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## Message from the President

As the President of the International Water Resources Association (IWRA), I would like to share with you the latest news of our Association as well as our recent progress in increasing its activities, visibility and credibility in the water sector.

The IWRA is one of the longest established professional associations in the area of water. It is the only water association that has consistently taken a multidisciplinary, multisectoral, multiuse, multi-stakeholders and holistic approach to water management from its very inception. As one of our new members, Prof. M.B. Kirkham of the Department of Agronomy, Kansas State University, recently told me, the complexity of water management at present, and the need for a coordinated approach in the future, has made the IWRA more relevant than when it was first established in 1972.

In this age of continuous advance in information and communications, there is an ever increasing need for knowledge dissemination and application in the field of water management. IWRA can meet this challenge through its role as a platform where different ideas, concepts, innovative approaches, successes, failures and constraints on water management from different parts of the world can be presented, analysed, questioned, and hopefully learnt from.

A world of constant change requires constant reflection. For the Association to continue growing, we need to objectively assess our successes and shortcomings in facing the challenges we have encountered recently, in order to forge a realistic path for addressing future challenges. To do this, we need your advice and support as we take further steps to sharpen our objectives, develop dynamic partnerships and networks, and find sound common positions that will strengthen the IWRA so it can make even more meaningful contributions to the water field.

The Association also needs your support as a member to refine how we can work together to influence the development of water-related policies at the international and regional levels so that they are based on proper scientific knowledge and good experiences. We should caution against jumping on fashionable bandwagons and, whenever necessary, we should question their



usefulness and applicability over the short-, medium-, and long-terms. This is particularly critical as we promote knowledge to relevant audiences from *outside* our sector of water professionals.

It is now well accepted that the water sector should be approached in a multifaceted, integrated way. The challenge now for us in the IWRA is to engage more actively in taking up issues related to development and knowledge generation from outside of the water sector, which are likely to have a bearing on water planning and management in the coming years. Policy options for water-related issues must always be set within an overall framework of social and economic development and environmental conservation. We need to work together with actors from outside the water sector to ensure the formulation and implementation of coherent policies for water resources management that focus on the realities of the future. Ensuring improved communication between a multiplicity of groups, with different interests and agendas, dissimilar ethics, values and norms, and no overall consensus or even possibility of such a consensus over even the types of goals that are to be pursued, will present formidable challenges to forging coordination, collaboration and cooperation in ways that simply do not yet exist in the water sector, or anywhere else, for that matter.

There is a wealth of knowledge and successful experiences in improving water management that are still mostly unknown. These good practices need to be identified, objectively analysed and widely disseminated so that the rest of the world can learn from them. The IWRA can play a leading role as a catalyst for the synthesis, dissemination and application of knowledge and experience.

One example is the Partner's Fora on Water Governance in the Middle East and North African Region. These Fora have been organised by InWent-Capacity Building International of the German Government, under the leadership of IWRA Director Alexandra Pres, and in partnership with its regional partner, the Arab Water Council. The Partners' Fora have constructed platforms to sustain exchange of information and experiences and cooperation in the region, attempting to connect experts and decision-makers working at different levels and civil society actors through the establishment of functional networks. The Fora have promoted dissemination of achievements in the water sector in the MENA Region, such as those from Morocco. Morocco has a record of steady progress in the water sector. Good, accessible and equitable water supply in the urban and increasingly in the rural areas of the country has been made possible by the innovative work of the ONEP (*Office National de l'Eau Potable*) in building institutions, strengthening human resources development, and creating partnerships which respond to the specific needs of the regions of the country. These partnerships are either public-public at the local or national levels, or public-private with local, national and/or international partners. Outside of Morocco, ONEP will also be responsible for production, transportation, treatment, storage, and distribution of drinking water in Cameroon. The processes ONEP has followed to generate such an outstanding process are worth studying and disseminating.

The current Executive Board is making determined and concerted efforts to ensure that the Association is not only recognised as a leading player in the water sector but that it also plays a major role in improving water governance. It is a pleasure to inform you that, because of our sustained effort, IWRA was the *only* water association invited to participate in the OECD Annual Policy Forum on "Climate Change, Growth, Stability", organised in Paris last June. This 2-day meeting resulted in a very thought-provoking dialogue among top political, academic, government and private sector representatives.

IWRA was also invited to participate in the dialogue organised by the prestigious Ditchley Foundation in Oxfordshire in May, on the timely topic of the Impact of Population Trends on the Millennium Development Goals. Participants to this exclusive, invitation-only meeting included Kofi Annan, former Secretary-General; Kamallesh Sharma, Commonwealth Secretary-

General; and Lord Malloch-Brown KCMG, British Minister for Africa, Asia and the United Nations. The discussions were intellectually very challenging and stimulating and the IWRA was able to make valuable contributions in the field of water.

Again, the IWRA was the only water association that was invited to participate in the ENCORE (Environmental Conference of the European Regions) meeting on Water and Climate Change in Zaragoza in June. This meeting, attended by more than 50 European Ministers, confirmed the importance of water-related issues for developed countries. Faced by recurrent floods and droughts, and increasing problems of non-point pollution, Europe is taking measures to protect its populations and economies from a very uncertain future.

IWRA co-sponsored the Second China Water Congress 2008, Beijing, China, 14-16 May 2008. Under the theme “Uncovering Rules and Boosting Profitability”, the congress focused on two main issues: governance reform towards clear and transparent rules and regulations, and how to deal with the manifold challenges of moving increasingly to market based systems in the water supply and sanitation sector. IWRA was also a cosponsor of the Second International Symposium on Water Resources and Renewable Energy Development in Asia, in Da Nang, Vietnam, 10-11 March 2008 and gave one of the opening addresses. The symposium attracted participants from over 40 countries, mostly from one of the world's most dynamic regions where, aside from China and Japan, IWRA does not have an extensive presence.

Looking ahead, the IWRA has already been invited to the scientific conference on “Climate Change: Global Risks, Challenges and Decisions” to be organised in Copenhagen in 2009 by the International Association of Research Universities. This meeting will make a direct input into the UN Climate Summit Meeting. The IWRA will have an opportunity contribute the results and conclusions of our triennial Congress in Montpellier this coming 1-4 September. The Association is also co-sponsoring several events. This clearly indicates that IWRA is well on its way to re-establishing itself as a leading water association.

Please do visit our new **webpage** ([www.iwrahome.org](http://www.iwrahome.org)). You will find a great deal of interesting information in the News section, to which all our members are cordially invited to contribute on a regular basis. With your contributions, our webpage will become ever more informative to members.

We need your help to make sure that the webpage is completely up to date. It has taken some time to rebuild the webpage, and some information appears to have been lost in transition. For example, Emeritus Professor Victor de Kosinsky, informed me that his name was omitted from the list of Fellow Members of IWRA on our webpage. If you are also a Fellow Member and your name is not in our list, please let us know and we will make sure your name appears where it should rightly be.

At Montpellier, we are organising a **General Assembly** where the most important issues of the Association will be discussed. Time is approaching for a new election, and the Executive Board is keen to discuss with all members as to how best the entire process can be made truly transparent. The last election process was quite contentious, and pointed to a number of ambiguities in our **Constitution**, which has been unchanged since our founding. We should ensure that the Association does not face this type of turbulence ever again in the future. Accordingly, our Secretary General, Lilian Laborde, has guided a Task Force with the invaluable support of Carl Bruch, to analyse the existing Constitution and Bylaws of our Association, and propose appropriate amendments. **Each member will receive the proposed changes to send their comment and suggestions to the Board.** Our aim is to ensure that the entire process is fair and transparent, and recognized as such by all parties concerned.

Please include in your agendas the dates for our **World Water Congress, September 1-4, in Montpellier**. Preparations are going extremely well and our partners, the Montpellier

University and VERSeau Développement, with Pierre Chevallier and his team in the front, and with the excellent support of Olli Varis, Scientific Director of the Congress, have done remarkable work to ensure a very high level scientific event. **Please do register for the Congress** as soon as possible ([www.worldwatercongress2008.org](http://www.worldwatercongress2008.org)). The time is drawing quite near.

**If you have not done so, may I request you to pay your annual membership fees** ([www.iwrahome.org](http://www.iwrahome.org)). Please go to the membership option and register. Log into the system and follow the directions for payment by PayPal. Should you prefer to pay by cheque or credit card, or if you have any question or problem, please contact Wallace Mayne, our Executive Director ([ce@wisa.org.za](mailto:ce@wisa.org.za)) or Ms. Manoko Selolo ([iwra-office@wisa.org.za](mailto:iwra-office@wisa.org.za)). Most of the issues of **Water International** are already available in our webpage, including those published by Routledge and you can have access to them after registering in the webpage and paying your membership fees.

I look forward to meeting all of you who will be participating in the Congress and to exchanging views as to how best we can further improve the impacts of IWRA on the world water stage, as well as what should be the priority activities of our Association in a rapidly changing world. See you in Montpellier!

**CECILIA TORTAJADA**  
**President, IWRA, 2007-2009**  
**Mexico/Spain**

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## **N**ote from the Executive Office

The past three months have seen significant changes at the Executive Office located in Midrand, a town within the booming metropolis of the City of Johannesburg, South Africa. We started the period under review with the intention to get the Executive Office up and running as soon as possible in order to serve the Association and its members in a beneficial and effective manner and re-establish its credibility in the international water sector.

To this end and with the invaluable assistance and guidance of the President, the Executive Office has achieved the following:

- Received the shipment of the IWRA documents from McGill University, Canada, and sorted and filed the documentation in an easily retrievable fashion in the Executive Office.
- Established a new database for Members both in MS Excel and in Pastel (accounting package utilised by the Executive Office)
- Issued invoices to all Members for 2007 & 2008 membership fees as inadequate records existed in this regard
- Assisted with the handling of queries and distribution of Water International 2007
- Managed the reconstruction and design of the IWRA webpage, including a PayPal facility to enable Members to pay their membership and journal fees on-line
- Obtained electronic banking facilities for the South African bank account as well as an on-line credit card machine for the speedy processing of Members' credit card payments
- Re-designed the Association's newsletter format as well as its letterhead
- Paid most of the outstanding IWRA debt
- Dealt with a great deal of correspondence (Members, Board, President, Treasurer etc)

Although these are ‘quick wins’ for the Association, the Executive Office will continue with its efforts to improve and update the databases and systems (and its service to Members).

A highlight for the staff of the Executive Office (and WISA – the Institute hosting the Executive office) was the visit to the Office by the President in mid-March 2008, when they met Dr Tortajada for the first time. The President took the opportunity to inspect the Office and the documentation as well as to discuss the IWRA Vision and plans that need to be implemented.

Mention must be made of the tremendous assistance received from the President and the Treasurer during these ‘early days’. It has been a privilege working with them.

**WALLACE MAYNE**  
**Executive Director, IWRA**  
**Johannesburg, South Africa**

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**S**eptember comes closer and so does IWRA’s World Water Congress in Montpellier. The scientific programme has already found its shape. We shall have five parallel sessions with oral presentations, and two parallel special sessions running during the congress days, together with the posters and the exhibition. We are assured of outstanding quality and variety!

Thanks to all the colleagues who have submitted their papers, to the organizers of special sessions and to the exhibitors, all of whom are very committed to the Congress. It has been a real pleasure to work with all of you, mainly with the National Organizing and International Scientific committees.

There is no doubt that this congress will be one of the landmark events in the water resources fields. There is a very large number of classy congresses and fora on water, but the Montpellier Congress stands out as particularly strong on professional, analytical and scientific approaches to water resources on many fronts. Governance challenges, response to changes such as those related to climate, economy, markets, urbanization, water demand management, infrastructure development and management, conservation and ecological issues as well as financing and capacity building, are among the major themes on which there will be much to offer to the participants.

Europe and Africa, as well as many parts of Asia, have a very good representation. At the centre of these, the Mediterranean region will be very well represented. There is also a good number of participants from the Americas, although the following World Water Congress that will take place in Recife, Brazil, is expected to attract even more people from the region. Montpellier has also many other things to offer: it is a most charming city with beautiful surroundings; mountains, beaches, wetlands, rural landscapes... And early September is a very enjoyable season in Montpellier. It is also a remarkable science & technology hub.

See you there, à bientôt!

**OLLI VARIS**  
**Chair International Scientific Committee of the IWRA World Water Congress 2008**  
**Vice President, International Water Resources Association, 2007-2009**  
**Espoo, Finland**

# **I**WRA Constitution and Bylaws: Assessment and Review

The proposal for updating the objectives of IWRA was approved in February 2007 at the Executive Board meeting held in Cairo. In order to include these modifications and to update and revise the Constitution and Bylaws of the Association that had been last reviewed in 1993, a Task Force has been established as an *ad hoc* committee by the President of the Association, Dr. Cecilia Tortajada. Thus, the Executive Board appointed Lilian del Castillo-Laborde, Secretary General, as *rapporteur* to chair the Task Force, and a group of members were also nominated to carry on the task, namely, Aziza Fahmi, Carl Bruch, Salman M. A. Salman, Avinash Tyagi, Jesús Ocegueda and Stephen McCaffrey. The *rapporteur* prepared, in consultation with the other members of the Task Force, a Concept Paper dealing with the assessment and proposed amendments of the present IWRA Constitution and Bylaws. The assessment seeks to improve those instruments, addressing gaps that have become apparent over the past fifteen years. The objectives of the Association established in the actual Constitution, written in 1973, are still valid, but they must be updated in accordance with the evolution within the water world that have taken place since then. There is an important amount of experience acquired during this time period, and the proposed modifications focus primarily on responding to those needs. The present instruments, however, had been an appropriate framework allowing the Association to fulfill its goals and its overall concept, with the required amendments, should be maintained. All the proposed amendments will be submitted for consideration and approval by the IWRA membership, pursuant to the rules already established to that end.

**LILIAN CASTILLO-LABORDE**  
**Secretary General, IWRA, 2007-2009**  
**Argentina**

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## **N**ote from the Treasurer

In recent months – particularly the Second Quarter of 2008 – IWRA consolidated the financial architecture necessary for the efficient operation of the Association. The various bank accounts are all fully transitioned, following the transition to the new Executive Office and the new Treasurer.

IWRA has also opened a PayPal account so that members can pay their dues quickly, efficiently, securely, and easily. Members may pay their dues using the link on the IWRA home site (it is necessary to log in first), and 35 members have paid their dues this way since early May when the link went live.

With the financial architecture in place and the Executive Office operating, IWRA has started to function – at least financially – as it should. We are paying our bills. Members are starting to pay their dues. Financially speaking, we are reemerging slowly but surely.

There is some reason for concern, though. We still lag dramatically in membership fees. The means are now in place to process the payments securely and efficiently through PayPal; and if someone would like to have their payment handled by a person, the Executive Office is available to process credit card payments. As noted, 35 members have paid their dues in slightly over two months. We should have had 10 to 20 times that number. On a bright side,

there are well over 500 people registered for the upcoming IWRA Congress, including many that have not paid their 2008 membership dues.

From a financial perspective, the most urgent matter currently is to increase the membership base. If you have not paid your 2008 dues, please do so as quickly as possible. If you have friends or colleagues who might be interested in becoming members, please let them know. Anything that you – the individual membership – can do to increase the membership would be much appreciated.

On another note, following on the last financial update, IWRA filed its 2007 financial reporting forms with the U.S. Internal Revenue Service in a timely manner. IWRA also learned that the IRS waived the potential penalties associated with the late filing of the 2006 forms (see previous Update for the full details regarding the submission that should have been filed before the current Treasurer started his duties). The waiver was a significant relief, as the penalties would have depleted the already modest cash reserves that IWRA has on-hand.

As always, if you have any questions or comments, please do not hesitate to contact me at [bruch@eli.org](mailto:bruch@eli.org).

**CARL BRUCH**  
**TREASURER, 2007-2009**  
**WASHINGTON, DC**

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## **N**ote from the Editorial Office

In the three months since the last Newsletter, we have made quite a bit of progress towards normalizing the publication of *Water International*. The first two issues for 2008, published by Routledge (Taylor & Francis) have appeared on time, and with luck the September issue will be ready for display at the XIII World Water Congress in Montpellier, 1-4 September. That issue, with the theme “Running Dry,” has two sections. One is water management in very arid regions, with a special but not exclusive focus on the need for greater appreciation of traditional projects (especially karez/qanats) and traditional institutions. The other section is an exploration of whether the *concept* of integrated water resources management (IWRM) has “run dry,” and if so (not necessarily a given), what if anything could be done to revitalize it. I hope we can continue a critical investigation of IWRM and related concepts in the pages of *Water International*, strengthening it as a practical tool where possible, and exploring alternative concepts where appropriate.

The September issue is a milestone for me, as it clears the backlog of accepted manuscripts I inherited. The next step is to bring the queue of papers in process down to manageable size so that we can achieve our goal of providing a quick turnaround that serves both authors and readers alike. We’re not quite there yet, but I have begun to make some inroads and hope to have good news from this front to report to you in the next newsletter. At the same time, I can now turn my attention to speeding up the process for new submissions, which are always welcome.

We also should be able to publish a special issue now and then, so please feel free to send me proposals. Do remember that we give preference to policy-relevant contributions that are international, interdisciplinary, and most of all, interesting. The total package needs to be well under 60,000 words as well, unless you are willing to bear a surcharge.

In all areas, I wish we could make more rapid progress in recovery than we have, but it has been impossible with the limited personnel and resources available. In particular, the Supplemental Issue 2007 has taken far longer to get out than I had anticipated, in large part because of the proofreading and layout work required for a jumbo issue. This has been frustrating to all concerned, not least the authors. It is coming, it should be out shortly, and it is worth reading.

Another part of this position is that I have the pleasure of overseeing the nomination process for the awards for best paper from *Water International* for the years 2005-2007. In the process, I have been continually reminded of the high quality and great diversity of articles that have appeared in our journal. My goal is to ensure that it just gets better, with your help!

**JAMES E. NICKUM**  
**Chair, IWRA Publications Committee, 2007-2009**  
**Editor-In-Chief, Water International**  
**Tokyo**

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## **M**essage from the Chair of the IWRA Membership Committee

IWRA has gone through a difficult period, which of course also has influenced the interests of the members, including the interest in staying as an active IWRA-member. As IWRA is committed to serve the interests by its members and “to the sound management of the water resources through: (i) advancing water resources and related environmental research; (ii) promoting water resources education; (iii) improving exchanges of information and expertise; (iv) networking with other organisations who share common interests and goals; and (v) providing an international forum on water resources issues.” we are very interested in knowing:

- What was your main motivation becoming an IWRA member, and for how long have you been a member?
- What do you see as the main advantage/ disadvantage being an IWRA-member?
- How have you been ‘using’ your IWRA membership and what has been the main gain by being an IWRA member?
- Have you during your membership period left/thought of leaving IWRA? In that case, what was your main motive behind these thought? And what was your main motive behind not leaving/returning?
- Any other message you want to send to the IWRA Board and Executive secretariat concerning your membership?

We appreciate your comments that are a very valuable input to IWRA’s work on its membership policy, by e-mail to the IWRA Executive Secretariat ([iwra-office@wisa.org.za](mailto:iwra-office@wisa.org.za)) by 15 August. Thank you very much in advance!

**GUNILLA BJÖRKLUND**  
**Chair of the Membership Committee, IWRA**  
**Sweden**

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## NEWater: Singapore's Experience in Water Reuse

As the national water agency of Singapore, PUB manages the nation's water resources in an integrated manner, from the collection and management of raw water, the production and supply of water, and collection, to the treatment and reclamation of used water.

Since the 1970s, Singapore has been testing new water technologies to produce water of drinking standards from secondary treated used water effluent. With the advances in membrane technology coupled with better understanding and lower membrane cost, it is now feasible to produce water of drinking standards, called NEWater in Singapore, from treated used water reliably and cheaply.

Introduced in 2002, NEWater is one of the Four National Taps, a long-term strategy put in place by PUB to ensure a diversified and sustainable supply of water for Singapore. The other three national taps are local catchment water, imported water and desalinated water.

NEWater undergoes a rigorous treatment process comprising dual membrane processes of microfiltration /ultrafiltration (MF/UF) and reverse osmosis (RO), followed by ultra-violet (UV) disinfection.

There are currently four NEWater plants in Singapore, meeting about 15% of Singapore water needs. The fourth and largest plant was opened in March this year with a capacity of 145,000 m<sup>3</sup> of NEWater per day.

NEWater is primarily supplied to non-domestic sectors such as wafer fabrication parks, industrial estates and commercial buildings for industrial and air-cooling purposes.

The supply of NEWater to wafer fabrication plants for the production of ultra-pure water needed for the manufacturing processes is the world's first. It demonstrates the quality and reliability of NEWater as these operators need a quality higher than that for drinking purpose. Industries and commercial buildings have also reported savings in operation cost and less water consumption with NEWater because of its higher purity over tap water.

A small percentage of NEWater is also mixed with raw reservoir water before being treated at the waterworks as drinking water. This indirect potable use of NEWater is expected to reach 45,000 m<sup>3</sup>/day by 2011, about 2.5% of Singapore's daily water consumption.

Public support for the use of NEWater as an alternative water resource for both potable and non-potable uses has been overwhelming. This is the result of an extensive public education program that has been put in place by the PUB to educate both the media and public on NEWater and its significance to meet Singapore's long term water demand by closing the water loop. Study trips were organized for the media to visit several cities in the United States where large scale water recycling has been practiced.

To gain public confidence in NEWater, PUB has been distributing sample bottles of NEWater to the public, institutions and community organizations for tasting since Aug 2002. This is still on-going and more than 9 million bottles have since been distributed. Numerous talks and seminars on NEWater were also conducted for various community leaders, grassroots members, institutions, religious groups and other business associates. A documentary educating the public on the technology of NEWater and the experiences of other countries in the use of reclaimed water was also broadcast on television.

PUB's NEWater Visitor Centre which is integrated with the recently expanded 82,000 m<sup>3</sup>/day NEWater plant, is the focal point in its on-going public education program. The target is for all school children to visit the NEWater Visitor Centre during their school years so that they better understand Singapore's water story. Engaging exhibits, multi-media presentations, computer inter-actives and several NEWater water features are incorporated into the educational journey for visitors to provide 'touch and feel' opportunities.

To date, more than 500,000 people have visited the visitor centre. It was named Best Sightseeing/Leisure/Educational Programme at the 2005 Singapore Tourism Awards. The NEWater Visitor Centre also clinched the highly recommended award under the International Water Association (IWA) – Marketing and Communication Award for School Information Programme.

*Mr Chan Yoon Kum,  
Assistant Chief Executive, PUB*

### **Aragon's Action Plan for Wastewater Treatment: A Model of Financial and Environmental Management**

In order to meet the targets set by European Directive 91/271/EEC on treatment of urban wastewater, the Government of Aragon launched the Special Plan for Sanitation and Water Treatment (PESD by its Spanish initials). The plan aims to treat wastewater in all communities with a population-equivalent of more than 1000 inhabitants. The challenge is a major one, given that Aragon's relatively small population is very widely dispersed over a large region of 47,719 km<sup>2</sup>, an area that covers 10 percent of Spain, over frequently mountainous terrain.

For the purposes of the plan, Aragon has been divided into 13 zones, drawn up on the basis of hydrographic sub-basins, land use, and construction efficiency. As a result, small water treatment stations are less likely to become forgotten over the years, as they so often have in the past. All the technologies approved include provision for secondary treatment, mostly by aerobic biological techniques but also by biodisc plants and bacterial bed processes. Some 132 treatment plants are being built for 172 centres of population. Each zone is managed by a 20-year administrative concession, while projects are financed by a 'Sanitation Toll' in accordance with the principle of cost recovery. The population centres participating in the programme will receive environmental and social benefits as they see their rivers brought back to life.

Red tape is being processed at record speed. Accords are signed with municipalities, environmental permits obtained, the relevant authorities informed, technical specifications are drawn up for tenders, land is obtained, contracts are awarded and building plans drawn up, all in a minimum of time. All the basic projects that form the terms of tender have been drawn up taking into consideration environmental criteria.

The payment system that has been established ensures that construction is completed on time and to adequate quality standards. Contractors recover their construction and operational costs in terms of each cubic metre treated correctly. The Aragon Water Institute of the Ministry of Environment of Aragon, puts water policy into practice by promoting the construction of infrastructure for wastewater treatment throughout Aragon and charges the overall cost to final users by means of the sanitation toll. The toll complies with the three principles: cost recovery; the polluter's pay principle; and territorial equality. As a result, everyone who lives in Aragon, no matter the size of the community, pays the same in accordance with the volume of water he or she consumes.

The sanitation toll is an environmental tax imposed by the Autonomous Community and is used to finance wastewater sanitation, treatment and the prevention of pollution. The tax is imposed on the production of wastewater as revealed by consumption, whether for domestic or industrial purposes. Charges are based for domestic users on the volume consumed in cubic metres, while industries are charged in accordance with the amount of pollution they are reckoned to cause. The tariff consists of a fixed component in both cases (although it is higher for industrial users) and a variable component of either volume consumed or units of pollution.

In order to meet the targets set by the PESD in the most efficient way possible, the government of Aragon has opted for a system of public works concessions in the terms of a Royal Decree that approves a revised version of the 2003 law on the matter. Under public-private partnerships, the private sector builds and operates wastewater treatment infrastructure for a predetermined period—20 years in this case. The government pays nothing for the original construction and hence has no need to incur debt.

In order to avoid the infrastructure being regarded, for the purposes of the European System of Accounts (ESA 95), as an asset of the administration with its consequent debt as a counterpart, the contractual relationship between the Aragon Water Institute and the holders of the concessions has been structured so that the contractual risks are transferred to the concession holders in accordance with the guidelines of the European Statistical System (Eurostat). According to Eurostat, the contractual risk that has to be transferred to the holders of the concession in such cases is the risk involved in construction, or else in demand or availability. The bid specifications for the PESD tenders aim to transfer all three risks. As a result, they have been drawn up in the following manner. In order to transfer the demand risk to the holder of the concession, no minimum guaranteed payment is specified. Instead, the level of payment is a function of the volume of wastewater treated, with zero payment where, for example, a plant breaks down and is unable to treat any water. Instead, two bands have been established, with the first being equivalent to the expected volume minus 25%. This first band, therefore, provides sufficient income to cover fixed costs and those of debt amortization. The second band is set in such a way that production of the programmed volume provides profitability as forecast in the feasibility studies.

In order to transfer the risk of availability, measures have been taken to remove all discretionary elements from penalty clauses. The sanctions imposed on holders of concessions who fail to meet minimum standards have been set at a level that reduces their income substantially.

In order to transfer the construction risk, the bid specifications stipulate that the holder of the concession assumes the risk of any variation, whether upward or downward, in the budgeted cost. Nor is the holder of the concession paid until the project is satisfactorily completed and successfully brought on stream. Under this system, the Aragon Water Institute is responsible for making regular payments to holders of concession of each of the zones into which Aragon has been divided.

The payments, which vary in accordance with the volume of wastewater treated, will be different for each plant. However, by imposing the same system everywhere, the Aragon Water Institute covers its costs by charging all users the same. The model of environmental management of water, therefore, favours territorial equilibrium.

The magnitude of the financing for the Plan that had to be raised, in the context of Spain and Aragon, can be better appreciated by the following comparisons:

- National spending for Spain for wastewater management for the 1995-2005 period was €1.14 billion. Funding requirements for the Plan for Aragón is equivalent to 93% of the total Spanish expenditure for the past 10 years, but Aragón will be spending this amount in only about 5 years.

- The budget for the Plan for 2006 represented nearly 22% of the annual budget for the entire Autonomous Community of Aragón.
- Infrastructure construction cost alone is nearly twice that of European Union's entire LIFE programme for 2005-2006, and is equivalent to 85% of the amount EU has budgeted for its internal environmental policies for 2006.

*Dr Alfredo Boné,  
Minister of Environment of Aragón*

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## **I**nternational Events

***International Water Resources Association (IWRA) Congress. 1-4 September 2008. Montpellier, France.*** This is the prestigious tri-ennial congress of the IWRA. The theme is "Global Changes and Water Resources: confronting the expanding and diversifying pressures". For further information, visit the [www.worldwatercongress2008.org](http://www.worldwatercongress2008.org) or [www.c2008.msem.univ-montp2.fr/](http://www.c2008.msem.univ-montp2.fr/)

***World Water Week. 17-23 August 2008. Stockholm, Sweden.*** Organised by: Stockholm International Water Institute (SIWI) Theme: "Progress and Prospects on Water: For a Clean and Healthy World", including a Special Focus on Sanitation. Contact: World Water Week Secretariat, c/o SIWI, [mailto: secretariat.www@siwi.org](mailto:secretariat.www@siwi.org). More information: [www.worldwaterweek.org](http://www.worldwaterweek.org)

***12th International Conference on Integrated Diffuse Pollution Management. 23-25 August 2008. Khon Kaen, Thailand.*** [www.iwahq.org/templates/ld\\_templates/layout\\_633184.aspx?ObjectId=656007](http://www.iwahq.org/templates/ld_templates/layout_633184.aspx?ObjectId=656007)

***11th Nordic Filtration Symposium. 25-26 August 2008. Copenhagen, Denmark.*** Prof Gunnar Jonsson of the Technical University of Denmark reports that the full program for this event is available at [www.oystertown.co.uk/files/NoFS11-IDA-program.pdf](http://www.oystertown.co.uk/files/NoFS11-IDA-program.pdf)

***11th International Specialised Conference on Watershed & River Basin Management. 4-5 September 2008. Budapest, Hungary.*** [www.iwa2008budapest.org/](http://www.iwa2008budapest.org/)

***Adapting to the Impacts of Global Changes on River Basins and Aquifer Systems. 8-9 September 2008. Delft, The Netherlands.*** Organised by UNESCO, the conference considers global changes brought on by population growth, climate change, urbanization, expansion of infrastructure, migration, land conversion and pollution is altering the Earth and the way it functions. Although these changes are global, no institution or country can face the challenges they pose alone. UNESCO-IHP, as the only intergovernmental programme on water sciences with a focus on freshwater in the UN system, can foster the cooperation needed to bring all players together, whether they are Member States, research institutions, universities, UN agencies, NGOs, or national or international associations. [www.unesco.org/water/news/newsletter/202.shtml#news\\_1](http://www.unesco.org/water/news/newsletter/202.shtml#news_1)

***Second IASTED Africa Conference on Water Resource Management ~AfricaWRM 2008. 8-10 September 2008. GICC, Gaborone, Botswana.*** Theme is "Science and Technology Innovation for Sustainable Development" and hosted by University of Botswana.

The purpose of this conference is to act as an interdisciplinary forum for decision-makers, academics, and professionals interested in the development and application of technology in ensuring the sustainable use and management of our water resources. This purpose is consistent

with the goals of the United Nations Decade of Water for Life. The forum will cover both hard and soft technology and will serve to promote the use of appropriate technologies. Case studies are welcome. Submit papers at [www.iasted.org/conferences/submit-604.html](http://www.iasted.org/conferences/submit-604.html) - formatting guide [www.iasted.org/formatting-initial.htm](http://www.iasted.org/formatting-initial.htm). For more information or to be placed on the mailing list, please contact: IASTED Secretariat – AfricaWRM 2008, Calgary, Canada. [calgary@iasted.org](mailto:calgary@iasted.org) or visit [www.iasted.org](http://www.iasted.org)

***Dam Safety Seminar and Study Tour. 14-25 Sept 08. Denver, Colorado.*** The first portion of the seminar, from September 15 through September 20, 2008 will take place in Denver, Colorado, and will consist primarily of classroom presentations and discussions. A site visit to A.V. Watkins Dam, where in November 2006, serious seepage was occurring on the south eastern side of the dam. A walk-through abbreviated exam will take place at American Falls Dam located in Idaho. The study tour will also include a site visit to the Teton Dam site located on the Teton River northwest of Rexburg, Idaho. Teton Dam, a 100-m-high embankment dam, completed in November 1975, failed catastrophically on June 5, 1976. The study tour will end in Las Vegas, Nevada, where participants will enjoy a special tour of Hoover Dam. The registration fee is US\$3 800 per person. Various printed materials, lunch for most days, lodging for 12 nights (September 14-25), and transportation during the study tour is included. For further information contact Leanna Principe at [Lprincipe@do.usbr.gov](mailto:Lprincipe@do.usbr.gov) or visit [www.usbr.gov/international/damsafety.html](http://www.usbr.gov/international/damsafety.html)

***International Conference on Sustainable Sanitation in Africa. 24-26 September 2008. Ouagadougou, Burkina Faso.*** The NETSSAF consortium consists of 19 African and European partner organisations. The main outcome of the project will be a Participative Multi-stakeholder Sanitation Management Support Tool based on a series of case studies carried out in peri-urban and rural areas in West Africa, focussing on:

- appropriate low-cost sanitation technologies
- potential reuse in agriculture
- community based management
- governance and institutions in sanitation

For more information visit [www.netssaf.net/170.0.html](http://www.netssaf.net/170.0.html)

***Aquatech Amsterdam 2008: Design and Operation of Membrane Plants for Water, Wastewater, Industrial Effluents. 1 - 2 October 2008, Amsterdam, The Netherlands.*** Practical case studies and results of research projects will be presented with focus on techno-economical aspects of design and operation. The conference aims to develop and encourage international cooperation towards optimal membrane performance, cost reduction, energy consumption, process integration, waste production, importance of pre-treatment. It will support operational research efforts and management modelling of membrane systems. Research needs will be identified and an international technology transfer process related to membrane application for improvement of water and waste water treatment processes in relation to regulations will be developed. Email: [info@moorga.com](mailto:info@moorga.com). Website: [www.moorga.com](http://www.moorga.com) or [www.aquatechtrade.com](http://www.aquatechtrade.com)

***NGWA International Conference on Non-renewable Groundwater Resources. 13-14 October 2008. Portland, Oregon (USA).*** Supported by UNESCO International Hydrological Programme (IHP) For more info: [www.ngwa.org/DEVELOPMENT/conferences/details/0810135055.aspx](http://www.ngwa.org/DEVELOPMENT/conferences/details/0810135055.aspx)

***Role of Hydrology in Water Resources Management. 13-16 October 2008. Capri, Italy***

The purpose of the Symposium is to discuss ways in which hydrologists can contribute most effectively to the planning and management of freshwater projects, including the efficient operation of existing systems faced with new socio-political situations.

[www.unesco.org/water/news/newsletter/192.shtml#news\\_1](http://www.unesco.org/water/news/newsletter/192.shtml#news_1)

**Water Tech Asia 2008. 14 - 16 October 2008. Shanghai, People's Republic of China.** The Conference is supported by the International Water Resources Association (IWRA), the European Desalination Society and by CIWEM. With the regulation of "Building a Water-Saving Society and Promoting the Sustainable Development of Water Resources" issued, China central government determined to deepen the technology innovation in water industry. And technology is playing more and more important role to win the market during the intense competition. With an exciting line-up of 200+ top-level decision-makers from water industry, Water Tech Asia 2008 is aiming to accelerate the sustainable development of water resource and draw on key industry leaders to discuss how to seize the business growth opportunities through developing client-oriented technologies and adopting innovative technologies. For details contact Ms Joanne Huang, Organizing Committee of "Water Tech Asia 2008", Global Leaders Institute at Tel: +86 21 52360030/32 Ext.6071 or Fax: +86 21 52360029 or [joanne.huang@globaleaders.com](mailto:joanne.huang@globaleaders.com) or visit [www.watertechsummit.com](http://www.watertechsummit.com)

**4th International Symposium on Transboundary Waters Management (TWM). 15-18 Oct 08. Thessaloniki, Greece.** Dr Alexandros Makarigakis (based at the UNESCO Windhoek Cluster Office) writes that UNESCO IHP and the UNESCO Chair INWEB together with the Aristotle University of Thessaloniki are organising the above conference, which is the follow-up to the III TWM symposium held in 2006 in Ciudad-Real, Spain. The aims of the Symposium are:

- To assess the state of the art and the progress recently made in the sustainable management of transboundary waters by different disciplines such as law, socio-economics and water science;
- To review current major international programmes concerned with the assessment and management of transboundary water resources; and
- To promote interdisciplinary approaches for integrated transboundary water resources management.

For more info please visit the new website [www.inweb.gr/twm4](http://www.inweb.gr/twm4)

**WEFTEC 08 - 81st Annual Technical Exhibition & Conference. 18-22 October 2008. McCormick Place, Chicago, Illinois USA.** WEF's Annual Technical Exhibition and Conference, offers the best water quality education and training available and is a leading source for water quality developments, research, regulations, solutions, and cutting-edge technologies. WEFTEC.08 attendees can design their own learning experience from a dynamic array of educational opportunities, including:

- 115 Technical Sessions
- 31 Workshops
- 10 Facility Tours
- The Exhibition, currently featuring 915 companies

For more info visit [www.weftec.org/Education/CallforAbstracts.htm](http://www.weftec.org/Education/CallforAbstracts.htm)

**Membranes in Drinking Water Production & Wastewater Treatment Conference. 20-22 October 2008. Toulouse, France.** Arranged by INSA and the European Desalination Society the Conference is themed "Membranes in Drinking Water Production and Waste Water Treatment" and is supported by AWWA & EMS. The Conference will be the 8th Conference in the series after Paris 1995, L'Aquila 1997, Amsterdam 1998, Paris 2000, Mühlheim 2002, L'Aquila 2004, Harrogate 2006. The Conference Web-site is now open - You can still register and submit abstracts on: [www.mdiw2008.com/](http://www.mdiw2008.com/)

**11th International Conference on Wetland Systems Technology for Water Pollution Control. 1-7 November 2008. Indore, India.** [www.wetland2008.org/SaveWater/](http://www.wetland2008.org/SaveWater/)

**World Toilet Summit & Expo. 2-4 November 2008. Macau, SAR China.** Supported by Habitat and Asian Development Bank. Details: Contact [info@worldtoiletevents.com](mailto:info@worldtoiletevents.com). Enquiries: Visit [www.worldtoiletevents.com](http://www.worldtoiletevents.com)

**6th EarthWatch Conference on Water & Sanitation. 18-20 November 2008. Abuja, Nigeria.** Hosted by the Nigerian Water & Sanitation Forum and supported by and his supported by World Toilet Organization, the conference is themed ‘the challenges of financing sanitation in Nigeria & West Africa towards achieving the MDGs’. The 1st ever sanitation and financing exhibition in Nigeria and West Africa will be held alongside the Conference. The conference organisers are confident that the simple sanitation technologies (like urine diversion, composting toilets and others such South African Sustainable Sanitation technologies) presented by members of the WISA and other stakeholders in South Africa at the AfricaSan Conference in Durban in February 2008 will be relevant to Nigeria & West Africa. For more details visit [www.earthwatchnigeria.org](http://www.earthwatchnigeria.org), [www.esa.un.org/iys](http://www.esa.un.org/iys) [www.worldtoilet.org](http://www.worldtoilet.org), [www.unesco.org/waterevents](http://www.unesco.org/waterevents) or contact Peter Cooley at [peter@earthwatchnigeria.org](mailto:peter@earthwatchnigeria.org) or +234 802 324 5314

**International Conference on Water Scarcity, Global Changes and Groundwater Management Responses, 1-5 December 2008. University of California, Irvine, USA.** Supported by UNESCO International Hydrological Programme (IHP). For more information: [www.webworld.unesco.org/ihp\\_db/events/GenericView.asp?KEY=315](http://www.webworld.unesco.org/ihp_db/events/GenericView.asp?KEY=315)

**6th International Conference on Ecological Informatics ISEI6, 2-5 Dec 2008. Cancun, Mexico.** For details on abstract/paper submission & registration please visit: [www.isei6.unipamplona.edu.co/](http://www.isei6.unipamplona.edu.co/).

**Disinfection 2009. 28 February – 3 March 2009. CNN Centre, Atlanta, Georgia.** This conference provides a forum for those professionals concerned with disinfection needs and technologies. The conference will be focused on all aspects of the disinfection of water, wastewater, reuse water and biosolids. The conference will also have a special focus on the disinfection or other treatment of water and the treatment and disinfection of wastewater in small communities and households in developed and developing countries. [www.wef.org/errors/404.htm](http://www.wef.org/errors/404.htm). A complete list of call topics, additional conference information, and online abstract submittal can be accessed at [www.wef.org](http://www.wef.org)

**5th World Water Forum. 15-22 March 2009. Istanbul, Turkey.** The theme is “Bridging Divides for Water”. Building on the success of the 4th World Water Forum held in Mexico City last March, which boasted over 15 000 visitors from every continent, Istanbul was selected as the host of the Forum from six possible candidates following an extensive process. The 2nd Announcement for WWF5, which presents the Forum’s thematic development and serves to launch a call for contribution, is now available on the WWC website ([www.worldwatercouncil.org](http://www.worldwatercouncil.org)) as well as on the Forum website ([www.worldwaterforum5.org](http://www.worldwaterforum5.org))

**OZWATER 09 - Australia's National Water Conference & Exhibition. 16-18 March 2009. Melbourne Convention & Exhibition Centre.** Call for papers now open and abstracts being accepted until 31 July 2008. Exhibition and sponsorship opportunities are also available. [www.ozwater09.com.au](http://www.ozwater09.com.au)

**5th IWA Specialist Conference Oxidation Technologies for Water & Wastewater Treatment. 30 March - 1 April 2009. Berlin, Germany.** Continuous basic and applied R&D already helped to improve the effort-benefit ratio of AOP in many applications as well as exploring and consolidating new fields of application and concepts of AOPs. The conference will bring together both experts from research and development as well as from industry. The discussion about novel developments of models, measurements, reactors and processes together with experience in recent full-scale applications including operational problems should promote the further progress of AOP. The proposed themes:

- Water and wastewater treatment
- Soil treatment
- Treatment of emerging contaminants

- Fundamentals
  - Innovations and applications:
- Email: [aop5@cutec.de](mailto:aop5@cutec.de)  
 Website: [www.aspd5.com](http://www.aspd5.com)

**Collection Systems. 19-22 April 2009. Kentucky International Convention Centre, Louisville, Kentucky USA.** The 2009 Specialty Conference Committee is soliciting abstracts that focus on national collection system issues. Abstracts are also being solicited for several sessions on wet weather challenges in the Ohio River Valley and Midwest with outcomes or lessons learned that could be applied to national issues. System operations and specific project related experiences and case studies will be used to illustrate a range of collection system solutions and planning tools. [www.wef.org/errors/404.htm](http://www.wef.org/errors/404.htm). A complete list of call topics, additional conference information, and online abstract submittal can be accessed by following this link.

**Residuals and Biosolids 2009. 3-6 May 2009. Oregon Convention Centre and Doubletree Hotel - Lloyd Centre, Portland, Oregon.** The Water Environment Federation's Residuals and Biosolids Committee in cooperation with the NW Biosolids Management Association, the Pacific NW Clean Water Association, and the Oregon Association of Clean Water Agencies is sponsoring a specialty conference on residuals and biosolids management. This conference is the 23rd annual WEF specialty conference on this subject. The conference will focus on processing and management of biosolids. The theme of the conference is "Sustainable Biosolids Management".

<http://www.wef.org/ConferencesTraining/ConferencesEvents/ResidualsBiosolids/>

Deadline for Abstract Submittal: **28 July 2008**. A complete list of call topics, additional conference information, and online abstract submittal can be accessed by following [www.wef.org](http://www.wef.org)

**International Conference on Nutrient Recovery from Wastewater Streams. 10-13 May 2009. Vancouver, British Columbia, Canada.** Hosted by the Department of Civil Engineering of the University of British Columbia (UBC, this conference deals with nutrients in wastewaters (municipal sewage, animal wastes, food industry, commercial and other liquid waste streams) and the new "paradigm" which is emerging, globally - the commercial marketing of recovered nutrients as "green" fertilizers, or recycling of nutrients through biomass production to new outlets such as bio-fuels. Please send abstract submissions (2-page single-spaced maximum, with additional 2 pages of tables or figures) to: Venue West Conference Services Ltd, Fax: 604 681-2503 or E-mail: [mmori@venuewest.com](mailto:mmori@venuewest.com)

**Microbial Population Dynamics in Biological Wastewater Treatment. 24-27 May 2009. Aalborg, Denmark.** The specialist group on Activated Sludge Population Dynamics (ASPD) organises the next IWA international Specialised Conference on Microbial Population Dynamics in Biological Wastewater treatment in Aalborg, Denmark in May 2009. The conference will examine the development in the field in the period 2005-2009, especially on the effectiveness of solutions unveiled by the new microbial toolbox.

**5th IWA Specialised Membrane Technology Conference for Water & Wastewater Treatment. 1-3 September. 2009. Beijing, China.** First Announcement & Call for Papers issued. 2-page English abstracts must be submitted by **31 December 2008**. For more details visit [www.iwa-mtc2009.org](http://www.iwa-mtc2009.org)

## TO PARTICIPATE IN THE IWRA CONGRESS

### Simple steps:

**READ** the “final announcement and preliminary programme” of the Congress at

<http://wwc2008.msem.univ-montp2.fr/resource/RES185.pdf>

**CHECK** regularly the webpage. News are updated in “almost real time”

**REGISTER** and participate in the most important event of the IWRA!



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