmental engineering, much of it focused on Flood Risk Management. His experience covers fluvial, pluvial, coastal and urban flooding on projects for national and local government organisations including large scale catchment-wide approaches on major river basins as well smaller localised urban flood risk management and natural flood management projects. In the private sector he has provided strategic advice on infrastructure projects focused on protection, adaptation and resilience of infrastructure including Nationally Significant Infrastructure Projects. He is a Member of the EC Working Group F for implementation of the Floods Directive as the European Water Association (EWA) representative, and currently works for Jacobs, based in the UK.

modelling. Site visits to “ground truth” the findings in the vulnerable areas identified often provides a reliable process for identifying priority areas either for detailed modelling or for development of mitigation measures. Critical factors affecting the vulnerability of a receptor include: flood depth and extent based on topographic depressions; the catchment area contributing to a surface water flow path; velocity of flow; threshold levels of properties; the presence of inhabited basements of buildings (common in many European cities); and the sensitivity of the land use.

Development of 1D-2D models that include both underground drainage systems and a detailed Digital Terrain Model then provide the basis for assessing economic damages from pluvial flooding and the subsequent development of mitigation measures.

Mr Blackwell noted that in many instances with pluvial flooding there is very limited data for traditional model calibration and verification, and therefore, the validity of model outputs needs to be tested through comparison with flood event data from flood reports, questionnaires, and other qualitative sources. He went on to describe several post-modelling approaches to presenting economic flood damage data using integrated economic/flood data GIS tools. These can be used to develop an economic case for investment in specific flood risk management measures. He also presented an innovative Flood GIS tool for use with the public and other stakeholders as a means of communicating flood risk in a meaningful way to non-specialists including, for example, 3D visualisation and identification of impacts on critical transportation routes.

Flood events and risk orientating the planning of WWTPs: The experience Prague. Prof. Ing. Jiri Wanner, University of Chemistry and Technology, Prague, Czech Republic.

This presentation by Professor Wanner explored the impact on Prague's Waste Water Treatment Plant (WWTP) as a result of extensive catchment-wide rainfall that led to major fluvial flooding across large areas of Central Europe during 2002, including Prague on the River Vltava. The summer 2002 flood event was estimated to be well above the 100 year return period event in Prague and due to its severity, resulted in the destruction of large parts of Prague's central WWTP.

There is a long history of wastewater treatment at the site dating back to the late 19th Century, with successive upgrades and new works up to 1997 to meet the requirements of the Urban Waste Water Treatment Directive. The works are located on Emperor's Island between the river and the canal, and at this point the river is a bottleneck, making the site vulnerable to flooding in major fluvial events. Prague's flood history is also important in the context of the site. In September 1890 the estimated peak flood flow was 3,975m³/s, but the August 2002 flood peak was estimated to be 4,700m³/s representing the biggest flood by a significant amount. This event resulted in the loss of many parts of the WWTP, with long term implications as the city was then without its main waste water treatment capacity for around 6 months, which impacted on water quality as Prague is predominantly served by combined sewer systems. This water quality impact, combined with the loss of other WWTP in other cities and catchments, impacted in locations far downstream for several months.

This demonstrates the vulnerability of critical infrastructure to major flood events, and the importance of developing resilience accordingly. The focus for the reconstructed (and new) elements of the WWTP therefore included important resilience measures. The “new water line” (NWL) has been developed using a compact layout and innovative technologies, with “concrete containment” being a cheaper solution than providing flood dikes and walls. For the NWL all critical elements are protected up to the 100 year return period event, with the building walls and entry points to the containment areas at a level higher than the 100 year return period water level.

This approach to “sealing” different sections of the system depending on the river water level builds resilience. Whilst higher flow events may stop the WWTP from operating, the containment approach minimises the downtime for the WWTP after the flood peak has passed.

Professor Wanner concluded that this approach demonstrates a good example of sustainable design of a new WWTP in an area with high flood risk, with an innovative and flexible approach to sealable containment. The works when completed will also result in a reduced backwater effect upstream in Prague, thereby delivering further flood risk management benefits.

Conclusions

It is clear that the challenge of communicating flood hazard and flood risk to a wide range of stakeholders including the general public is significant and common across different parts of Europe. Innovative approaches to tailoring specific messages are needed to engage stakeholders if we are to manage pluvial flood risk more effectively and sustainably.

When dealing with pluvial flood risk, there is significant uncertainty regarding the warning of the timing and scale of pluvial floods, and the extent to which it may change in future with respect to climate change and urbanisation impacts. However, innovative solutions will be needed that: consider significant urban land use constraints; maximise safe attenuation storage and surface and sub-surface conveyance; integrate planning and flood risk management policy; recognise the need to make space for water and deliver Water Sensitive Urban Design (WSUD solutions).

Flood events often expose vulnerabilities in critical infrastructure which have significant knock-on effects on other infrastructure, the environment, and people. There is a wide need for consideration of resilience in the design and upgrade of critical infrastructure and assets, and consideration of the wider impacts of the loss of an asset including infrastructure inter-dependency.

Challenges in the European Water Sector

Report of the 11th EWA Brussels Conference

On 16th and 17th November 2015, the 11th EWA Brussels Conference “Water Challenges in Europe” welcomed about 100 participants from 22 countries. The conference took place in the Representation of the North Rhine - Westphalia to the EU, where Mr. Rainer Steffens welcomed the participants warmly. The conference was separated into three sessions dealing with actual topics of the water management. Each session was opened with a presentation by a representative of the European Commission. A further highlight of the event was the award ceremony of the Dunbar Medal 2015 on the occasion of the IFAT 2016. The conference was moderated by Mrs. Wendy Francken, chairwoman of the EWA European Policy Committee and Managing Director of VLARIO (BE).



EWA EPC Chairwoman Wendy Francken was the moderator of the 11th EWA Brussels Conference

Day 1: Striving for Good Status of European Waters

The welcome speeches were held by the representative from the venue, Rainer Steffens, and the MEP Birgit Collin-Langen. The Head of Unit Water at DG Environment Pavel Misiga presented the progress reached due to the Water Framework Directive to protect the European Waters. Conclusively, the overall view of the situation is well described by the proverbial glass of water, either it is half full or half empty, depending on the perspective. At year end 2015, it is expected that 53 % of surface water in Europe will reach good status. This is an improvement by ca. 10% within the last six years. In 2009, a review of the current situation showed a value of 43 %. In total, Mr. Misiga ascertained that water protection has improved vastly, also thanks to the daughter directives of the WFD. Moreover, he remarked that the Member States have an effective dialogue with each other and the transboundary co-operations have improved in general. However, he indicated that the road to reach a good status of water in the whole Europe, is still rocky.



Head of Unit Water at the DG Environment, Pavel Misiga, European Commission

Dr. Anita Künitzer presented the existing data of the European Environment Agency which are summarised in the publication „State and Outlook 2015 - synthesis report in particular. Wim van Gils, from the organisation Natuurpunt from Belgium, presented the water management situation in Belgium from the viewpoint of the citizens. His very dedicated presentation showed that water topics are of high importance for the citizens in general. Moreover, he claimed that it is very wise to include the public in discussions on water topics. In this context, he advocated for fair and especially transparent water billing methods. Conclusively, he pleaded for strengthening the collaboration with nature and integrating the ecosystem services more intensively than before. Further on, Raymond Erpelding, President of the Luxembourgian Water Association, represented the view of the municipalities. With the introduction of the Water Framework Directive, he, as well, is seeing considerable progress made in the water sector, particularly in the transboundary co-operation. However, in order to maintain progress in Europe, he urged to address particularly diffuse sources from agriculture. The use of end-of-pipe solutions alone is not cost-effective anymore. The attention should be on avoiding pollution in general rather than concentrating on how to manage waste water treatment. In his view, the principle “one-out, all-out” is very difficult to communicate to the general public. Particularly challenging is the fact that it is almost impossible to reach “good status” due to the ubiquitous background contamination. Conclusively, he pointed out that, in order to reach a good status all over, it will take more time than the WFD has allowed for.



All the presidents present at the EWA Dunbar Medal Award Ceremony

Day 2: Striving for Good Management of European Waters

With the presentation „Current State of Regulations regarding Storm Water Overflows in Europe”, Bruno Rakedjian from DG Environment at the European Commission showed the participants that they are on the right path to „good management of European Waters“. He reported that the Commission has launched a study to analyse the situation of storm water overflows in Europe. The study was initiated in January 2015 and will end in December 2015. It will comprise of, on the one hand, the legislation on European level, and the Directives and the legal requirements of the individual Member States on the other. He indicated that the general requirements are described in the Urban Wastewater Treatment Directive (91/271 EC, Article 10 (1), Annex 1). Obviously, there is no consistent European approach for this; each of the Member States is left to follow up on national level to prevent water pollution from storm water overflows. Mr. Rakedjian showed that each Member States has regulations at national level, however, their obligations diverge. As anticipated, the methods to achieve this deviate, as well: The number of overflows is often regulated or rather the requirements for dilution have been set. In total, it is shown that only a few countries have a good data basis. The pollution caused by waste water discharges can only be estimated roughly in most Member States. Conclusively, Mr. Rakedjian pointed out that no further activities have been planned from DG Environment in this respect, and that a vigorous debate is expected to derive after the study has been launched.

The subsequent presentations showed how flooding is caused by heavy rainfall events, or how flooding damages may be decreased. Professor Harsha Ratnaweera outlined in his presentation a current research project from Norway where an optimised interaction between the wastewater treatment plants and transport systems can be achieved by modelling and enhanced weather forecasting. He concluded that measures can be achieved by an advanced level of knowledge of the sewer system and an improved rain prediction. These measures will prevent and minimise damages. As the heavy rainfalls are mostly local events, the available capacities are utilised better by using urban drainage system control. Professor Patrick Willems from the University of Leuven in Belgium showed the possibilities how to act in the event of flash flooding. He addressed the advanced urbanisation and the increased sealing of the landscape in particular, including the impacts of climate change. He

showed the importance of having open, green city areas and emphasized the necessity for city planners to collaborate closely with the municipal drainage system operator. With the help of technical measures, a good warning system and high public awareness, major damages may be prevented.

The last contribution in this session addressed the topic of flood risk management. Iain Blackwell from Great Britain, a member of the EWA European Technical and Scientific Committee and representative of the EWA in the working group “Flooding” within the European Commission, presented different flood protection measures. He, as well, emphasised that it is essential to establish a flood forecasting and warning system and the co-operation across all divisions is pivotal. In order to be prepared for flooding, he recommended a three-step approach. Firstly, screening areas prone to flooding must be identified and evaluated, secondly, observing the area in question in detail, and finally, implementing the measures to improve flood protection.

Session 3: Management and Economic Aspects for Good Status of European Waters

The third and last session dealt with the economic aspects of the Water Framework Directive. The first presentation in this session was given by Sander Happaerts from DG REGIO on the topic of “Funding Opportunities for Water Management from EU Cohesion Policy”. Sander Happaerts elaborated on the goal of this programme, which is running from 2014-2020. From the 11 goals listed of the EU Cohesion Policy, three goals are directly related to the water sector in particular. All investments related to water management and water resources protection funded by DG REGIO are based on river basin management plans. The Member States must decide upon how to dispose sewage sludge and, moreover, how to deal with the impacts due to climate change. Furthermore, the projects in question must be proven financially sustainable. Mr. Haepperts explained which funding conditions have been set concerning flood protection measures and innovative water projects. Finally, he pointed out that all the relevant publications can be found at the European Commission website. The next presenter at the conference was Maria Salvetti from the Sorbonne University of Paris who elaborated on how to achieve full cost recovery in the water sector. Based on the Article 9.1 of the WFD she explained the various aspects on how to recover costs in wa-

ter services including the difficult issue of how Member States consider environmental and resources costs. In order to cover these costs, she concluded that most Member States finance it via raising taxes or fees. Evidence to prove that these taxes or fees will be sufficient to cover these environmental and resource costs, is not given by the Member States. Furthermore, she claimed that the cost covering principle concerning water services in households and industry has been applied, to a greater or lesser extent, and the charges for water services in the agricultural sector are fairly low.

In the last presentation of the conference, Filip Bertzbach, Managing Director of Aquabench, gave a general report on the topic „Benchmarking in the water sector“. He emphasised that benchmarking is mainly an instrument on management level and not primarily used to achieve transparency as a basis for public discussion in the water sector. He reported that the topic benchmarking is a topic on both national level, by DVGW and DWA, and on international level by IWA and ISO. He underlined the fact that benchmarking is only effective when used within a learning process and not as a ranking tool). The results and the interpretations of the various values must be communicated well. In his view, in order to learn from the best, a basic prerequisite is to treat the results in confidence. He showed that, among companies which have taken part, improvements can be shown in certain processes. It is interesting to observe that the improvements can be spotted, not only with the companies with bad results at the beginning, but also with the companies who came up with relatively good results from the start. He concluded that all companies profit from benchmarking eventually.



At the end of the conference the EWA President expressed his gratitude to Wendy Francken for the moderation; to the presenters for their contributions, and the participants for attending and for contributing to the good discussions during and after the presentations. All presentations can be found on the EWA website. The next Brussels Conference will be on the 8th of November, 2016, again on the premises of the representation of the North Rhine - Westphalia to the EU.

Johannes Lohaus
EWA Secretary General



Energy and Water – an inseparable entity

Nowadays, energy supply in modern industrialised societies relies heavily on water. The demand for cooling water in large power stations is significantly higher compared to the demand of water to supply both private households and the industry. Renewable energies depend on water as well (e.g. renewable raw materials for irrigation purposes). Water is an essential resource, used in innovative processes, for example, when producing hydrogen, in case of energy surplus for the purpose of storage, respectively, as a by-product for “power to X” -solutions (P2X; where X is gas, liquids or products). The water industry is an indispensable contributor to both, the existing energy infrastructure and renewable resources.

Furthermore, water management plants themselves are significant consumers of energy. The existing German facilities for public water supply and wastewater treatment together consume 6.6 TWh of electrical energy per year; sewer systems and rainwater reservoir networks not included. This amount equals the annual electricity requirement of about 1.6 million four-person households. In this context, the wastewater treatment plants with 4.2 TWh per year are the largest electricity consumers in the municipal sector. Their need for electricity is higher than, for example, for schools or street lighting.

The costs caused by energy consumption at the level of wastewater treatment plants are essential for the operators. By increasing the energy efficiency, costs may be reduced substantially. In a study conducted by the German Association for Water, Wastewater and Waste (DWA) in 2010, the potential reduction of electricity consumption of wastewater treatment plants has been estimated at up to 25%.

Back in the early nineties, solutions for optimising energy consumption at wastewater treatment plant were sought in Germany. As a result, the State of North Rhine-Westphalia issued a comprehensive standard reference in 1998, describing how to carry out energy analyses systematically and depicting paradigms of saving potentials. Other states have issued similar reference publications, however, in some cases, with diverging content. In order to ensure consistency in the context of energy checks and energy analyses in Germany, a standard on „optimising energy in wastewater treatment plants“ (DWA-A-216) was established and finally published in 2015, which was a result of a federal-state working group organised by the DWA.

One main focus for optimising energy consumption in wastewater treatment plants in Germany is the use of the aeration of the biological purification which accounts for 50 to 60 per cent of the electricity consumption. In this case, solutions such as flexible oxygen supply, renewal and optimised arrangement of aerator strings, and the transfer from surface aerator to compressed aeration, can be mentioned. Other relevant process stages and auxiliary plants of a wastewater treatment plant provide high potential to optimise energy efficiency as well, which can be shown by applying methodical energy analyses.

Wastewater treatment plants do not only consume energy. Wastewater contains potential energy as well. Currently, energy is produced primarily by anaerobic digestion of se-

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Markus Schröder

Markus Schröder is the Vice President of the German Association of Water, Wastewater and Waste (DWA) and the Chairman of the technical committee “Energy in the Water and Waste Management” within the DWA and has been connected with the topic water and energy for many years. He is the Managing Director of TUTTAHS & MEYER ing Ges. and is actively involved in the field of practice and science.

wage sludge; the generated biogas is used in the combined heat and power (CHP) unit. By conducting energy analyses, solutions on how to considerably increase the production of energy from wastewater will be provided. Combined with electrical energy, the energy recovered from wastewater, which is used for heating and cooling, is essential for an energy efficient wastewater treatment system. In addition to the „classic“ solutions, the water industry is constantly striving for innovative approaches. Hence, pilot wastewater treatment plants were established years ago in order to produce bio methane and hydrogen from biogas, as well as to produce water electrolysis (P2G). The advantage here is to use the pure oxygen, which is created together with hydrogen, to aerate the biological stage. Pilot facilities for methanol production (P2L) on treatment plants are being established as well.

In order to activate the highest possible innovatory potential within the water sector, funding programs have been initiated at federal and state level in recent years. As a result, within the funding measure ERWAS (Future-oriented Technologies and Concepts for an Energy-efficient and Resource-saving Water Management), twelve research programs are supported by the Federal Ministry of Education and Research (BMBF) with a total budget of about € 27 million.

Among the projects funded, 5 projects cover the topic drinking water supply, 4 projects support wastewater treatment and, finally, 3 projects focus on biofuel cells. Following topics have to be highlighted:

- The storage of fresh water and drinking water treatment,
- The use of pumps as turbines instead of pressure reducers in the drinking water supply network,
- An energy optimised wastewater treatment plant of the future.

Hence, these options will need to align comprehensively to meet the demands of increased energy efficiency, the energy supply and the interaction with the energy networks. Moreover, as part of the Environmental Innovation Program with its priority on “Energy Efficient Wastewater Treatment Plants”, 12 innovative large-scale pilot projects are funded by the Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMUB). By funding research and development projects as such, the wastewater treatment plants are not only able to continuously decrease their own energy consumption and increase their level of self-sufficiency, but will also be able to contribute to the energy transition in Germany by interacting with the operators of the energy infrastructure.

Meanwhile, the energy supply of wastewater treatment plants and the possibility to generate energy at these plants is increasingly important, also outside of Germany. In 2015, three big conferences were organised exclusively or with a strong focus on the topic “Water and Energy”. These are the Water and Energy Conference in Washington D.C., the World Water Week in Stockholm and finally, the topic Energy Efficient Urban Water Management at the Water Efficiency Conference in Exeter, UK.

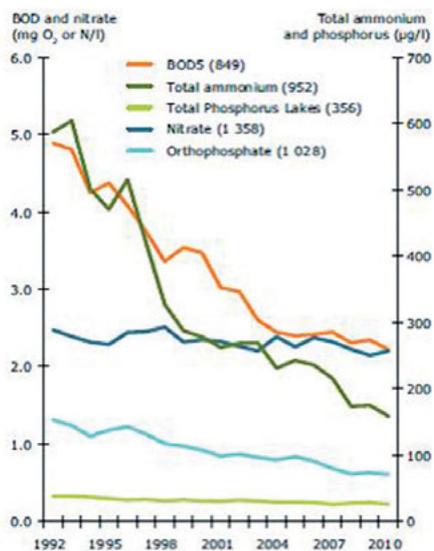
From the conference presentations it is evident that the specific consumption of energy at treatment plants and the energy supply potential from wastewater treatment facilities attract increased attention worldwide. However, the energy optimisation of the treatment plants, based on energy checks and energy analyses, is often not done as systematically as is done in Germany. In this context, German knowledge could provide support in exchanging best practice. Integrating wastewater treatment plants in the energy infrastructure, especially in contributing energy to the transport sector e.g. at petrol stations, is primarily conducted in Japan. This shows that the learning effect may go both ways. An interesting fact was to observe how the North American wastewater treatment operators consider sewage sludge. Instead of regarding sludge as waste, as it is in Europe, the North Americans regard sewage sludge as a recycling material or a by-product. Besides producing energy, sewage sludge is used as fertiliser in North America, which is considered less critical if compared with the perception in Europe. The wastewater treatment plant Blue Plains in Washington D.C. advertises that even Michelle Obama is using sewage sludge for her “veggies” in the gardens of the White House.

Various presentations during the conferences mentioned above have underlined that optimising energy derived from wastewater treatment plants contributes significantly to reducing greenhouse gas emissions and hence, contributing to climate protection. In order to profit from this potential, energy analysis of wastewater treatment facilities should always show the reduction of the CO₂ emissions resulting from suggested measures for improvement. However, it is vital to check if any elevated methane or nitrous oxide emissions are exposed. When combating climate change, these measures would be counter-productive.

It is important to achieve enhanced energy efficiency and improved internal energy production, or, where possible even to reach energy self-sufficiency at waste water treatment plants of the facilities. However, the core activities of water management must remain in focus; the supply of drinking water and the treatment of wastewater.

Nutrient pollution of our waters – mixed progress or a two-class society?

Following early steps in the 1970s, European water policy and legislation has greatly developed over the years. The 1991 Directives on urban waste water treatment and on nitrate pollution from agriculture as well as the 1996 IPPC Directive established milestones on emission control.¹ The year 2000 saw the coming-into-force of the Water Framework Directive with its comprehensive protection of all waters (rivers, lakes, groundwaters and coastal waters), and a binding objective to achieve/ maintain good status for all bodies of waters as a principle by 2015. Completing the picture, the 2008 Marine Strategy Framework Directive mirrored principles and objectives of the Water Framework Directive to marine waters outside coastal waters.



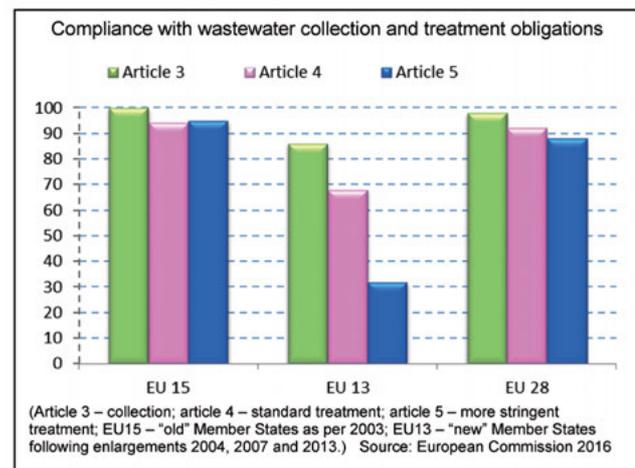
Looking at the status quo and trends of our European waters, and the sources of their pollution, one might come to the conclusion of either mixed progress or a two-class society of point sources and diffuse sources ...

On the one hand, European rivers have without doubt in many cases drastically improved in quality, not least the river Rhine - developing from being nicknamed “sewer of Europe” to becoming once again home to salmon. As shown in the EEA graphics², pollution by oxygen-depleting substances, ammonia and phosphorus have considerably decreased. On the other hand, nitrate river pollution remained largely stable at far too high a level, and eutrophication of our regional seas continues to be a major problem. Further, Europe’s groundwaters remain considerably polluted, with nitrate values of groundwater exceeding mandatory values in many cases.

Facts show a quite diverse picture when looking at the two main sources of nutrient pollution of our waters: waste water and agriculture.

Firstly, as regards waste water treatment, there appears to have been rather broad political support since the adoption of the Urban Waste Water Treatment Directive, both within the original 12 Member States of 1991 and those of consecutive en-

largements of 1995, 2004, 2007 and 2013.³ The 2016 Commission Report summarises as follows: “Although there is still much work ahead to ensure full compliance with the UWWTD, much progress has been made and a vast part of Europe’s urban waste water actually undergoes appropriate treatment before it is released back into the environment.” The gaps to reach full compliance are specified as 11 million p.e. (2%) on connection and treatment; 48 million p.e. (9%) on secondary treatment; and 39 million p.e. (12%) on more stringent treatment.



Certain elements, in particular the designation of sensitive areas and thus the requirement of nutrient removal, as well as pollution from storm water overflows, necessitated legal procedures and ultimately clarification on both issues by the European Court of Justice.⁴

For long-term non-compliance with waste water treatment obligations, considerable penalty payments have already been imposed by the European Court of Justice.⁵

Secondly, on agricultural pollution and in contrast to the above, political support for the Nitrates Directive (adopted in the same year as the Urban Waste Water Treatment Directive) has long been mixed, as exemplified inter alia

- by the attempt of a large Member State to declare 2 months manure storage capacity as sufficient, or

¹ Directives 91/271/EEC, Directive 91/676/EEC, Directive 96/61/EC (later replaced by Directives 2008/1/EC and 2010/75/EU)

² European Environment Agency “European waters – assessment of status and pressures”, Copenhagen 2012

³ 1995: Austria, Finland, Sweden; 2004: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia; 2007: Bulgaria, Romania; 2013: Croatia

⁴ Judgment C-280/02 of 23.09.2004, Commission v France, on criteria for sensitive areas and more stringent treatment. Judgment C-293/97 of 29.04.1999, The Queen v Secretary of State for the Environment and Ministry of Agriculture, Fisheries and Food, reference for a preliminary ruling by the High Court of Justice (England and Wales), on the obligation of parallel action in case of pollution from waste water and from agriculture. Judgment C-301/10 of 18.10.2012, Commission v United Kingdom, on criteria for pollution from storm water overflows.

⁵ Judgment C-533/11 of 17.10.2013, Commission v Belgium. Judgment C-576/11 of 28.11.2013, Commission v Luxembourg. Judgment C-167/14 of 15.10.2015, Commission v Greece.

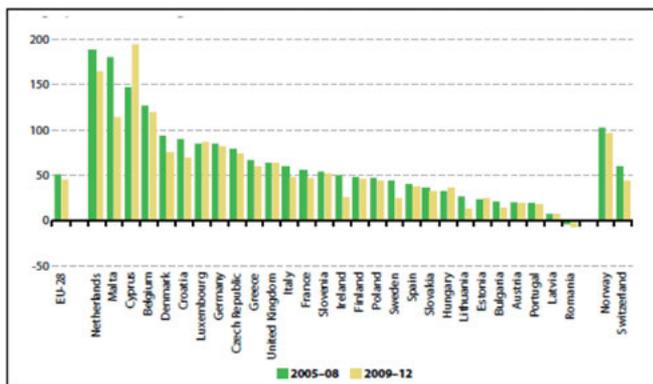


Dr. Blöch has had a leading role at the European Commission dealing with water politics for many years.

He has working experience in the environmental and water sector not only nationally, in Austria, but also on European level in Brussels. He has published several articles in technical-scientific and political journals.

- by the stiff resistance by the agricultural community (and indeed by Agriculture Ministers in the Council) against inclusion of the Water Framework Directive into “cross-compliance” under the Common Agricultural Policy.⁶

Exemplifying this attitude, Eurostat statistical data on fertiliser consumption show largely constant consumption figures and largely constant gross nitrogen surplus (Cyprus and Luxembourg even with increasing surplus figures).



Gross nitrogen surplus, EU28 plus Norway and Switzerland, in kg N per hectare of utilised agricultural area; averages 2005-2008 vs. 2009-2012.

Further, nitrate concentration in groundwater show in many countries average figures above the mandatory quality standard of 50 mg NO₃/l.⁷ Belgium and Spain have the highest proportion of monitoring stations exceeding the standard (>20%). Exceedances of 10-20% are reported for Austria, Cyprus, Czech Republic, Denmark, Germany, Italy, Netherlands and Portugal.⁸ Within the Rhine river basin, a staggering 33% of groundwater bodies still show pollution above the mandatory standard.

On trends in groundwater pollution, the latest Commission report on the Nitrates Directive concludes that, “most stations showed a stable trend (42.7% in EU), while the percentage of stations with a decreasing trend almost equalled the percentage of stations with an increasing trend (30.7% and 26.6% respectively), a situation comparable to previous reporting periods.” The highest percentage of stations with a decreasing trend has been observed in Ireland, the most stable in Latvia, and the highest with an increasing trend has been reported by Estonia.⁹

Implementation and enforcement of the Nitrates Directive saw on the one hand regular multilateral (Nitrates Committee) and bilateral cooperation, whilst on the other hand legal procedures and judgments by the European Court of Justice. Against the multiple causes of eutrophication (agriculture, waste water discharges) a key judgment addressed the criteria for parallel action in case of pollution from waste water and from agricul-

ture¹⁰. In the long-standing debate about designation of vulnerable zones and requirements for action programmes within such vulnerable zones, a detailed judgment in 2014 has set out the criteria for nitrate vulnerable zones and action programmes. Thus the borderline between legally binding measures (‘action programmes’) and mere recommendations (‘codes of good agricultural practice’) has been clarified.¹¹

Beyond groundwater pollution, eutrophication of our European regional seas continues to be a major environmental problem, responsible for widespread environmental degradation in particular in the Baltic and Black Seas, but also in parts of the Greater North Sea. Further reductions in nutrient emissions will be necessary to meet the objectives of the Water Framework Directive and the Marine Strategy Framework Directive across Europe. Eutrophication is not just an environmental challenge; it also reduces the socio-economic potential of ecosystem services.

Beyond the ‘traditional’ sources of eutrophication (agriculture and waste water discharges), attention will increasingly have to focus on atmospheric deposition of nitrogen which can make a significant contribution to eutrophication. For the Baltic Sea, it accounts for 25% of the total anthropogenic nitrogen load. This also led the European Commission in its preparation of the 2013 Clean Air Policy Package to consider legislation on air emissions from the shipping industry as regards nitrogen, following sulphur reduction obligations in EU legislation already in force.

The underlying impact assessment for the Package highlights ‘major contributors’ to overall emissions in the sectors of shipping and medium combustion plants as priority objects under future regulation. Explicitly targeting shipping, the assessment concluded that pollution control costs ‘indicate seaborne NO_x reductions as an economically attractive option’, particularly in certain sensitive ‘nitrogen emission control areas’ (NECAs) designated under MARPOL, i.e. the English Channel, the North Sea and the Baltic Sea. A 2015 Finnish-Dutch study further elaborates on benefits of reducing sea-borne nitrogen emissions.

It remains to be seen how and when these facts will be taken up by EU policy makers in addressing air quality and eutrophication.

To summarise, addressing nutrient pollution of our waters has gone a long way since adoption in the 1990s of the Directives on urban and industrial waste water treatment and on nitrates pollution from agriculture.

Whilst progress in many fields cannot be questioned, the European Environment Agency concluded bleakly in its 2015 report “The European Environment. State and Outlook 2015: “Europe is far from meeting water policy objectives and having healthy aquatic ecosystems.”

We still have work ahead of us.

6 Direct payments to farmers within the Common Agricultural Policy are conditional to compliance with a set of basic EU rules on environment, public and animal health, animal welfare or land management. Non-compliance will entail reduction of direct payments. The Water Framework Directive is excluded.

7 Nitrates Directive 91/676/EEC, Groundwater Directive 2006/118/EC

8 European Environment Agency, Nutrients in freshwater, Copenhagen 2015

9 European Commission, Nitrates Directive Implementation Report COM(2013) 683 final; tables and maps in the attached Working Document SWD(2013) 405 final

10 Judgment C-293/97 of 29.04.1999, The Queen v Secretary of State for the Environment and Ministry of Agriculture, Fisheries and Food, reference for a preliminary ruling by the High Court of Justice (England and Wales), on the obligation of parallel action in case of pollution from waste water and from agriculture.

11 Judgment C-237/12 of 04.09.2014, Commission v France



Directory of Members



Albania

Water Supply and Sewerage Association of Albania (SHUKALB)

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Main activities

The Association is a professional, non-profit organization of water supply and sewerage professionals with a Mission Statement consisted of four main objectives:

- To advocate the collective interests of professionals in the water sector in Albania.

- To serve as a leading resource for knowledge, professional development and networking.
- To invest time and resources to build awareness and attract future generations to seek a career in the water sector.
- To be a positive force for mutual understanding, collaboration and regional partnerships in the Western Balkans.

The Association serves the water sector through outreach programs consisting of its award winning Children's Water Awareness Program; World Water Monitoring Challenge, High School Science Fair, University Student Summer Internship Program; bi-lingual newsletter and website; routine training programs; Annual Conference and Exhibition; IWA Biannual Utility Management Conference and a Young Water Professionals section. The Association is also involved in medium and large scale project grants that provide value to knowledge sharing in the water sector and opportunities to young professionals to gain more experience in their profession.

Recently, the Association in partnership with the Ministry of Transport and Infrastructure of Albania and with the financial support of United States Agency for International Development (USAID) is working on the development and implementation of a sustainable, national training program to improve the capacity of the sector workforce, leading to certification as a qualification for employment in the sector.

The remaining challenges that have been defined by the Association are advocating and supporting actions toward the regionalization of water supply and sewerage services, as a mean to improve performance and the economies of scale in the sector, and to being greater focus on the commercialization of utility management practices to achieve full cost recovery from revenues.



Austria

Österreichischer Wasser- und Abfallwirtschaftsverband (ÖWAV) Austrian Water and Waste Management Association

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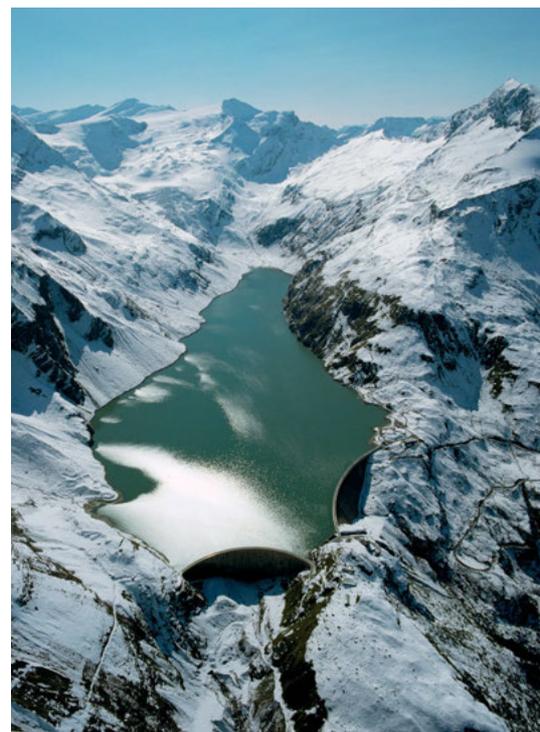
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Main activities

The Austrian Water and Waste Management Association (ÖWAV) is a voluntary collective of all parties interested in water and waste management in Austria, which leads to the exchange of experience in economy, administration and science. It is considered as an "independent counselor" with the goal of achieving sustainable objectives of the water, wastewater and waste management in Austria.

Challenging topics

- Climate change
- Buildings and Water
- Sewage sludge platform
- Maintenance of Sewage Systems
- Courses and advanced training for the staff of water treatment plants and waste management facilities.





Belgium

VLARIO

President:

Prof. Jean Berlamont

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Description

VLARIO activities:

VLARIO is an independent non-governmental and non-profit organization in Flanders (Belgium)

- VLARIO is the consulting platform and information and knowledge centre for Flemish sewer sector
- VLARIO offers an independent platform for experts of rainwater, wastewater and sustainable water management;
- VLARIO collects knowledge through continuous consultation and exchange of experience with all market players, national and international;
- VLARIO propagates this knowledge via publications and the organization of seminars, workshops, lectures and study clubs;

- VLARIO supports the ambition of Flemish towns and cities in purifying quality and applying the 'Principles of integrated sewage management'.
- VLARIO has 450 members, such as most of the Flemish towns and cities, regional authorities, Aquafin, consulting engineers, contractors and industrial companies.
- Vlarlo is involved in quality control on house connections, following the regional rules of separate sewer connections
- Based near Brussels, Vlarlo is participating in most of the European conferences and hearings
- Vlarlo is striving to act as the multiplier between all the wastewater actors and sewer operators in Flanders-Belgium.



Bulgaria

Bulgarian Water Association (BWA)

Bulgarska Asociacia po Vodite

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Ivan Ivanov, MEng

EWA Council Representative

Prof. Dr. Petar Kalinkov

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Main activities

BWA is a non-governmental, non-profit organization whose main fields of interest are water supply and wastewater disposal and treatment, as well as management, preservation and utilization of water resources. It takes part in discussions related to new regulations and develops expert appraisals, standpoints and strategies in its field. BWA organizes workshops, conferences, round tables and is also involved in the training of water/wastewater operators. As of January 1st 2015 the Association has 127 corporate and 354 individual members.

Challenging topics

1. Water loss reduction
2. Water Act amendments implementation
3. Education and training of water/wastewater operators

4. Assistance to the development of Strategy for Water Supply and Sanitation Sector Development
5. Urban water infrastructure rehabilitation
6. Waste water treatment plants construction
7. Benchmarking in the Bulgarian water sector



Croatia

Croatian Water Pollution Control Society (CWPCS)

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Main activities

With around 600 individual, institutional and company members, the CWPCS is a voluntary, non-profit association of citizens and legal entities joined together to promote water protection and other water related issues. Established in 1979 as the first environmental organization in this part of Europe, today the CWPCS has an important role in the education of new generations of water professionals in different fields of water management, e.g. through organisation of practical seminars, workshops and lectures by national and international experts in Croatia.

The CWPCS has always had close cooperation with other national organisations, working towards improving relations, exchange of experience and solving neighbourhood problems.

Members of the CWPCS are actively involved in preparing national legislation and projects related to water protection and water management. They are also

engaged in the work of EWA and participate in the work of EU working groups of CIS of the WFD.

Challenging topics

1. Capacity building of the CWPCS into a self-sustained, professional institution capable of spreading the information, knowledge and competence gained in relation to water policy and implementation of new technologies.
2. Strengthening the cooperation between young experts, scientists and decision makers in Croatian water management.
3. Improvement of sewerage and WWTP operation in Croatia through education of maintenance personnel.
4. Contributing to the development of optimal solutions for WWTP sludge treatment and disposal for Croatia.



The Czech Water Association

Czech Republic

Asociace pro vodu ČR

The Czech Water Association (CzWA)

President

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EWA Council Representative

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Main activities

The CzWA is the association representing Czech specialists and companies working in the fields of wastewater, waste and water management and quality control of surface waters. The main activities of the association cover both technical-scientific subjects and the economic and legal aspects of water environment protection. The association provides consultancy to the state and local authorities and to private subjects. The CzWA organizes professional seminars and conferences on both national and international level and provides training courses on different levels. As an example the EWA-IWA workshop on "History of sanitation and wastewater treatment in large towns" can be mentioned.

Challenging topics

The number of CzWA specialist groups has reached fourteen and the groups cover most of the professional topics in water sector. After prolonged periods of drought in 2014 and especially in 2015 a

new challenge appeared in the Czech water sector, namely, the reuse of treated water connected with wastewater tertiary treatment and disinfection. The CzWA has finished its conversion from initially wastewater association to association of all Czech water professionals and has become an adequate member of international organizations like EWA or IWA.

CzWA wants to continue or to improve the cooperation with water associations in neighbouring countries. CzWA has contract on cooperation with AČE in the Slovak republic, ÖWAV in Austria and DWA in Germany. CzWA has also established good working contacts to MaSzeSz in Hungary. The cooperation with neighbouring association helps to keep the standard of CzWA biennial conferences on high scientific and technical international level. The international contacts of the CzWA makes the association more attractive for young water professionals (YWP) who are now forming a significant fraction among the CzWA individual members.





Denmark

Danish Water Forum (DWF)

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Main activities

Danish Water Forum (DWF) is a network of Danish water organisations aimed at highlighting expertise and knowledge and facilitating concerted actions. The competences and high standards of its members make DWF an excellent entry point to the Danish water sector and its services and expertise within virtually all aspects of water industry, technology, science and management. DWF represents: contractors and manufacturers, water companies and Consultants, research institutions, governmental and other public institutions and NGOs

The unique member blend of RDI, industry, organisations and public bodies gives DWF an integrated knowledge about all aspects of the entire water sector, including issues relating to the environment, agriculture, energy, and health. DWA has 2 main areas of interest, which are 1) RDI and entrepreneurship in the sector and 2) to build partnerships across the sector

to provide sustainable solutions and to build international partnerships through international organisations.

Challenging topics

1. The political focus in the water sector in Denmark is to develop sustainable solutions and technology which at the same time address the various issues in relation to water in Denmark and also can be applied internationally and thereby create growth for Danish companies and the Danish society. DWF supports that political strategy by working together with governmental export entities and with companies and institutions with international ambitions.
2. The global climate changes will have a tremendous impact on specific regions in the world, especially in the poor countries. DWF will work for ensuring that donor organisations draw the climate change into their planning of donor funded projects to ensure "climate-safe" project results.

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Eesti Veeühing
Estonian Water Association

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Main activities

The Estonian Water Association promotes and facilitates evolution of legislation, terminology, education, science and engineering of water management.

It offers opinions on Estonian water management problems, arranges meetings, events and conferences related to water usage, surface and groundwater protection and others water management sectors. Estonian Water Association is an active partner in River Basin Management Planning process. During the recent years numerous public consultations on draft planning documents have been organized in different regions in the country as well as excursions to relevant objects/locations of interest. Traditional events held every year include the Annual Meeting, conference for celebrating the World Water Day, two days excursion in the summer and an autumn seminar.



SUOMEN VESIYHDISTYS RY
 Water Association Finland

Finland
Suomen Vesiyhdistys ry
Water Association Finland

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Main activities

The Water Association Finland is a non-governmental body with some 500 individual members and 20 corporate members, founded in 1969. The purpose of this body is to improve and distribute knowledge and promote professional networking in Finland and abroad.

Purpose of the association is to improve and disseminate knowledge and promote professional networking in Finland and abroad on hydrology, limnology, water ecology, fisheries, water supply, hydraulic engineering, water pollution control and water legislation. The core issues are mostly dealt with by standing committees for History, Wastewater, River basins & fisheries, Water quality, Groundwater and Water supply & sewerage.

Challenging topics

1. The renewed Finnish water legislation.
2. Implementation of the EU Water Framework Directive.
3. Climate change effects on water management and water environment.



France

Association Scientifique et Technique pour l'Eau et l'Environnement association (ASTEE)

("Scientific and Technical Association for Water and Environment")

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Main activities

Since its founding in 1905, the "Association Scientifique et Technique pour l'Eau et l'Environnement (ASTEE)" has been a privileged centre point for the exchange of technical, scientific and administra-

tive information between the various persons and organisations involved in the design, production and operation of urban and rural equipments and infrastructures, with a strong emphasis on environment and hygiene related utilities. Water ecosystems and resources are also addressed in a more global view. The association welcomes all persons and organisations involved: industry, consultants, operators, academics and scientists, technicians and local communities, hygiene specialists, doctors, regulators, government and local community engineers, administrators, managers.

ASTEE handles all the different aspects of urban engineering and rural engineering, in relation to utilities, infrastructures, and natural assets: water, drainage, waste, hygiene, disinfection, urban planning, habitat, traffic, viability, transportation, lighting, urban amenities, cleanliness of public places, atmospheric pollution, noise, hydrology, water supply, corro-

sion, sanitation, urban networks, development plan, surface management etc...

ASTEE's aim is to promote studies and research work for the environment, public hygiene, urban development, rural development; to favour the exchange of ideas and information between all involved parties.

Challenging topics

1. Creation of a workgroup across technical committees for working on performance indicators of water and sanitation utilities
2. Contribution to the preparation of the World Water Forum 2012 in Marseille, over various topics, joining forces with all French water stakeholders and parties to welcome all the participants and visitors
3. Further development of the collaboration with other French water association, in order to work together on key issues



Germany

Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall e. V. German Association for Water, Wastewater and Waste (DWA)

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Executive Director

Bauass. Dipl.-Ing. Johannes Lohaus

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Main activities

The DWA – German Association for Water, Wastewater and Waste – is intensively committed to the development and distribution of a secure and sustainable water management. It acts as a politically and economically independent organisation in the field of water management, sewage, waste and soil protection.

DWA provides professional competence regarding standardisation, professional training and information towards the public. Approximately 14,000 members represent the experts and executives from local authorities, universities, engineering offices, municipalities and enterprises. Main emphasis of its activities is placed on the acquirement and update of a consistent technical set of rules and standards as well as cooperation in the formulation of technical norms on national and international level. Furthermore, DWA also offers professional training as well as further vocational training.

There are not only technical scientific topics involved, but also economic and legal interests of the environment and water protection are concerned.





Hungary

Magyar Szennyvíztechnikai Szövetség (MaSzeSz)

Hungarian Wastewater Association

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Dr. Károly Kovács

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Main activities

The Hungarian Water Association was founded in 1997. The Association has around 300 individual, institutional and company members. The members are mostly designers, operators, experts, students and professors from different institutions, universities and business entities dealing with municipal water and river basin management.

The main activities and objectives of the Association are:

- Support technical and scientific cooperation between members
- Provide practical, technical and scientific information towards members, municipalities and authorities
- Support and integrate young scientists
- Cooperate with the government on development of regulations

- Cooperate with other civil local and international organisations in water related questions
- Organising national and international conferences
- Develop, edit, distribute, and provide educational services for technical and cost comparison guidelines

Challenging topics

1. Strengthen the cooperation with decision makers on the public water sector
2. Strengthen the communication towards civil players on the water sector
3. Strengthen the exchange of experiences between regions and neighbouring associations
4. Support the integration of the Hungarian water sector into the international professional network



Latvia

Latvian Water and Waste Water Works Association (LŪKA)

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Main activities

The Latvian Water and Wastewater Works Association is a non-profit organization which unites 27 utilities and 8 associated members- companies working within the field of water and wastewater management- pipes and fittings construction, design of technological solutions and consulting.

Association was founded on the 24th of May, 1990 and will celebrate 25 years anniversary on 2015. The abbreviation of the association LŪKA in Latvian phonetically means "a manhole cover" and for waterworks specialists this means protection and cover.

Main goal for association and its members are to provide good quality water supply and sewerage services for the best interests of the society of Latvia. As well as association represents its members as a united body in the state and administrative institutions, and in other organizations as well as shares amongst its

members the information, acquired from these institutions and organizations.

During the last 10 years, for the modernization of Latvia's water management systems, huge financial, work and knowledge resources have been invested. This unique experience could serve as a good example for municipalities and businessmen of other countries, who are at an initial stage of similar investment projects. As a basis for sharing of experience for Baltic countries, association together with Estonia and Lithuania every year organizes Baltic water works conference.

Future challenges relates to overall water management policy in Latvia, sludge management and technical regulations for construction of water and wastewater infrastructure.



Lithuania

Clean Water Association (CWA)

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Mr. Vidas Bonkys

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Main activities

The Clean Water Association (CWA) is a non-governmental environmental organization founded on May 31, 1996. The CWA's mission is the reduction of pollution of surface and ground water.

The main goals are:

- Environmental education aimed at the formation of an understanding by the population of the problems regarding water resources.
- The improvement of the design, construction, operation, and maintenance of facilities for the prevention of pollution of water bodies, primarily, of the plants for the treatment of the wastewater.
- The rise of professional qualification of specialists and organizations working in the field of water pollution control.

- The quest for and support of the right and effective governmental strategies and policy in the sphere of protection of water bodies.
- The assistance in the creation and development of the production of technological equipment for the treatment of wastewater in Lithuania.
- The build-up and strengthening of the ties of Lithuania's environmentalists with the counterpart organizations, associations, and specialists of other countries.
- The support for the global efforts aimed at the protection of water against pollution.



Luxembourg

Association Luxembourgeoise des Services d'Eau (ALUSEAU)

Luxembourg Association of Water Services

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EWA Council Representative

Raymond Erpelding

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Main activities

ALUSEAU is the national association of water services in the Grand-Duchy of Luxembourg, regrouping members of the drinking water sector, the wastewater sector and other public actors active in water management. ALUSEAU is a politically independent and non-profit making association. The main objectives of the association are to promote the common interests of all authorities and public services dealing with water management. To that effect ALUSEAU aims at advocating the study of all scientific, technical, economic and administrative problems relating to drinking water supply and sewage collection and treatment, promoting a suitable management of the water resources of the country. ALUSEAU is also representing its members in international associations dealing with the same objectives just described.

The core business of the association is to:

- Keep contact between the different water services
- Keep contact with the national authorities
- Being involved in the outworking of national directives

Challenging topics

1. The European water framework directive was transposed in 2008 into national legislation. ALUSEAU helps the national authorities to transpose and implement the new water law and to introduce the cost recovery principle in water pricing.
2. In 2014 starts the second cycle of the elaboration of the Management Programs (2016-2021) regarding the Water Framework Directive. ALUSEAU will be strongly involved in the different working groups organised by the National Water Administration.



Norway

Norsk Vannforening Norwegian Water Association (NWA)

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Main activities

The Norwegian Water Association (NWA) is an independent non-governmental and non-profit organisation dealing with the management and improvement of the water environment. The NWA provides a forum for discussion of key technical, scientific and policy issues on water covering both water resources and water quality. Through this exchange of knowledge, the NWA significantly contributes to sustainable water management in Norway. The NWA has about 900 individual and 450 corporate members.

The implementation of the Water Framework Directive in Norway is one of the core activities. Furthermore, Water Quality Issues, Watercourses and Coastal Areas, Aquatic Ecosystems and Biodiversity, Water Quality Monitoring, Water Supply and Health Effects, Sanitation, Impacts of Hydropower Development, Effects of Long-transported Airborne Pollutants, Effects and Adaptation of Climate Changes

are activities which are just as important to the NWA.

Challenging topics

1. Continuing the development of the administrative and organisational capacity of the association.
2. Establish new regional committees in order to spread the activities of the association in the major regions of Norway.
3. Recruiting new members by information and more visibility of the association.



Portugal

Associação Portuguesa de Engenharia Sanitária e Ambiental (APESB)

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Main activities

The Portuguese Association for Sanitary and Environmental Engineering (APESB) is a non-profit, scientific and technical association, founded in 1980, for an indefinite period of time, recognised as a corporate body of public interest since March 1990.

APESB has the following objectives:

- To be a national body especially oriented to the study, analysis and discussion of aspects related with water supply, drainage, treatment and final disposal of wastewater and the collection, treatment and final disposal of solid waste, in order to contribute to the implementation of better, feasible and sustainable solutions.
- To foster the technical and scientific exchange, including technology transfer and training, in the fields of water supply, drainage and treatment of wastewater as well as solid waste, at the national level and in the Portuguese-speaking countries.

- To contribute to the scientific and technological development of subjects related to water supply, drainage, treatment and final disposal of wastewater and collection, treatment and final disposal of solid waste.

Furthermore APESB has the following core activities:

- Water Treatment and Supply
- Wastewater Systems
- Water quality and pollution control
- Solid waste (collection, treatment and disposal)
- Health related subjects

Challenging topics for the future

- Health related topics
- Climate changes and water and wastewater systems
- Water reuse



Romania

Romanian Water Association (RWA)

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Prime Vicepresident

Ilie VLAICU

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Main activities:

Romanian Water Association is a professional, non-profit and an employers association, established in 1995, with the following main objectives:

- To represent and to promote the interest of it's members
- To support the capacity development at the level of the Romanian water sector
- To improve the quality of the water services in Romania to meet the EU requirements
- To improve the quality of life and environment by providing water supply and sewerage services of better quality

Challenging topics:

- Ensuring access to water services at EU standards for the entire population of Romania
- Implementation of large investment programmes at the level of regional water operators
- Implementation of the benchmarking systems and assurance of its sustainability at the regional water utilities level
- Sludge management
- Reduce water losses
- Improve the capacity of the regional water utilities by training programmes and transfer of know-how



Serbia

Serbian Water Pollution Control Society (SWPCS)

President

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Executive Secretary

Mr. Aleksandar Djukić

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Activities

Serbian Water Pollution Control Society (SWPCS) is a non-profit independent organisation of experts in water sector which was established in 1966. The main objective of the Society is to create and foster the network of leading water professionals through the provision of services and products to the members, including conferences, publications and support for member groups. In addition, to represent the views of members in the national and international forums aimed at advancing best practice in the sustainable water management.

Challenging topics

1. Provide expert's opinion on new legislation and policies.
2. Provide specific training on critical issues in the water sector (implementation of WFD, water resource management, wastewater and sludge management, diffuse pollution, etc.).
3. Strengthen the cooperation of water related NGOs in Serbia and in the region.





Slovak Republic

Asociácia čistiarenských expertov SR (AČE SR)

Association of the Wastewater Treatment Experts of the Slovak Republic

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Main activities

AČE SR is the Slovak membership association which groups professionals acting in the fields of wastewater management and water protection. AČE SR covers all aspects of wastewater pollution control, collection, treatment and disposal; promote exchange of the latest skills, techniques and knowledge on all aspects of wastewater, water and sludge management. The mission is to enable the improvement of groundwater and surface water quality in an environmentally sustainable way. AČE SR disseminates the knowledge by means of conferences, workshops, specialized meetings, publications, electronic media and expert services.

Challenging topics

1. Wastewater and water management, water protection
2. Sludge management
3. Exchange of information and experience



**SLOVENSKO DRUŠTVO
ZA ZAŠČITO VODA**

Slovenia

Slovensko Društvo Za Zaščito Voda (SDZV)

Slovenian Water Pollution Control Association

President

Meta Levstek

Secretary

Mojca Vrbančič

EWA Council Representative

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Activities

The purpose of the Association is to associate societies and individuals working in water and wastewater management, especially regarding quality issues. The main activities in this sector are to act in water pollution control, drinking and wastewater treatment; to develop consciousness of the importance of water preservation; to follow, study and work on water preservation and its uses, supplies of potable water, and dealing with used and waste waters; to inform and educate: professional, scientific and other public institutions by publications, lectures, meetings, sharing of experiences, excursions, by courses and similar activities and achievements in the field of water control; cooperation with similar local, foreign and international societies and organisations.

Challenging topics

1. The establishment of new Working Groups
2. Cooperation with administrative bodies on drinking water, wastewater treatment and excess sludge treatment
3. Attendance and participation at Slovenian annual conference "Water Days"
4. Cooperation with national and international bodies, associations and individuals on the water protection issues



Spain

Asociación para la defensa de la calidad de las aguas (ADECAGUA) Association for Water Quality Protection

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EWA Council Representative

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Benito Reig

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Activities

ADECAGUA is a non-profit educational and technical association that is economically and politically independent of water quality experts. ADECAGUA is currently the Spanish member of the Water Environment Federation.

ADECAGUA has more than 300 members that are working with private or public companies, engineering firms, universities, consulting firms etc., but the association has mostly private members.

ADECAGUA develops and disseminates information concerning the different areas of water treatments and nature and also collaborates with two specialised journals in Spain. ADECAGUA regularly organises technical seminars and meetings that are announced on its webpage: <http://www.adecagua.es> where you can find all our news related to this fantastic world: the water.



Switzerland

Verband Schweizer Abwasser- und Gewässerschutzfachleute (VSA) Swiss Water Association

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Executive Director

Stefan Hasler

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Activities

The VSA is the association representing Swiss specialists working in the fields of wastewater and water pollution control management. The main activities of the association cover technical, scientific, economic and legal aspects of water pollution control. The politically and economically independent association operates on a national level.

Central tasks of the association are the preparation and updating of technical standards and guidelines and professional training of members and staffs of sewage treatment plants

Challenging topics

- Micro pollutants
- Flood control and rehabilitation
- Management of infrastructure
- River basin management



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Description

Messe München International is one of the world's leading trade-fair companies. In Munich alone it organizes around 40 trade fairs for capital and consumer goods, and key high-tech industries. Each year more than 30,000 exhibitors and around two million visitors take part in the events held at Messe München, the ICM – Internationales Congress Center München and the MOC Veranstaltungszentrum München. The leading international trade fairs of Messe München International are all FKM-certified, i.e. exhibitor and visitor numbers and the figures for exhibition space are collected in line with agreed standards and inde-

Messe München GmbH

pendently audited. In addition, Messe München International organizes trade fairs in Asia, Russia, the Middle East and South America. With six subsidiaries in Europe and Asia and more than 60 foreign representatives actively serving over 90 countries, Messe München International has a worldwide business network. The Group also takes a pioneering role as regards sustainability: It is the first trade-fair company to be awarded energy-efficiency certification from the technical inspection authorities TÜV SÜD.

IFAT, the world's most important trade show for innovations and services in water, sewage, waste and raw materials management, takes place from May 5 to 9, 2014 in Munich. The last event attracted 2,939 exhibitors from 54 countries and 124,200 visitors from 182 countries. After two shows under the name IFAT ENTSORGA, the show is returning to its original name of IFAT.

Already after the registration deadline at the end of April 2013, it is clear that IFAT will once again fill all 16 halls of the Messe München trade fair center as well as an even larger portion of the outdoor exhibition site. The share of exhibitors returning to the fair is more than 90 percent. In addition, demand for space is also very high. Due to the positive response to the last exhibition, IFAT appears to be more attractive than ever, and a number of new companies also want to showcase themselves at the next IFAT.

Besides the already extensive supporting program and the Open German Championship in Wastewater Engineering (organized by the DWA), IFAT 2014 will feature several premieres like a live demonstration area for recycling of building materials and a live demonstration area for recycling of car parts as well as the new set up platform "intelligent urbanization".

Further information are available at www.ifat.de.



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Xylem Inc.

Description

Xylem (NYSE: XYL) is a leading global water technology provider, enabling customers to transport, treat, test and efficiently use water in public utility, residential and commercial building services, industrial and agricultural settings. The Company does business in more than 150 countries through a number of market-leading product brands, including Flygt, Godwin, Wedeco, Sanitaire, Lowara, WTW, Lowara and more. Its 12,500 employees worldwide bring broad applications expertise with a strong focus on identifying local solutions to the world's most challenging water and wastewater problems. Xylem is headquartered in Rye Brook, New York, with 2014 revenues of US\$3.9 billion. Xylem was named to the Dow Jones Sustainability Index for the last four years for advancing sustainable

business practices and solutions worldwide and the Company has satisfied the requirements to be a constituent of the FT-SE4Good Index Series each year since 2013.

The name Xylem is derived from classical Greek and is the tissue that transports water in plants, highlighting the engineering efficiency of our water-centric business by linking it with the best water transportation of all – that which occurs in nature. For more information, please visit us at www.xylem.com.



Aquademica Foundation

Aquademica Foundation

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Description

Aquademica is a non-profit organization in Romania active in the environmental, water and waste water sector. The Romanian-German Foundation Aquademica was established in March 2009 by Aquatim, the regional water and wastewater operator in Timis county/Romania, and the Municipality of Munich (Waste Water Department). Being an information and knowledge center, the Foundation promotes professional development in the environmental field and offers itself as a networking platform supporting specialists, professional organizations and companies. It also offers services aimed at providing sustainable solutions and excellence in the water and waste water sector such as: studies and surveys, environmental, economic and engineering expertise, cost comparison calculations, feasibility studies, consultancy and design.

Main advantages of Aquademica are national and international networking with universities, regional water and waste water operators as well as governmental bodies, and the transfer of good practices, already validated and acknowledged by our German partners. Pilot stations, donated by our German members, can be used for simulations of the existing technologies to be optimized, or for modelation of new technologies to be implemented.

Seminars and workshops promoted by Aquademica include theoretical support and practical simulations on the pilot stations. They can take place in any location in Romania or Germany and will be scheduled and organized in accordance with the trainees' needs and availability of the lecturer. The transfer of the German know-how is done directly by the German specialists or by using knowledge multipliers.



Aquatech's Global Events Amsterdam RAI

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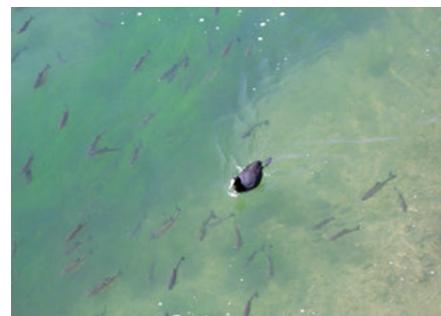
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Aquatech

Description

Aquatech Global Events, established in 1964, organises the world's leading trade events on process, drinking and waste water technology in Europe, the USA, China and Mexico. The well-established format covers the following segments: Transport and Storage, Water & Waste Water Treatment, Point of Use, Process Control Technology & Process Automation. Aquatech Global Events are visited by professionals from all parts of the water industry and attract policy-makers, top-level businesses, specialists, and those who apply the technology in practice.

More information can be found at www.aquatechtrade.com, the B2B portal for the water industry with an online buyers guide, list of companies.





Association of Environmental Enterprises (KSZGYSZ)

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Association of Environmental Enterprises (KSZGYSZ)

Description

The Association of Environmental Enterprises (KSZGYSZ) is a non-profit organization, a professional business federation of the Hungarian environmental industry. The aim of the Association is to expand the information flow toward the environmental companies.

The Association has now 250 member companies and institutions covering all environmental sectors, like water, waste, clean air, noise management and remediation as well.

The Association develops services to provide information on the environmental industry by Internet databases, year-books of companies, organizes the international exhibition: ÖKOINDUSRTIA, national and international conferences mainly about water treatment and waste management. The Association provides information packages about the Euro-

pean environmental law and partnership and promotes the members international activities as well.

Examples of profiles and technologies of the members of the Association in water treatment:

- Drinking and waste water technology
- Sewage sludge treatment, optimization for waste water treatment plant
- Complex projects in water management and environmental protection,
- Water loss detection, water network monitoring systems, identify and repair of hidden leaks
- „No-dig” inspection, cleaning and of pipelines
- Effective oil elimination from water surface, oil separation for rain water



Emschergenossenschaft and Lippeverband

Emschergenossenschaft and Lippeverband

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www.lippeverband.de

Description

The Emschergenossenschaft and Lippeverband is a water company for the catchment area of the Emscher River and the Lippe River and its tributaries. Emschergenossenschaft and Lippeverband is the largest Association for the disposal of wastewater in Germany.

Emschergenossenschaft and Lippeverband is a non-profit company in the form of a self-managed corporation under public law, controlled by its members.

The Emschergenossenschaft and Lippeverband constructs and operates wastewater treatment plants, pumping stations, dikes, sewers and rain reservoirs and maintains the bodies of water in its catchment area. The Association coordinates plans closely with its members. River Basin Management as required by the EU Water Framework Directive has already been implemented on the Emscher and the Lippe rivers.



**Endress+Hauser Messtechnik
GmbH+Co. KG**

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Main activities

Endress+Hauser is a global leader in measurement instrumentation and solutions for industrial process engineering. With over 10,000 employees worldwide, the Group generates annual net sales of 1.7 billion euros.

Company-owned sales centers and a network of partners guarantee competent worldwide support. Production centers in eleven countries meet customers' needs and requirements quickly and effectively. As a successful family-owned business, Endress+Hauser is set for continued independence and self-reliance in the future.

Endress+Hauser provides sensors, instruments, systems and services for level, flow, pressure and temperature measurement as well as liquid analysis and data acquisition. The company supports customers with solutions and services in automation engineering, logistics and information technology. Our products set standards in quality and technology.

Customers are primarily from the chemical/petrochemical, food & beverage, water/wastewater, life science, oil & gas, power & energy, renewable energies, primaries & metal, pulp & paper and shipbuilding industries. Endress+Hauser support its customers to optimize their process procedures while taking into consideration reliability, safety, economic efficiency and environmental protection.


Erftverband
Erftverband

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Description

The Erftverband is a non-profit organization under public law, with a focus on a healthy environment and the common good. The organisation is financed through the fees paid by its 250 members. The Erftverband and its 500 employees reconcile the different water-related interests of the regional players in a responsible and sustainable manner and with a sense of proportion. The core region in which the Erftverband operates is the 1,920 km² catchment area of the river Erft. The catchment contains numerous tributaries and bodies of water along with the 107 km long river. Here the organisation purifies the domestic sewage produced by approximately 750,000 residents as well as the sewage generated by local trade and industry, which is equivalent to a waste load produced by another 450,000 people. Moreover, the Erftverband looks after a fragile natural

region and protects the residential areas from flooding.

However, the reach of the organisation goes far beyond the Erft watershed. The entire area of activity comprises over 4,220 km², covering the region affected by the brown coal mines of the Rhineland. The Erftverband monitors the complex relationships involving water supply and distribution, oversees groundwater resources, ensures the water supply and protects the numerous wetlands.



Gesellschaft zur Förderung der Abwassertechnik e. V. (GFA) (Organisation for the Advancement of Wastewater Technology)

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www.dwa.de

Description

GFA is a service company for the German Association for Water Management, Wastewater and Waste (DWA). It publishes the journals of DWA: monthly KA – Abwasser, Abfall (KA – Wastewater, Waste), KW – Wasserwirtschaft (KW – Water Management) and every three months KA-Betriebs-Info (KA – Info for Operators). In addition, GFA publishes the DWA – Industry Guide (DWA-Branchenführer), a directory of companies in the environmental industries, focussing on water and waste. GFA cooperates, on behalf of DWA, with important trade exhibitions concerning water and waste.



HACH LANGE GmbH

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Description

HACH is a leader in water analysis. For more than 80 years, HACH and Dr. Lange have developed innovative solutions used to test the quality of water for municipal and industrial customers. HACH supplies tailor-made solutions for reliably monitoring wastewater, drinking water and industrial process water.

In Europe the company history dates back to Berlin 1933 when Dr. Bruno Lange set up the company. Inventions such as the photometer and later on cuvette tests have revolutionized the field of analysis. HACH LANGE was born in 2004 when Dr. Bruno Lange joined forces with HACH, an American company specializing in electro and photochemistry.

HACH has research and production facilities in Germany, France, Switzerland, the USA and China. The company employs thousands of people across its subsidiaries in 25 European countries and worldwide. The European Headquarters are located in Berlin and Düsseldorf, Germany.

Manufactured and distributed worldwide, HACH systems are designed to simplify analysis by offering sophisticated on-line instrumentation, accurate field and laboratory equipment, high-quality prepared reagents, complete easy-to-follow methods, and life-time technical support. Special optimization solutions for water treatment facilities guarantee stable and most effective treatment processes.



Hungarian Water Cluster

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The founding objective of the Hungarian Water Cluster (established in 2008) was to bring together Hungarian water professionals and companies from the different areas of water industry to cooperate in foreign markets. The Cluster offers efficient, but affordable technologies and world-class expertise in the following water segments:

- WATER TREATMENT/WATER PURIFICATION
 - Water services
 - Network-operation
 - Mobile water purification
- WATER LOSS, NETWORK LOSS REDUCTION

- WATER AND DRAINAGE SYSTEMS
 - Trenchless technologies
- MUNICIPAL AND INDUSTRIAL WASTEWATER TREATMENT
- RAINWATER TREATMENT
- WATER PROSPECTING - WELL DRILLING
- WATER BOTTLING
- FLOOD PREVENTION
 - Disaster recovery
- RESEARCH AND DEVELOPMENT

The members of the Cluster have decisive role in the leadership of the Hungarian (Hungarian Water Association, Hungarian Water Utility Association), and the international (EWA, ASEMWater) professional organizations. Our members are regular participants of the professionals' delegations accompanying the international meetings of the Hungarian Government.



IDEXX Laboratories, Inc.

IDEXX Laboratories, Inc.

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Description

IDEXX Laboratories, Inc. is a leader in pet healthcare innovation, serving practicing veterinarians around the world with a broad range of diagnostic and information technology-based products and services. IDEXX products enhance the ability of veterinarians to provide advanced medical care, improve staff efficiency and to build more economically successful practices. IDEXX is also a worldwide leader in providing livestock and poultry diagnostic tests and tests for the quality and safety of water and milk. Headquartered in Maine, IDEXX Laboratories employs more than 6,000 people and offers products to customers in more than 175 countries.

About IDEXX Water

IDEXX Water is a global provider of water testing solutions that deliver easy, rapid, accurate and cost-effective information on water quality to laboratories and public utilities around the world. IDEXX entered the water testing market in 1993 with Colilert®, now one of the most frequently used testing methods for the detection of coliforms and E. coli in water worldwide. More recently, IDEXX launched Pseudalert® for 24-hour detection of *Pseudomonas aeruginosa* in hospital water systems, pools, spas and bottled water. The Pseudalert® Test detects *P. aeruginosa* quickly to help safeguard against infections in sensitive populations. For more information, visit idexx.com/water® Registered trademark of IDEXX Laboratories

KOCKS INGENIEURE

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Kocks Consult GmbH

Description

KOCKS CONSULT GMBH is an independent company of planners and consultants established in 1946 by Friedrich Kocks, Dr. Ing., Dr. Ing. h.c. The company employs 200 engineers, architects, planners and environmental experts, collaborating to offer clients a wide range of services. Including KOCKS CONSULT's affiliated companies, there are 500 employees ready to tackle even the most complex tasks.

The range of services offered by KOCKS includes studies and surveys, ecological, economic and engineering expertise, cost and quantity calculations as well as feasibility studies, preliminary and final design. After successful conclusion of the actual planning work, KOCKS ENGINEERS draw up the necessary tender documents, carry out bid evaluations and supervise construction works and equipment installation. If required, KOCKS

ENGINEERS provide project management including the financial transactions involved in it. KOCKS CONSULT GMBH also offers technical consultancy during the commissioning phase as well as training services for the client's staff in operating and maintenance.

Over the last 65 years, KOCKS ENGINEERS have been successful in accomplishing a great number of projects and thus gaining experience in various areas, such as Water, Environment, Civil Engineering, Transport and Training. KOCKS ENGINEERS and its associates operate in more than 20 offices all over the world.

Messe Berlin

Wasser Berlin International

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Description

Wasser Berlin International is Germany's specialized, international trade fair for water and waste water.

Wasser Berlin International is the only trade fair that presents the entire water cycle and offers products and services from all areas of the water industry. The high-profile congress and supporting programme with exhibition-related symposia is integrated into the exhibition halls and creates a logical link between theory and practice. The parallel hosted

Wasser Berlin International

interactive public show WASSERLEBEN is geared towards the younger generation, who can learn more about theme of water as a resource.

Wasser Berlin International, the trade fair for water and waste water management is organized every two years by Messe Berlin. Berlin's central European location, especially its proximity to the growing eastern European market, offers exhibitors and trade visitors an effective and potentially very successful perspective. The next international trade fair and congress for Water Management will be taking place in Berlin on March 28 - 31, 2017.



Product Groups of Wasser Berlin International

- Water extraction
- Water treatment
- Water distribution
- Wastewater transport
- Sewage & waste water treatment
- Construction services/NO DIG
- Flood Management Berlin, Flood Protection
- IT Services
- Quality assurance/science/research
- Industrial water use
- Energy production
- Energy efficiency/Measuring, Regulating & Analysis Technology

Figures of Wasser Berlin International 2015:

Exhibitors: 557 from 26 countries
Trade visitors: 22,686
Gross exhibition area: 36,000 m²



Steinzeug-Keramo

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Description

Steinzeug-Keramo is Europe's largest manufacturer of vitrified clay pipes and fittings for sewer systems. It has production sites in 2 different countries (Germany and Belgium) on 3 different places (Frechen, Bad Schmiedeberg and Hasselt).

Since 2010, Steinzeug-Keramo is a subsidiary of the Wienerberger group, the world's biggest manufacturer of bricks and tiles. Steinzeug-Keramo has a workforce of roughly 530 employees and is active on multiple markets, such as Europe, the Middle and Far East, overseas, ...

At all manufacturing sites, production runs continuously, 24 hours a day, ensuring thus a worldwide distribution of top-quality, high-performance vitrified clay pipes and fittings. By implementing the latest processes and technology,

Steinzeug-Keramo complies with the requirements – such as the European EN 295 and ZP WN 295 norms – for manufacturing eco-friendly, sustainable products. Furthermore, Steinzeug-Keramo products are Cradle-to-Cradle® certified, implying that they are 100 percent recyclable.

Through its competent personnel, Steinzeug-Keramo offers proficient advice and construction advisory services worldwide.



Politecnico di Torino

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Politecnico di Torino

Description

The Politecnico di Torino (www.polito.it), descending from the Technical School for Engineers born in 1859, was founded in 1906. It is a centre of teaching and research excellence, and one of the most important universities in Europe for architecture and engineering studies, strongly committed to collaboration with industry. Politecnico di Torino offers diversified teaching: from Aerospace Engineering to Telecommunications, from Biomedics to Mechatronics, Environmental Engineering, Industrial Design, Automotive Engineering and Engineering for Cinema and Media Engineering, and a wide range of courses and specialization programs. Distance-learning programs are also available.

The internationalisation is one of the main aims of Politecnico. Over 89 international agreements allow students to obtain double degrees, and 2,000 foreign students per year are enrolled in different schools in the university, including PhD students. Six collaboration agreements with Chinese universities have recently been signed, and in the new buildings of the Tongji University of Shanghai (www.tongji.edu.cn) the Sino-Italian Campus has been inaugurated. New agreements have already been planned especially with Indian universities in the ICT sector.

UNIE VAN WATERSCHAPPEN

Unie van Waterschappen (UvW)

Unie van Waterschappen (UvW)

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Description

The Unie van Waterschappen represents the interests of 23 water authorities (Waterschappen in Dutch). The water authorities are decentralised functional governments, responsible for regional water management (quantitative and qualitative), flood defence and waste water treatment.

Challenging topics for the future:

1. Facing the challenges of climate change with regard to regional water management.
2. Financing Integrated Water Resource Management.
3. Further strengthening the position of the Unie van Waterschappen Europe by Influencing relevant European legislation.



Vewin

Association of Dutch Water Companies (Vewin)

Association of Dutch Water Companies (Vewin)

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Description

Vewin is the national association representing Dutch water supply companies. Back in 1952 it was founded; more than 200 water supply companies were active in the Netherlands. Today there are 10, which is a change that has altered the association's essential task. Vewin focuses primarily on representing the interests of its members in The Hague and Brussels by creating an environment in which members are able to optimally achieve their objectives.





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WILO SE

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Description

WILO SE – Ideas with the power to change the world

Globalisation, Urbanisation, Climate Change, Water Shortages, Technological Process & Energy Shortages:

These Megatrends play an important role in global progress.

The strength of Wilo is to understand markets in their multi-tiered overall context, which drives us to develop our intelligent solutions to move water.

As one of the world's leading innovators and manufacturers of pumps and pump systems, we face the challenges of the future.



WUPPERVERBAND
für Wasser, Mensch und Umwelt

Wupperverband

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Wupperverband

Description

Being one of Germany's longest-serving water management corporations, the Wupperverband manages the catchment area of the river Wupper with respect to all water-management tasks since 1930. The catchment area comprises an area of 813 square kilometres with about 2300 kilometres of rivers and streams. More than 900000 inhabitants live in this area.

The Wupperverband is a corporation under public law. Its statutory tasks are sewage treatment and waste disposal, operation of dams to control the water flow in the River Wupper and other rivers, provision of drinking and process water, maintenance and restoration of the rivers and streams. The Wupperverband runs 11 sewage treatment plants, 56 kilometres of sewers, 71 storm-water



tanks and sewage pumping stations and 14 dams.

The members of the Wupperverband are the cities and district towns, water supply companies and other companies in the catchment area.



Cooperation Organisations



International Committee on Large Dams (ICOLD)

European Club

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ICOLD – International Commission on Large Dams European Club

The International Commission on Large Dams (ICOLD) is a non-governmental International Organization which provides a forum for the exchange of knowledge and experience in dam engineering.

The Organization leads the profession in ensuring that dams are built safely, efficiently, economically, and without detrimental effects on the environment. Its original aim was to encourage advances in the planning, design, construction, operation, and maintenance of large dams and their associated civil works, by collecting and disseminating relevant information and by studying related technical questions.

Since the late sixties, focus was put on subjects of current concern such as dam safety, monitoring of performance, reanalysis of older dams and spillways, effects of ageing and environmental impact. More recently, new subjects include cost studies at the planning and

construction stages, harnessing international rivers, information for the public at large, and financing.

ICOLD leads the profession in **setting standards and guidelines** to ensure that dams are built and operated safely, efficiently, economically, and are environmentally sustainable and socially equitable.

ICOLD wishes to be the world's leading professional organization, dedicated to advancing the art and science of dam engineering and promoting the wise and sustainable development and management of world's water and hydropower resources.



International
Water Association

International Water Association (IWA)

International Water Association (IWA)

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Executive Director

Dr. Ger Bergkamp

President

Glen Daigger

Formed in 1999 following the merger of the International Water Supply Association (IWSA) and the International Water Quality Association (IAWQ), today, IWA is the global reference for water professionals, spanning the continuum between research and practice and covering all facets of the water cycle. As a member driven organization with 10000 individual and over 500 corporate members worldwide, IWA is in a better position than any other organization to help water professionals find innovative, pragmatic and sustainable solutions to challenging global water needs. Through its network of members and experts in research, practice, regulation, consulting and manufacturing, IWA can create expanded knowledge and integrated solutions to meet these needs. Membership to IWA provides water professionals with a forum for collaboration across the boundaries of specialties, professionals and different parts of the world.

IWA seeks to be:

- The premier international network of water professionals drawing members from all disciplines in water science & practice
- An international authority on sustainability in the water sector, promoting innovation and best practice
- A highly valued partner to those organizations dedicated to achieving effective water management
- Provider of global leadership capable of meeting the dual challenges of environmentally sustainable water provision and the development of the plant.

Japan Sewage Works Association (JSWA)

Japan Sewage Works Association

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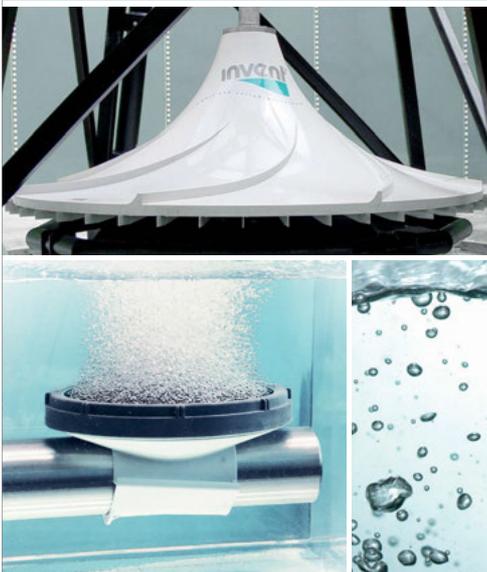
Starting in the latter half of the 1950s, rapid growth of industrial economy led to such social problems as aggravation of the living environment and water pollution in public water bodies. This was the situation when the Sewerage Division of the Japan Water Service Association and the National Sewage Works Development Conference were integrated to form the Japan Sewage Works Association in April 1964. JSWA got permission to establish itself as a public interest corporation in January 1965 and began full-scale activities with public organisations as regular members.

The Association's objectives are to develop sewerage services soundly, while conducting research on sewerage systems, and to preserve a network public water bodies for the improvement of people's lives. As a network organisation of bodies involved in sewage works, JSWA carries out a wide range of activities to promote development of sewage works, and fa-

ilitates communication and cooperation between public organisations implementing and planning sewage works on the one hand, and National government, related organisations, enterprises and civic groups on the other.

JSWA has 1,509 organisations implementing or planning sewage works as regular members, 54 as associate members, 1,052 enterprises as supporting members, 435 as individual members and 8 honorary members, for a total of 3,058 organisations and individuals as of January 1, 2012.

INNOVATION FOR NATURE



THE INVENT SYSTEM SOLUTION

Mechanical engineering components which have been carefully dimensioned and are optimally compatible, result in a safe and efficient plant, an **INVENT** System Solution.

In such cases, **INVENT** takes over total responsibility for the complete plant layout, the basic and detailed engineering, project management, supply and installation, commissioning, training of the plant staff and maintenance of the plant.



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WATER AND WASTEWATER TREATMENT

Mixers | Mixing and Aeration Systems
Membrane Aeration Systems
Software Products | **System Solutions**

invent[®]
umwelt und verfahrenstechnik



The European Water Platform

The European Technology Platform for Water

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Director:
Durk Krol

President:
Tomas Michel

The European Technology Platform for Water

WssTP is the European Technology Platform for Water. It is the recognized voice and persistent, neutral stimulator of the European water sector on RTD and innovation. WssTP strives to increase coordination and collaboration on water-related challenges, and to increase the competitiveness of the water and allied sectors primarily in Europe. WssTP uniquely represents the full diversity of the water value chain including industry, research, utilities, technology providers, and water users.



Water Environment Federation (WEF)

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Founded in 1928, the Water Environment Federation (WEF) is a not-for-profit technical and educational organization of 33,000 individual members and 75 affiliated Member Associations representing water quality professionals around the world. WEF members, Member Associations, and staff proudly work to achieve our mission to provide bold leadership, champion innovation, connect water professionals, and leverage knowledge to support clean and safe water worldwide.

WEF and its global network of members and Member Associations (MAs) provide water quality professionals around the world with the latest in water quality education, training, and business opportunities. WEF's diverse membership includes scientists, engineers, regulators, academics, utility managers, plant operators, and other professionals. WEF uses this collective knowledge to further

a shared goal of improving water quality around the world.

Together, WEF and its members work toward fulfilling three critical objectives:

- Drive innovation in the water sector
- Enrich the expertise of global water professionals
- Increase awareness of the value of water

CLIMATE CHANGE CAN NOT BE STOPPED WATER IS BECOMING A THREAT



Where are the water managers
of the future? **They meet**
IN MARCH 2017 in Berlin!



**WASSER BERLIN
INTERNATIONAL**

Trade Fair and Congress
for Water Management

28–31 March 2017

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