IWRA Update
Newsletter of the International Water Resources Association

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Contents

Dear IWRA friends

It is my pleasure to share with you the latest activities of our Association.

During the last three months, the IWRA has maintained an important presence in relevant international fora. These have included the World Water Week at Stockholm; the Third World Climate Conference for the Development of a Global Framework for Climate Services organised by the World Meteorological Organisation in Geneva; the International Workshop on Water Demand Management in Beijing; and the Third International Forum on Water Resources and Sustainable Development in Wuhan.

During this period, I had the pleasure of meeting with distinguished members of our Association. In August in Montpellier I discussed several tangible possibilities for

collaboration with Dr. Pierre Chevallier, Director, Languedoc Research Institute for Water and Environment, and with representatives of Verseau Développement and the newly established Water Cluster in Montpellier.

In early September, I met with Mr. V. K. Kanjlia, Member Secretary of the Indian Geographical Committee of IWRA and Honorary Director of our Association, as well as with other distinguished members of the IWRA Indian Geographical Committee, in the headquarters of the Central Board of Irrigation and Power (CBIP) in New Delhi, where the Indian Committee of IWRA is hosted. This meeting gave us the opportunity to share our views on ways to further improve the operation of our Association, and try to attract more national members by developing more activities and give the IWRA more visibility in India. We hope this will contribute to more tangible ways of cooperation between the IWRA and the CBIP. The visit to New Delhi also gave me the opportunity to discuss future collaborations between our two institutions with Mr. Gopalakrishnan, Secretary General of the International Commission on Irrigation and Drainage, building on the decades-long partnership,between the IWRA and the ICID.

Later that month, during the International Workshop on Water Demand Management in Beijing, I had the opportunity to meet with Prof. Yuanyuan Li, Chair of the Chinese Committee of IWRA, as well as with Prof. Xia Jun, who is the sole candidate for the next IWRA President. The largest group of members of IWRA is now in Asia, with a large representation from China, reflecting the rapid advance of this region in world affairs.

Following the above meeting, during the International Conference on Water Resources and Sustainable Development organised in Wuhan, I had the privilege to meet with many other Chinese members of IWRA, as well as with Dr. Nobuyuki Tamai, President of the International Association of Hydraulic Engineering and Research (IAHR). We extended to Dr. Tamai a most cordial invitation to participate in the international conference IWRA is organising through its Japanese Committee on "Integrated River Basin Management in Asian Monsoon Region", in Tokyo during 14 and 15 December. We hope this will be the stepping stone for future exchanges with IAHR.

Switching to internal IWRA matters, I would like to take this opportunity to thank the Water Institute of Southern Africa (WISA) in Midrand for the support it has given to the IWRA for the past two years. The IWRA would not have been able to continue its operation without the support of WISA in 2007 when we faced very challenging times. At the same time, all parties recognized that this was likely to be a stopgap, and we are looking forward to returning our Executive Office to an academic setting as this better befits our association's history and future objectives. We are now soliciting suggestions for possible hosts for the Executive Office, and will discuss this matter at the final meeting of the current Executive Board in November. We already have some good candidates, but the field is quite open, so please let me know if you have any suggestions.

In this issue of IWRA Update, you will find the amended IWRA Constitution and Bylaws as approved unanimously by our voting members. These documents are in force as of this publication, but will also appear in the December issue of Water International for a more formal record. You will also learn of the progress we are

making with the next IWRA Congress which will be held in Recife, Brazil, in 2011 in collaboration with the Associação Brasileira de Recursos Hídricos (ABRH).

You will also find contributions from Prof. Benedito P. F. Braga, ANA, Brazil; Prof. Adrian McDonald, University of Leeds; and Dr. David W. M. Johnstone, Senior Visiting Research Associate, University of Oxford. I would like to thank all of these luminaries for contributing to our Newsletter.

I would like to remind you to cast your votes for the election of the next Executive Board before the deadline on 15 October. Ballots received by the Executive Office are being recorded by them until that date. Immediately thereafter, the ballots will be counted by the Executive Office and checked by all the members of the Nominating Committee. The results of the elections will then be posted in the webpage of IWRA and will be published in the December issue of Water International. The members of the new Executive Board will take office on 1 January, 2010. Please remember that only the ballots of paid members will be counted. If you have not paid your dues, please do so before 15 October. You can find the several alternatives to make your payment in our webpage www.iwrahome.org. If you have trouble paying your dues, or have paid but not received your ballot, please contact the Executive Office (E-mail: iwra-office@wisa.org.za) or me personally (ctortajada@thirdworldcentre.org) immediately.

In this IWRA Update, **we have included a call for nominations for the 2009 Fellow members. Please send your nominations to the Executive Office by 15 November.** It will be our privilege to welcome new Fellow members who will continue to strengthen our Association. I would also like to remind you that **IWRA is sponsoring first-time members.** Please refer to the announcement in this Newsletter.

The year is not over. In October, the Association will co-sponsor the 4th International Yellow River Forum (IYRF) in Zhengzhou, China, and will be promoting our mission at Hydro 2009 in Lyon.

In November, IWRA will co-sponsor the III Experts Meeting on Water Quality Management in Zaragoza, Spain; the Water Tech Asia 2009 Summit in Shanghai; and an Experts Group Meeting on Management of Transboundary Rivers and Lakes in Campo Grande, Brazil. We are grateful to Past President Ben Braga for supporting our involvement in the latter meeting. In December, the IWRA is organising an International Workshop on Integrated River Basin Management in Asian Monsoon Region in Tokyo. All these events will continue to increase the reach, visibility and credibility of our Association.

The year is also not over for the members of the Executive Board, which will meet in November to wrap up the past three years and prepare the way for our successors. On a personal note, I would like to thank all of you for your inputs and continued support to the Association during my presidency. Thanks to your support and encouragement, the Association is now much stronger, and it is time to bring in fresh blood and fresh ideas to take the IWRA to new heights with the help of a growing membership that is truly reflective of our International Water Resources Association.

Cecilia Tortajada
President

NOTE FROM THE SECRETARY-GENERAL

Dear IWRA members,

The Association has now finished the period of receiving member's votes regarding the approval or rejection of the proposed Amendments of the Constitution and Bylaws. I am pleased to inform you that all votes received were for the acceptance of these amendments.

In 2008 the amendments document, prepared by the Task Force set up the year before and chaired by Lilian del Castillo-Laborde, Secretary General of the Association, was submitted to the review of the Executive Board. Subsequently, the observations received were introduced in the text submitted to the consideration of the whole membership and both the text and the proposed amendments were timely published in the 2008 December issue of *Water International*. Abiding by the established procedure, the amended text was submitted to the whole membership vote, with the positive results mentioned above. It is important to have in mind that the new text streamlines the goals of IWRA, incorporates in practical matters the experience of the past decades, and fills the gaps that in some occasions were the origin of controversial interpretations.

Thus, with the full support of all voting members the amended Constitution and Bylaws are now approved. The new texts will be the governing instruments of our Association from the moment of their publication in the 2009 December issue of *Water International*. They will also be applicable from the next Executive Board meeting in 8th November 2009 onwards.

Lilian del Castillo-Laborde
IWRA Secretary- General

UPDATE ON PLANNING FOR THE 2011 IWRA WORLD WATER CONGRESS "ADAPTIVE WATER MANAGEMENT: LOOKING TO THE FUTURE"

The Association holds the World Water Congress every three years as a way to bring together members, present and discuss developments in international water resources, and interact with professionals and other stakeholders in the country that hosts the Congress. The XIV World Water Congress will take place in November 2011 in Recife, Brazil, hosted by the Brazilian Water Resources Association (Associação

Brasileira de Recursos Hídricos). This brief article is an update on the status of planning for the Congress, which is already well underway.

By way of background, I shared with you in the July, 2009 IWRA Newsletter that the overarching theme of the Congress is reflected in the title "Adaptive Water Management: Looking to the Future". This will provide focus on emerging pressures on water resources, including climate change, urban growth, water quality degradation, and ecosystem water requirements. Adaptive management requires new understanding of multiple factors that influence how water is managed, which is the basis of innovation with new technologies, management approaches, and finding solutions to our common water challenges.

We have now formed the International Scientific Committee (see table below), which brings together an impressive array of expertise, institutions represented, and geographical coverage. Invitations have been extended to include Sub-Saharan Africa; however, at this point we do not have formal confirmation. Nonetheless, the current members have begun deliberating details of the Congress as presented below.

2011 IWRA World Water Congress – International Scientific Committee Members

Name	**Institution**	**Institution Country**	**Expertise**
Dominique Alheritiere	International Association for Water Law	Italy	water law
Ximing Cai	University of Illinois	USA	water resources
Lilian del Castillo de Laborde	University of Buenos Aires	Argentina	international water law
Pierre Chevallier	IRD, University of Montpellier	France	water resources and climate change
Oscar Cordeiro Netto	Agência Nacional de Águas	Brazil	water resources management
Naim Haie	University of Minho	Portugal	water resources sustainability
Seetharam Kallidaikurichi	National University of Singapore	Singapore	water governance, urban water, sanitation, wastewater management
Celine Kauffmann	Organisation for Economic Co-operation and Development	France	finance, public private partnership
Johan Kuylenstierna	UN Water	Italy	global water policy issues, climate change
Maria Carmen Lemos	University of Michigan	USA	water policy
Mario López Pérez	Comisión Nacional del Agua	Mexico	water management, water law, hydrology
Carmen Maganda	University of Luxembourg	Luxembourg	transboundary water
Claudia Pahl-Wostl	University of Osnabrück	Germany	adaptive water management

Christopher Scott	University of Arizona	USA	water resources and policy
Jia Shaofeng	Chinese Academy of Sciences	China	water resources management
Vladimir Smakhtin	International Water Management Institute	Sri Lanka	hydrology, water management
Cecilia Tortajada	International Water Resources Association	Spain, Mexico	IWRM
Avinash Tyagi	World Meteorological Organisation	Switzerland	hydrology, climate change, flood management
Flip Wester	Wageningen University	Netherlands	water policy, river basin management, groundwater governance

The Congress format will consist of three days of thematic sessions, highlighted by multiple keynote speakers, with illustrative examples particularly from our host country to take advantage both of the Congress location and the innovations in water management that Brazil is pioneering. We plan to conclude with a "future outlook" plenary. In the process, participants will have ample opportunities to interact with Brazilian water professionals, as the Congress is scheduled in sequence with the 2011 annual meeting of the Brazilian Water Resources Association.

It is early to report on detailed thematic organization of the Congress or the keynote speakers, both of which are actively under discussion by the scientific committee. However, we are certain that the following themes will be featured: 1) adaptive management – what is it?; 2) global change, climate variability, and managing the extremes; 3) water law, regulations, rights, and water trading; 4) institutions and deliberative water politics; 5) technology, infrastructure, and investment; 6) water, ecosystem services, and environmental quality; 7) new research developments, knowledge systems, and science-policy interaction; 7) children and youth; and 8) future outlook.

In the coming months as these plans are refined, the scientific committee and IWRA leadership will communicate with you the members to ask for input, leadership with specific sessions, and other aspects of the Congress program. We invite you to join us in the process of planning a successful Congress.

Christopher Scott
Chair of the International Scientific Committee
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CHALLENGES FOR WATER RESOURCES MANAGEMENT IN THE FUTURE

Water resources management is mainly a local or regional issue. However, when we consider that there are 271 transboundary river basins we begin to realize that WRM extrapolates the political boundaries. Furthermore, when we face the threat of climate change and we look to alternative fuels such as ethanol and biodiesel we see that the local impacts of this global change will be extremely important. Hence, we can say today that WRM is no longer solely a local issue.

Global changes have produced unprecedented urbanization rates in all continents. In Latin America today 75% of the population leaves in urban areas. This growth has not been accompanied by the necessary infrastructure for water supply, swage collection and disposal, solid waste disposal and urban flood control management. The result is that the most pressing environmental problem facing humanity today may not be deforestation, but the restoration of the degraded urban environments of the developing world.

In the year 2000 during the Johannesburg Summit countries signed the Millennium Development Goals in which they committed to reduce by half the number of people without access to water and sanitation that by 2015. Given the data observed in different countries half-way to 2015, there is a perspective that these goals will not be achieved.

The unbalance between supply and demand at the appropriate quality level is the basis for water problems all over the world. In regions of scarce supply (arid and semi-arid zones) conflicts are generally evident. However, even in countries with large freshwater availability, eg. Brazil, there are regions within the country where this unbalance between supply and demand results in severe shortages and social economic impacts such as internal migrations. Water management plays an important role in providing means of achieving adequate supply in case of scarcity.

Hence, we face today major challenges in the water sector including:

- Improving the water use efficiency in different sectors of water use in the urban and rural settings. In some cities the losses in water supply systems can be as large as 50%. In agriculture it is possible to improve performance by better water management and better biotechnology to develop crops that use less water
- Should we move from the traditional command and control system used in the environmental area to economic instruments to stimulate more efficient water use?
- What kind of water policy should be developed at national, regional and international levels to achieve these goals of efficiency and efficacy in water use and environmental conservation?
- How to finance the water supply and sanitation sector in the less developed world? And the associated challenge of finding the appropriate subsidy system to allow the provision of services to the poor.

In order to address all these challenges in the future, it will be necessary to have an efficient water resources management system developed at national or regional level. This system should have a policy that could consider, among other principles, the following:

1. Water should be considered a public good;
2. Water should be considered a limited natural resource, which has economic value;
3. When there is a shortage, priority in the use of water resources should be given to human consumption and the watering of animals;
4. Water resources management should always consider multiple uses of water;
5. The river basin should be the territorial unit for planning and managing water resources;
6. Water resources management should be decentralized and participatory involving local governments, water users and the organized civil society.

Possible objectives of this water resources policy:

1. To ensure sustainable water access in adequate quantity and quality for present and future generations;
2. To ensure the efficient and multiple use of water resources and
3. To prevent and protect against extreme events resulting from natural causes or from the inappropriate use of natural resources.

Basic instruments for the implementation of the WRP could be:

1. *River Basin Plans*: or master plans that provide a basis and orientation for the management of water resources, and the implementation of the Water Resources Policy at river basin level. The plans must define the priorities for water permits and investment program for the developing, sustainable use, conservation and restoration of water resources. They require data from an Information System related to water quantity and quality, as well as water demands by use category and watershed.

2. *Classification of water bodies:* to determine water quality levels in time and at each reach of the river network, according to the established uses and goals and programs defined at the River Basin Plan.

3. *Water permit and control system*: to ensure quantitative and qualitative control of water uses. Nobody can use the river without a permit. It demands quantitative and qualitative water availability data, as well as upstream and downstream users data from the Information System.

4. *Water charges system:* to make water use more efficient and to reduce pollution. It also provides financial resources for the investment program in the river basin plan.

5. *Information system*: to produce, systemize and provide data and information to characterize water resources conditions at the river basin level, including quality and quantity for different uses, land use maps, slope, vegetation cover, point discharges and registry of water users.

Economic instrument such as water charges plays a definite role in water resources management. Contrary to the traditional policy in the environmental sector of command and control, this instrument allows the generation of financial resources from the water users in the basin.

Developing country governments, with lack of financial resources to subsidize local governments in river basin water quality improvement works, should pursue this policy option. This is known as the principle of user-pays and polluter-pays.

Future global and climatic changes will pose an additional challenge to balance water supply and demand. More resilient hydraulic infrastructure will have to be developed to cope with longer droughts and more intense floods. The use of clean energy sources, such as hydropower and biofuels, will be paramount to minimize the impact of climate change. Water resources will play a definite role in human development and security. Certainly, we shall develop hydraulic infrastructure, but this alone will not solve our future problems. Efficient water resources management together with the correct infrastructure development is the only way to adapt to future global changes.

Benedito P. F. Braga
Professor, University of Sao Paulo
Director, National Water Agency of Brazil
Vice-President, World Water Council

WATER DEMAND EFFICIENCY IN AN URBAN WORLD

We live in an expanding and increasingly urban world. For water planners and managers this raises major (albeit different) challenges for informal peri-urban development in the third world and for planned developments in the first world. Urbanisation concentrates populations so effective water stress increases. In the south east of England annual rainfall, although better distributed over the year, is, perhaps surprisingly, less than that in Rome or in Istanbul. Fully half the UK population is crowded into that 100 mile square box centred on London. Natural water resources are modest and forecast to reduce and so research councils, government departments and regulators are focussing on urban water efficiency. The Engineering and Physical Sciences Research Council (EPSRC) has sponsored several interdisciplinary research projects focussed on the urban environment. WaND, Water and New Development, a collaboration between the universities of Aberystwyth, Bradford, Exeter, Leeds and Sheffield with Hydraulics Research and the Centre for Ecology and Hydrology was one of these. WaND research showed that:

(i) for all but the most extreme and unrealistic future scenarios, water demands could not be constrained in the face of expanding and changed demography to match existing water resource availability.
(ii) Striving for ever lower water consumption by, for example, roof-water harvesting, whether for resource limitation or sustainable drainage reasons, will have a negative impact on sewer/drain self-cleansing.

(iii) That rainwater harvesting had a small but measurable health risk in a country with minimal experience of dual quality water provision.[1]

New developments are being guided by the government sponsored Code for Sustainable Homes[2] which seeks to reduce water (and other resource) demand to lower levels depending on the Code level employed. Whether the demand reductions anticipated by the Code will be achieved and sustained is open to question. The UK, early into mass provision of wholesome potable water, has never seriously employed water metering primarily because public water was a public health initiative and provision was not to be constrained. Even with meters provided and installed free to those that opt to be metered (not a UK wide policy) and compulsory metering on new housing, metered properties are the clear minority on the UK (about 25% of households). Our tariffs are modest – the weekly bill for water provision equates to the price of a single glass of beer – hardly sufficient to promote behavioural changes. Nevertheless substantial water efficiencies are sought by regulators and the 'twin track' approach of demand reduction allied to resource development is the normal expectation in the industry.

Can such efficiencies in the management of urban water demand be achieved? Evidence from the energy sector suggests not. Following the global energy crisis of the 70s the UK introduced energy advice centres, subsidies, energy efficiency advertising (all in a climate of concern and rising energy costs) yet 30 years later only 25% of houses that could have cavity wall insulation (the most effective intervention with a 2 year payback) fitted have done so and the uptake rate has plummeted. Instead people opted for the double glazing, conservatories (which they then heated) or simply ignore the energy efficiency drive. Campaigns to install energy efficient bulbs have failed and today the last incandescent bulbs are being taken off the market to force change to efficient bulbs. Compare this to water - there is no price driver - indeed the regulator has required lower bills across the UK over the next 5 year price settlement and the code which is largely voluntary, is being applied to new house builds only and of course new building has all but ceased in the current financial climate. In the centres of many UK cities there are thousands of unoccupied speculative developments, usually flats that are unoccupied. The water industry knows these as 'voids' and up to 15% of these voids apparently use water. These are further water demand (and finance) inefficiencies although more actuarial than real in this case.

Finally consider (our ignorance of) the interactions with other critical urban resources issues such as waste and energy management, an ignorance now being addressed by an EPSRC funded consortium (Revisions[3]) to consider such interactions within the built environment. We have promoted recycling of bottles, tins and cartons. Some of these we simply put aside and recycle but there is growing evidence that jars and tins are understandably being rinsed before recycling – indeed there was in the past a 'rinse and return' advertising campaign and who would wish an unwashed sardine can to rest in their kitchen for some time before recycling? Harvested roof-water could be stored in roof space at an embedded carbon cost for the structural improvements needed to store a meaningful volume, or below ground at a carbon cost when pumped for use. We know little of the behavioural interactions that are important if a holistic best

[1] Fewtrell, L., Kay, D. and McDonald, A. (2009) *Rainwater harvesting – an HIA of rainwater harvesting in the UK.* In Fewtrell, L. and Kay, D. (eds) Health Impact Assessment for Sustainable Water Management. IWA Publishing. London. ISBN 1843391333. pp 45-68.

[2] The key web site for further information is: http://www.communities.gov.uk/thecode

[3] http://gow.epsrc.ac.uk/ViewGrant.aspx?GrantRef=EP/F007566/1

solution is to be achieved. A blanket Code applied in regions with plentiful water resources and only modest demand might not attain the uptake and retention of a 'best solution'. The UK as a whole does not have a water problem the water is simply not in the right place (all the lakes and reservoirs in England and Wales would only half fill Loch Ness in Scotland after all!) and without mutual support savings in one region do not contribute to water neutrality in another.

What can be done? Promotion of intelligent metering with intelligent (social plus highly progressive) tariffs. Better, locally targeted, information and regulation using as a model many of the North American or Australian examples. In house, real time, information on costs and which stress the energy costs of showering and other hot water uses. Finally and perhaps most importantly, we need to question the 'no cut-off' policy employed in the UK. Emaginating Ltd, in a report to UKWIR (http://ukwir.forefront-library.com/reports/09-cu-04-6/92901) based on a 2 million household sample, has revealed that UK water debt is far greater than energy debt and struggling households are not motivated to pay the water bill - but here we move from the realms of water efficiency to water justice – another story.

Adrian McDonald
University of Leeds

POLICY, REGULATION AND REALITY; SOME REFLECTIONS ON 45 YEARS OF WATER IN 30+ COUNTRIES

It's hard for me to believe that 45 years have passed since I first entered the wonderful, but often frustrating, world of water. I hadn't thought of water as a career. In fact, I hadn't thought much about water at all until one day I picked up a newspaper and found an advert for a research assistant to be engaged on dewatering of sewage sludge and on inshore oceanography. I didn't fancy the sewage sludge very much but the oceanography sounded good. I applied and to my surprise got the job. The oceanography only lasted a short time but sewage has been with me all my working life. Although I've worked in many aspects of water – research, scientific services, supply distribution, general management, consulting, privatisation, and regulation – I am really a dirty water man at heart, the Cinderella of the water business when I started and still the Cinderella of the business now.

When I first encountered the world of water in the early sixties it was a period of optimism. Or is that just a reflection of my youth at the time? No, I do believe it was a time of optimism– the swinging sixties, The Beatles, The Stones, The Beach Boys, Andy Warhol, decolonisation in Africa, JFK, civil rights, Martin Luther King – 'I have a dream'. Not all of it lasted, the assassinations of the Kennedys and Martin Luther King brought us down to earth with a bump. Bob Dylan sang 'The times they are a-changing' and looking back they certainly did, some for the better and some not. Some things have not changed at all; in 1963 Lyndon Johnson declared 'war on poverty'; well, that's a war that has not yet been won.

On the technical front there have been spectacular changes. My first encounter with a computer was in 1965 with a mainframe that occupied almost a complete floor in the University with a whole 32k of memory, 12k of which were taken up by the compiler. We handed punch cards to a young woman with a white coat one day and had the answer back the next, if we were lucky. Today I walk about with a relatively massive computer in my top pocket and use it to communicate with the world. The early 60s saw the launch of Telstar followed by a series of geosynchronous satellites that allowed television broadcasts across the Atlantic and we watched grainy pictures on small screens on the front of big wooden boxes. Now we watch brilliant pictures on flat LED or plasma screens with hundreds of channels.

But what of water? What has happened in the world of water during that time? Well, a lot and not much at the same time depending on one's views. For the rest of this article I will restrict my recollections to the utility sector –supply, distribution, sewerage and wastewater treatment and all that goes with it, whether public or private. Unfortunately time and space do not permit recollections of changes in water and sanitation for the poor in developing countries.

My journey has been an interesting one. I am now semi-retired, which actually means working just as many hours as before but not getting paid, and I have a couple of University appointments, principally one at Oxford where I teach on a Master's course on Water Science, Policy and Management and where I learn as much from the students as they do from me. In a way my involvement with this course reflects my changing attitudes and interests over the years. I started off in research, moved into operational science, then to operational management and then to consulting working in some 30 countries on various projects. Over time I came to realise that, while good science and engineering are important, they are of little value unless there is the institutional capacity, finance and political will to implement the good science and engineering and, even at times, to implement the 'not so good' engineering and science. Introduction of the private sector sparked the need for regulation of private monopoly organisations and this developed further into regulation of public water utilities in general. I really should say reintroduction the private sector since in the past much of the world's water was delivered by private companies.

Over the years, policy making, financial engineering and regulation have almost become industries in their own right which introduced many people from other disciplines like economics, project finance, social science and the like into an industry that was generally dominated by engineers. And many of the 'newcomers' tended to slate the engineers for all that is wrong with the industry. There is certainly some truth in the view that many engineers (with apologies to those who do) do not cross into the world of policy, economics or social science. As one engineering friend says – 'boys prefer to play with their toys'. However, in my experience, the opinions expressed by some regulators, policy makers and the like are devoid of proper understanding of the realities of the world of water and hence the title of this article – 'policy, regulation and reality'.

Let me first turn my attention to dirty water and by that I mean sewage, industrial wastewaters and sewerage. Treatment processes have advanced markedly over the 45 years. In the early 60s treatment was essentially the domain of the civil engineer with a proper biochemical engineering understanding in its infancy outside of the laboratory. Over the period, process understanding has improved tremendously and

we can now design plants able to remove nutrients or to produce effluents over a wide range of quality. Perhaps the development with the greatest potential has been the introduction of high performance and relatively cheap membranes. There are still some problems to be resolved but the potential for re-use is very high and perhaps we can eventually get away from thinking of sewage as something nasty for disposal and view it as a valuable water resource. I was recently involved in a project in the Middle East where almost all of a large city's sewage was treated by a conventional biological process followed by ultra-filtration and RO to a standard fit for high quality re-use; perhaps a bit high on energy consumption but where energy is cheap and water resources are poor, so what. Membrane Biological Reactors offer reuse at local level as well as eliminating problems of sludge settlement that have plagued the world of treatment for decades. Anaerobic processes now provide solutions suitable for places where high standards are not required or as interim solutions where affordability is limited and a phased approach to treatment is required. In fact there is a plethora of processes that offer solutions, although one thing has annoyed me over the years, and does so to this day, and that is the almost religious zeal with which many practitioners promote their pet process to the exclusion of all others. There is no one-solution-fits-all process and many would do well to appreciate that there could be more than one solution.

So here we are in 2009 with many processes, lots of technology both complex/expensive and simple/cheap and yet over 90% of the world's wastewater receives no treatment whatsoever. That is a dreadful indictment on world society, made all the worse by the fact that it is skewed North-South. The developed world, where there is a high degree of treatment, is concerned with improvement or maintenance of aquatic ecosystems and the removal of trace organics whereas urban rivers in the industrialising world are open sewers. Why should this be the case? There are many books, reports, studies, theses and master plans that provide many solutions. So why do we still have these problems? My first boss in this business said that 'if we stopped all research today and implemented what we know we would solve most of the problems'. I think that there is as much wisdom in that today as there was in the early 60s. The water industry must be at the top of the 'most studied- least implemented' list of industrial projects.

This is not the place to get into detailed reasons why it is difficult to get things done. We all know the reasons –economics, finance, affordability, etc, much of which is due to ineffective policies and lack of political will. I indicated before that, in my opinion, many policy makers, financial engineers and regulators do not understand the industry and herein lies one of the problems. I have heard policy makers say that 'we don't have to understand details of the industry' and I have also heard that said by a number of the private sector transaction advisors with whom I have worked. What I want to do in the remainder of this article is to discuss some issues where they would benefit from a little detail as examples of where policy and regulation depart from reality.

In the urban environment, the largest element of the cost of treating sewage does not lie with the treatment plant itself, it lies with the system of pipes and drains required to transport the sewage to the point of treatment, the sewerage network. There is a long standing debate on the relative merits of combined sewerage systems, where a single network carries both foul sewage and rainwater, against separate systems where there are two sets of pipes, one for foul sewage the other for rainwater. In the 19th century, when communities started to clean up the mess caused by the industrial revolution, natural watercourses that had become grossly contaminated were covered

and so started the system of combined sewers. It was only later that separate systems were introduced on the grounds *inter alia* that, although more expensive, the size of the treatment plants would be minimised. In many places this has been highly successful and will continue to be so. However, in other places it has been a disaster due, not to bad engineering, but to bad control and regulation. Separate systems demand strict control of builders, developers and industrialists to ensure that they connect to the appropriate pipe. While that is generally good in the developed world, in many industrialising countries it is essentially nonexistent and it is not unusual to find places where up to 40-60% of sewage is in the wrong pipe. So, in these circumstances, we are left with one of three options when it comes to laying collector (interceptor) sewers to convey wastewater to a treatment site. One is to collect all the discharges, both foul and 'clean', which means that all the extra expense of the two pipe system has been futile. A second is to collect only flows from the foul network and hence leave substantial quantities of untreated sewage in the river; a very high cost with very little benefit. The third option is to do nothing. This is not the place to discuss what could be done in places unfortunate to be in that position now. The point that I wish to make is that the process of making policy decisions perpetuating this problem continues today mostly because decision makers don't understand reality on the ground. If a separate system is to be built then procedures of regulation and enforcement are essential to prevent misconnection and the reality is that effective systems don't exist in the industrialising world and are unlikely to do so in the near future.

Another problem lies with treated effluent standards particularly where some industrialising countries have adopted standards from the developed world without a hope of achieving them. In fact, some countries adopted standards that the developed world could not meet, all due to the fact that the policy makers did not understand what they were doing, or did not seek or take advice. A few countries, like Brazil have realised their mistake and rectified the regulations, most have not and nothing much will be achieved until they do. A similar issue has arisen by the inclusion of ambiguous or ineffective effluent standards in contracts for BOOT sewage treatment schemes (Johnstone DWM. "Effluent Discharge Standards." Chapter 18 in "Handbook of Water and Wastewater Microbiology". Edited by Duncan Mara and Nigel Horan. Academic Press Ltd., London. 2003). I have had the dubious pleasure of acting as an Expert Witness in a number of contract disputes involving misunderstandings on how standards were to be measured. This is a costly business and usually avoidable if contract advisors would only seek advice. The only ones to benefit from such problems are lawyers and Expert Witnesses (like me).

The last issue that I would like to mention on wastewater concerns the disposal of sewage sludge and is one that makes me very angry and one where I have suffered some abuse for my views. Sewage sludge is a product of all sewage treatment systems and, from an operational perspective, the most troublesome and expensive. Its production is relentless and systems for safe and secure disposal are essential lest treatment plants drown in the stuff. During my working life there have been marked developments in sludge treatment processes and it is now possible to produce a material that is generally innocuous and safe for disposal and also there are sound regulations to ensure risks are minimised. When I started in the 60s there were only two routes for disposal, land and the sea. Disposal (better recycling) to agricultural land of properly treated and conditioned sludge under good regulation is the most preferable. Landfill disposal is adequate but is becoming increasingly more difficult and expensive. Sea disposal has been prohibited since 1998 with the result that much

of the sludge previously disposed of by that route is now incinerated. While indiscriminate dumping of any hazardous material to sea should be avoided, there seems to be irrationality in a complete ban on the disposal of properly treated sludge which then has to be incinerated. Incineration is very energy consumptive and not all of the sludge is destroyed; about 30% remains as an ash that has to be treated as a hazardous waste. It seems to me to be an example of regulation based on the precautionary principle the consequences of which were not fully thought through. Most of the sludge discharged to sea prior to the ban was not fully treated; in fact it was raw sludge. That is an entirely different material from the material that today's technology can produce and it seems illogical that we can place treated sludge on agricultural land in concentrated form and yet cannot discharge it to well selected areas of the sea where dilution and dispersion are high. In my view this is a policy based on emotion and not good science, and one society may come to regret when many new treatment plants are eventually built.

My final theme is that of privatisation or private sector participation, another subject often viewed with emotion rather than objective opinion based on fact. Since the late 1980's a number of contracts have been awarded to private organisations in what had become the accepted role of the public sector. Contracts varied from 'divestiture' where public organisations, including all of their assets, were sold to private companies (England and Wales), and 'concession contracts' (e.g. Buenos Aires, Santiago de Chile, Manila) that are long term but where the assets remain in public ownership, and also much simpler 'management contracts'. Some have been successful while others have failed. Attitudes to privatisation generally range from support to complete hostility with the process being the focus of many articles in the press and in learned journals and books. Opinions have been expressed and conclusions drawn on both sides of the argument; some are objective and fair while many are completely biased and I come to this conclusion from a basis of real experience and inside knowledge. I have been involved with many of these projects either as a transaction advisor or post contract auditor/certifier on behalf of the public sector or as an advisor to some of the private organisations bidding for contracts. In such roles I am bound by commercial confidentiality agreements so I cannot talk of specific projects but I can talk in general terms and will make two observations.

The first observation is concerned with regulation. In theory, the transfer of public monopoly activities to the private sector requires regulation as a substitute for competition. In practice, this often requires establishment of a regulatory body where none exists. So where do the regulators come from? In my experience, at the technical level the good people get transferred to the private company, the remainder join the new regulator, many with a grudge against the new company. The regulator then gets filled with economists, accountants and bureaucrats who know little of the business and who attempt to regulate in an over detailed and prescriptive way. This gives rise to skewed power asymmetry between the private company and the regulator, especially in the early stages when the regulator has little or no experience which becomes particularly evident when conflict arises.

The second observation is concerned with the many papers, articles and publications that have been produced on privatisation. I will comment on only two issues, one concerned with the articles written both by proponents and opponents who write biased articles based on prejudice, the other concerned with the genuine student or academic seeking objective knowledge. I have no problem with people promoting their views when there is an element of fact but in my opinion too many articles have

distorted the truth and gone on to reach the general public as considered opinion. It has also become apparent that the genuine researcher has often had difficulty in getting at the real facts. Let me immediately state that there are many fine publications but many others are just plain wrong. I have read many where issues, on which I personally worked, have been completely distorted and bear no resemblance to the truth. I would counsel people who study this subject to exert caution on what to believe and always look for the hidden agenda.

My final comments are concerned with the position in England and Wales. In 1973 the government passed an Act that set up 10 Regional Water Authorities (RWAs) that were based on natural catchment areas and which took over responsibility from some 1,600 organisations. Soon after this reorganisation I joined one of the RWAs initially as a Divisional Scientist and then as an operational manager. They were interesting and productive years setting up new procedures, doing research on full-scale plants and planning for the future. I left after 10 years to work overseas. In 1989 the RWAs were sold to the private sector since when several have been resold a few times. I now look back on what has happened since 1989 and can say that, while there have been some efficiency gains, what I now see fills me with sadness. I see a regulatory regime working on a cyclical basis that causes large fluctuations in workload that is not good for the supply chain, or for the companies themselves. Under a combination of regulatory pressure and the desire to maximise profits, companies have reverted to arrogant bullying tactics over suppliers. Some hold them to profit margins of 2% of capital which leaves very little for training or development and nothing when things go wrong. I was particularly saddened when I heard that some procurement managers told their suppliers to 'supply equipment that thrives on neglect'. Robustness is one thing, neglect is another. And neglect abounds on the operational front where treatment plants can be seen in a neglected state. I also know that over the years much of the expertise has been lost and not replaced and that one of the biggest problems facing the industry is skill shortage. So, despite the claims for improved efficiency and acclaim for the financial regulatory regime, I don't see much real improvement; in fact I see much deterioration on the ground, a deterioration that seems to have escaped the regulators who appear more interested in pursuing flawed dreams of increasing competition. The main reason why the industry was privatised was a claim that it could not finance itself. That is true, but only because the government of the day prevented the industry from financing itself. I wonder how much more efficient the industry would have been today had the government not interfered and left the RWAs to develop in the ways originally intended.

I will soon retire and am often asked whether I would do it again. The answer is yes, most definitely. However, I do wonder how much has been achieved over the 45 years. There have been areas of great advancement but much appears to have stood still especially in implementing what we know and today there are many new challenges such as those arising from climate change. There is no doubt that such challenges will require good policies and effective regulation and, to this end, I would urge all involved to keep in touch with reality. But that's for a new generation and I wish them well.

David W. M. Johnstone
Senior Visiting Research Associate
Department of Geography and the Environment
University of Oxford

FORTHCOMING EVENTS

8TH INTERNATIONAL CONFERENCE ON URBAN HEALTH (ICUH)
Nairobi, Kenya, 18-23 October 2009
The Theme of the 2009 ICUH is "Meeting Urban Health Needs through Innovative Research, Policies and Interventions".
http://www.icuh2009.org/about.htm

THE 4TH INTERNATIONAL YELLOW RIVER FORUM (IYRF)
20 Oct 2009 - 23 Oct 2009, Zhengzhou, China

The International Yellow River Forum is one of the most recognized river events in the world, which is hosted by Yellow River Conservancy Commission of China. The river thematic conference will be organized every two years to address water challenges for river basin management.

More information: http://www.yrcc.gov.cn/trsweb/gjlt3e/

HYDRO 2009 INTERNATIONAL CONFERENCE AND EXHIBITION: PROGRESS, POTENTIAL AND PLANS
Lyon, 2009-10-26 to 2009-10-28

Hydro 2009 will bring together planners, developers, owners and operators, environmental specialists, financiers, researchers, manufacturers and equipment suppliers for an exchange of expertise which will be constructive in furthering well planned hydropower development worldwide. Much emphasis will be placed on meeting the needs of the less developed countries; this will be reflected strongly throughout the programme.

Organizers: The International Journal on Hydropower & Dams; Network Events Ltd
Contact Name: Gaël Bozec
E-mail: sales@hydropower-dams.com
URL: http://www.hydropower-dams.com/hd_72_0.htm

IWEH09 - INTERNATIONAL WORKSHOP ON ENVIRONMENTAL HYDRAULICS
Valencia, 2009-10-29 to 2009-10-30

The general objective of the workshop is to provide an international forum for researchers, engineers, professors, educational scientists and technologists in the areas of Environmental Hydraulics: theoretical, experimental and computational aspects. The workshop will be an opportunity to present, demonstrate and discuss research, development, applications, and the latest innovations and results in this important field.

Organizers: International Association of Hydraulic Engineering and Research (IAHR); Universidad Politécnica de Valencia

Contact person: P. Amparo López Jiménez
E-mail: iweh09@upv.es
URL: http://www.upv.es/entidades/IWEH09/

WATER & ENERGY 2009. Mitigation in the water sector & potential synergies with the energy sector
Copenhagen, 29-31 October 2009.

The IWA Water and Energy 2009 Conference puts focus on measures for mitigation in the water sector and potential synergies with the energy sector.

The conference will be a forum for knowledge sharing among a multitude of stakeholders and disciplines including managers, policy makers and regulators, technical scientists, technology providers. Keynotes, platform and poster presentations on state-of-the art and ongoing pioneering efforts will set the scene for intense and constructive discussions.

Messages from the conference will be condensed and refined into statements forwarded to the UN Climate Change conference (COP15) December 2009. We invite you to be a part of this by joining in as a delegate to the IWA Water and Energy 2009 Conference in Copenhagen.

Registration: http://www.iwawaterandenergy2009.org/?id=11

FIFTH INTERNATIONAL CONFERENCE ON IRRIGATION AND DRAINAGE
4-7 November 2009, Salt Lake City, USA.

The Conference seeks to bring together water resource professionals from the United States and their counterparts and supporters from other countries. Professionals from the U.S. and abroad involved in irrigation, drainage and water resources planning will find the multi-disciplinary Conference of interest.

More information at: http://www.uscid.org/09intconf.html

III INTERNATIONAL EXPERT'S MEETING ON WATER QUALITY MANAGEMENT,
Zaragoza, 9-11 November 2009

During the past decade, considerable global attention has been given on potential physical scarcities of water to meet various global needs in the coming years. Many have argued that by 2030, much of the world's people will be living in regions having serious water stress. Research conducted at the Third World Centre for Water Management indicated that this scenario is incorrect. The world has adequate water, if this resource can be properly managed. If the world faces a water crisis in the future, this will most likely occur not because of physical scarcities of water, but due to

continued neglect of water quality. According to the work carried out by the Centre, only about 10% of the point sources of pollution in Latin America are at present adequately treated and then disposed of in an environmentally safe way. The situation is likely to be similar in developing Asian countries, and probably somewhat worse in Africa. The non-point sources of pollution in the developing world are now basically neglected. Consequently, water bodies in developing countries in and around urban centres are heavily contaminated. Appearance of dead zones in estuaries of major rivers, even in developed countries, like the Mississippi in the United States, has already became a most serious issue because of non-point sources of pollution. Despite considerable rhetoric during the past decades, water quality management is still not receiving adequate attention. The Workshop will consider different aspects of water quality management from different parts of the world, from different perspectives, including emerging issues like endocrine disruptors. It will consider social, economic, environmental, legal and institutional aspects of water quality management, both of the present and the future. The governance aspects of water quality will receive special attention. The Workshop is being sponsored by the International Centre for Water and Environment (CIAMA), Zaragoza, Spain, the Third World Centre for Water Management and the International Water Resources Association.

WATERTECH ASIA 2009 (NOVEMBER 11 TO 13, 2009)

It will be jointly convened by Shanghai Society of Hydraulic Engineering and Global Leaders Institute.

What You Will Learn in WaterTech Asia 2009. Whether you are taking steps to entering the huge water market in China or deepening your business in Asia market, this informative event will offer you the expert advices necessary in achieving your business needs:

Insights of Updated Policies and Regulations in China Water Market
What's the Hotspots of Future Investment in China Water sector
Success Case Studies of WATERSHED MANAGEMENT and URBAN WATER TREATMENT from World Famous Water Pioneers
How to achieve Higher Financing & Operational Efficiency for Water Groups
Cutting-Edge Ideas and Solutions for Implementing Water Saving, Improving Water Quality, and Upgrading Wastewater Treatment

Don't hesitate to join us to build a Sustainable Future in Asia by promoting the Efficient, High ROI, Conservation and Sustainable Smart Water Management!
Have you got interest to SPEAK, to ATTEND or to SUGGEST.
Conference website: www.watertechsummit.com.

INTERNATIONAL WORKSHOP ON GOVERNANCE OF TRANSBOUNDARY WATER BODIES OF LATIN AMERICA (RIVERS, LAKES AND AQUIFERS)

Campo Grande, November 18–19, 2009

It has been fashionable in recent years in certain circles to speak of water wars and political and social conflicts over water. The hypothesis of this project will be that through proper inter-institutional coordinating mechanisms, the countries sharing the same water bodies can benefit significantly more through cooperation rather than through conflicts. Even though management of transboundary rivers, lakes and

aquifers are considered important at present, a comparative and objective study of the efficacy of the institutions to manage such basins efficiently is still conspicuous by its absence. It is thus necessary to conduct a systematic and comprehensive objective analysis of the existing transboundary river and lake basins organisations and transboundary aquifers management institutions to determine their relative successes and failures, and the reasons thereof. Through this process, a community of good practices for sustainable water resources management can be reliably identified, and their potential replicability could be considered for case-specific situations of transboundary water management in Latin America.

During the workshop, 8–10 major transboundary freshwater bodies will be analysed from the appropriate Latin American countries. While considerable efforts have been made in the past to analyse the transboundary water bodies of Asia, Africa, Europe and the Middle East (for example, Ganges, Indus, Mekong, Salween, Nile, Zambezi, Rhine, Danube and Jordan), commensurate emphasis has not been placed on the study of the Latin American transboundary water bodies. To the extent these have been studied in Latin America, the primary focuses have been on the major rivers like the Amazon or the Plata: smaller transboundary rivers, lakes and groundwater bodies have been mostly neglected.

Leading experts, who have first hand knowledge and experience of the specific cases, are being specially invited to prepare the case studies. Once the case studies are completed, the authors and some selected experts and policy-makers will be invited to a workshop to discuss and critically review all the case studies, and draw some conclusions. This may help to develop a road map for managing transboundary water bodies more successfully in the future. The case studies will then be revised by the respective authors, in the light of the discussions at the workshop. A synthesis of all the case studies will be prepared, especially in terms of identifying the best practices and how these can be replicated and promoted successfully in the region in the future.
A prestigious international publisher, with an extensive global distribution network, will be selected to publish and distribute the resulting book. In addition, summaries of the case studies will be published in major international journals for wider dissemination.

The Workshop is being sponsored by the Third World Centre for Water Management, National Water Agency of Brazil and International Water Resources Association.

UFM WATER: CONTRIBUTION OF LOCAL AND REGIONAL AUTHORITIES
Lyon, 23-24 November, 2009

During the Mediterranean Forum for Local and Regional Authorities, held on 22 and 23 June 2008 in Marseille by the Mediterranean Commission of United Cities and Local Governments, local and regional authorities affirmed their intention to mobilize their efforts in order to promote decentralized cooperation in the Union for the Mediterranean.

This meeting aims to articulate the recommendations coming from local and regional authorities on the water strategy of the Union of the Mediterranean. It will also aim at identifying the actions of decentralized cooperation likely to be presented at the Union

for the Mediterranean and at reinforcing the support from important donors for the projects led by Mediterranean authorities.

More information at: http://www.ufm-water.net/

3RD INTERNATIONAL WASH PRACTITIONER'S MARKETPLACE AND FAIR

East London, South Africa, 30 November - 02 December 2009
Main theme: "Keep Sharing for Effective WASH Knowledge Management"
http://www.irc.nl/page/49024

2ND INTERNATIONAL CONFERENCE FOR EAU-AFRIQUE: WATER AND SUSTAINABLE DEVELOPMENT IN AFRICA

Libreville, 14-16 December 2009

The main objective of the conference is to create awareness among all organizations working in the Water Sector on the importance of developing and implementing new approaches of intervention and collaboration, focusing on sustainable development in rural, semi-urban and urban areas.
http://www.irc.nl/page/48093

CITIES OF THE FUTURE 2010

Boston, 2010-03-07 to 2010-03-10

Population growth, social inequity, economic turmoil, climate change, water shortages and environmental degradation are placing unprecedented stress on infrastructure and ecosystems while at the same time technological advances, volunteerism and citizens of sustainability offer promise for the future. 'Cities of the Future' will connect energy-efficient engineered infrastructure with green, water-centric landscapes to protect and conserve water resources, reduce energy intensity and associated carbon footprints, and improve economic vitality and quality of life. This paradigm shift, for newly created eco-cities and existing urban communities alike, necessitates innovative ways of conceptualizing urban infrastructure that move away from traditional practices of centralized, linear, once-through water and energy flow towards decentralized facilities and closed water and energy systems.

Organizers: Water Environment Federation and the International Water Association in cooperation with the New England Water Environment Association and the Water Environment Research Foundation

Contact Name: WEF COTF2010 Secretariat
E-mail: COTF2010@wef.org
URL:
http://www.wef.org/ConferencesTraining/ConferencesEvents/CitiesoftheFuture/

INTERNATIONAL AFRICAN WATER AND SANITATION CONGRESS AND EXHIBITION

Kampala, Uganda, 15-18 March 2010

The main theme is: "Water and sanitation: what perspectives facing energy challenges and climate change".
http://www.aae-event.com/

WSTA 9TH GULF WATER CONFERENCE
Muscat, 2010-03-22 to 2010-03-25

The main objective of the conference is to discuss the complex issue of sustainable water management of both the resources and the various water-related sectors to achieve a common understanding of what is needed to have an optimal management of the limited water resources in the region.

Organizers: Water Science and Technology Association (WSTA)
Contact Name: Waleed K Al-Zubari
E-mail: wsta@batelco.com.bh
URL: http://www.wstagcc.org/UserFiles/File/9thgulf%20water%20conference-booklet.pdf
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ASIAWATER 2010 - 6TH ASIAWATER EXPO & FORUM
Kuala Lumpur, 6 - 8 April, 2010
Kuala Lumpur Convention Centre
In cooperation with AMB Exhibitions Sdn Bhd
The Malaysian Water Association (conference)
MEREBO Messe Marketing (European and North American Pavilion)

Scope of Exhibits
Water Resource Management
Municipality Water Management
Sewerage
Irrigation
Wastewater Treatment & Management
Industrial Water Treatment
Ultra Pure Water
Bottled Water Production

INTERNATIONAL TRAINING PROGRAMME IN TRANSBOUNDARY WATER MANAGEMENT
In Mozambique and Swaziland, April 12–23, 2010
In Sweden June 7–11, 2010

This training programme provides a meeting place for professionals involved in water issues around the world, with the aim of building both personal and institutional bridges. The training programme further draws on regional and global experience from transboundary water resources management and discusses legal frameworks and novel techniques for enhancing the broad benefits of shared waters.

The overall objective is that the participants identify the advantages of collaborative transboundary water management strategies and improve their ability to apply these strategies in their respective organisations.

Specific Objectives:

- Improve the participants' ability and skills for collaborative transboundary water management
- Influence the participants' home organisation to effectively fulfil their mandate in terms of transboundary water management activities
- Support emerging and ongoing transboundary water-related management processes in which the participants are involved.

Please find complete information on the times, requirements and instructions on how to apply in the course brochure:
http://www.siwi.org/documents/Training_Prog/TWM_brochure2010.pdf.

Eligible countries: Albania, Angola, Argentina, Bangladesh, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Cambodia, China, Colombia, Croatia, Ecuador, India, Kenya, Kosovo, Laos, Lesotho, Macedonia, Malawi, Moldova, Montenegro, Mozambique, Namibia, Paraguay, Peru, Rwanda, Serbia, South Africa, Swaziland, Tanzania, Thailand, Uganda, Ukraine, Uruguay, Vietnam, Zambia, Zimbabwe

Application form:
http://www.siwi.org/documents/Training_Prog/TWM_Application2010.pdf

Application deadline: October 30, 2009

5TH INTERNATIONAL CONFERENCE ON FOG, FOG COLLECTION AND DEW

Münster, 25–30 July 2010
The scope of this conference is to bring together people who are interested in any aspect of fog and dew, including both advanced scientific findings and practical applications of fog and dew collection.
http://www.fogconference.org/information/index.html

7TH INTERNATIONAL CONFERENCE ON SUSTAINABLE TECHNIQUES AND STRATEGIES FOR URBAN WATER MANAGEMENT (NOVATECH 2010)

Lyon, 2010-06-28 to 2010-07-01

The 7th Novatech conference will deal with three complementary dimensions of urban water management under storm weather conditions:
- Integrated approaches for urban planning and operation;
- Innovative technologies; and
- Integrated approaches for the protection and enhancement of receiving water bodies.

Organizers: GRAIE - Novatech
Contact Name: GRAIE – Novatech Secretariat
E-mail: novatech@graie.org
URL: http://www.novatech.graie.org/a_index.htm

XIX INTERNATIONAL CONFERENCE ON HYDROSCIENCE AND ENGINEERING (ICHE 2010)
Chennai, 2010-08-02 to 2010-08-05

Conference topics include:
-Water Resources and Waster Water Management
- Surface and Ground Water Resources
- Conveyance and Water Distribution Systems
- Environmental Science,Engineering and Management
- Risk Analysis and Management of Water infrastructure
- Soft engineering tools for forecasting
- Sedimentation and Morphodynamic Processes
-Computational Fluid Dynamics Marine Hydrodynamics
- Maritime,Coastal and Inland Hydraulics
- Risk analysis and management

Organizers: International Association of Hydraulic Research and Engineering (IAHR)
Contact Name: Prof. V. Sundar
E-mail: vsundar@iitm.ac.in
URL: http://www.oec.iitm.ac.in/ICHE2010/

SIXTH WORLD FRIEND CONFERENCE
Fez, 2010-10-25 to 2010-10-29

The objective of the conference is to present the results of the UNESCO FRIEND (Flow Regimes from International Experimental and Network Data) research programme that have stimulated cooperation to meet local and regional needs. A focus of the conference will be to discuss how advances in analytical techniques and process hydrology are improving our assessment of water resource variability and the impacts of environmental change. The conference will give high priority to establishing links with related international programmes and with related disciplines of groundwater hydrology, ecohydrology and climatology.

Organizers: UNESCO/IHP, German IHP/HWRP Hydrological Committee, IRD, IAHS, MED FRIEND, Faculté des Sciences et Techniques de Fez (FSTP), HydroSciences Montpellier

Contact Name: Dr Eric Servet
E-mail: contactUsFez2010@msem.univ-montp2.fr
URL: http://www.hydrosciences.fr/fez2010/index.asp?lang=en

8TH INTERNATIONAL WORKSHOP ON PRECIPITATION IN URBAN AREAS
St Moritz, 2009-12-10 to 2009-12-13

Following the tradition of previous workshops, the main objective of this event is to provide a focussed forum for exchanging ideas and information in order to bridge the gap between scientific achievements and critical issues that need to be addressed in practice. Accordingly, contributions meeting the workshop themes are welcome on both application oriented basic research and operational urban hydrology. The format

of the workshop is informal with presentations, posters and adequate time for discussion.

Organizers: Swiss Federal Institute of Technology Zurich (ETH)
Contact Name: Manuela G. Haas
E-mail: stmoritz@ifu.baug.ethz.ch
URL: http://www.ifu.ethz.ch/stmoritz

21ST INTERNATIONAL CONGRESS ON IRRIGATION AND DRAINAGE
15-23 October 2011, Tehran, Iran.

Theme: Water productivity towards food security.

The 62nd ICID IEC Meeting and 21st International Congress on Irrigation and Drainage under the title of "Water Productivity towards Food Security", as well as, 8th International Micro Irrigation Congress on "Innovation in Technology and Management of Micro-irrigation for crop Production Enhancement" will be held in Tehran in 2011 by the Iranian National Committee on Irrigation and Drainage (IRNCID) and ICID. During the Congress, a Seminar, a Special Session, a Symposium, and certain Workshops are to be held. Therefore, all the interested participants and the honorable members of ICID, NC's and the other National and International Institutes, Entities, and Companies are welcome to exchange ideas, experiences, new technologies and innovations, as well as, share benefits from scientific aspects of the above events.

More information at: http://www.icid2011.org/

CALL FOR NOMINATIONS FOR THE 2009 FELLOW MEMBERS OF THE INTERNATIONAL WATER RESOURCES ASSOCIATION

The IWRA is looking for nominations for the 2009 fellow members of the Association. An IWRA Fellow is a member of IWRA of unusual professional distinction, who has outstanding qualifications and experience in the water field: has been an active member of IWRA for at least 10 years; and has held a position of high responsibility, attained a high level of academic qualification, or carried high responsibilities in the field of water resources management for at least 20 years.

Guidelines to nominate an IWRA Fellow, as well as the nomination form, are on the webpage of our Association (http://196.36.166.88/iwra/Membership/Fellows.aspx). The form should be sent to IWRA Headquarters via e-mail or fax (27-11-3151258) to the attention of the Chair of Membership Committee, Dr. Gunilla Bjorklund.

All members of IWRA are eligible to nominate candidates for the rank of IWRA Fellow. Nominations should be received in the Executive Office by 15 November. The final decisions will be made public on 30 November.

NEW PROGRAMME TO SPONSOR FIRST-TIME MEMBERS OF IWRA

Do you know someone who might be interested in becoming an IWRA member?

IWRA has a programme to sponsor first-time members from developing countries for one year to show them the benefits of joining the Association. The sponsorship includes membership fee and access to our Journal, *Water International*, for one year.

If you know someone who is interested, please send a formal request to the Chair of the Membership Committee, Dr. Gunilla Björklund through the Executive Office (e-mail: iwra-office@wisa.org.za). The request should indicate the name of the person, their affiliation and title, and a brief description of their work on water. CVs are appreciated, but not necessary. Both professionals and students from developing countries are eligible for this programme. The Membership Committee will evaluate the requests.

We are looking forward to welcoming more members to the IWRA family!

IWRA EXECUTIVE OFFICE – CONTACT

Executive Office contact details at the Water Institute of Southern Africa (WISA)

Physical address: 1st floor, Building 5, Constantia Park, 546 16th Rd, Randjespark ext 7, Midrand, Johannesburg. Tel: 0027 11 805 3537, Fax: 0027 11 315 1258
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E-mail: iwra-office@wisa.org.za, webpage: www.iwrahome.org

IWRA EDITORIAL OFFICE – CONTACT

IWRA Editorial Office contact details at the Asian Water and Resource Institute (AWARI) in Japan

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