hydrolink
number 6 2010

Banaue Rice Terraces: An Engineering Marvel Faces Uncertainties

Changing the way we think about water

See page 90

34th IAHR World Congress

See page 92

IAHR Awards

See page 97

IAHR AIRH

75 ANNIVERSARY 1935-2010

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Editorial by **Estibaliz Serrano**

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As you receive this issue of Hydrolink the year is coming to an end, and this is a good time to think about how this magazine has responded to member interests and what we can do to improve in the future! 2010 heralded a new era for Hydrolink with the appointment of Prof. Michele Mossa as the first technical Editor with the aim of improving the editorial content.

Starting from this issue we publish an engaging article by Sharon Nunes, from IBM and Keynote Speaker of the 34th IAHR World Congress and which may just convince anyone undecided about going to Brisbane next June!

Another topic in this issue is the IAHR Awards. These awards are important for the IAHR community and in order to encourage nominations we have implemented an online nomination form so that members can propose deserving outstanding colleagues for any of our Awards: Jan Schoemaker, Arthur T. Ippen, and the M. Selim Yalin Award.

During the year IAHR has celebrated its 75th Anniversary with a Special Issue on Instrumentations in which the Committee on Experimental Methods and Instrumentation was actively involved. We have received positive feedback about this content.

A Special Issue on Europe showcasing European research was published in May coinciding with the First IAHR Europe Division Congress in Edinburgh which was also distributed among the participants.

Much of Hydrolink have been devoted to highly topical events which happened throughout the year. Examples included the Gulf of Mexico Oil Spill with commentaries by experts in the field such as Prof. Pooji Yapa, of Clarkson University, New York and Prof. Heidi Nepf of MIT, Boston.

Other topics of interest which have been covered include the Bologna Process, and the Future of Academic Publishing.

Another innovation in 2010 has been the section “10 Questions to…” in which people from the hydro-environment community are interviewed on one of the topics of the issue.

Conference reports and member news have also had important coverage during the year in Hydrolink. If there is a lack of space further information can be found on our website www.iahr.org under the section of the corresponding Committee.

As earlier mentioned Hydrolink is the mouthpiece of the IAHR Membership so we encourage both IAHR officers and the membership at a large to participate in it. The “People and Places” section serves as a valuable forum for members to mark and notify career changes and other interesting news.

As mentioned given the importance of ensuring that Hydrolink serves our members we plan to conduct a survey shortly to further focus future editorial content.

We also would like to thank advertisers for their support as we are convinced that Hydrolink is a really good channel to reach high profile people in Water.

hydrolink

in this issue

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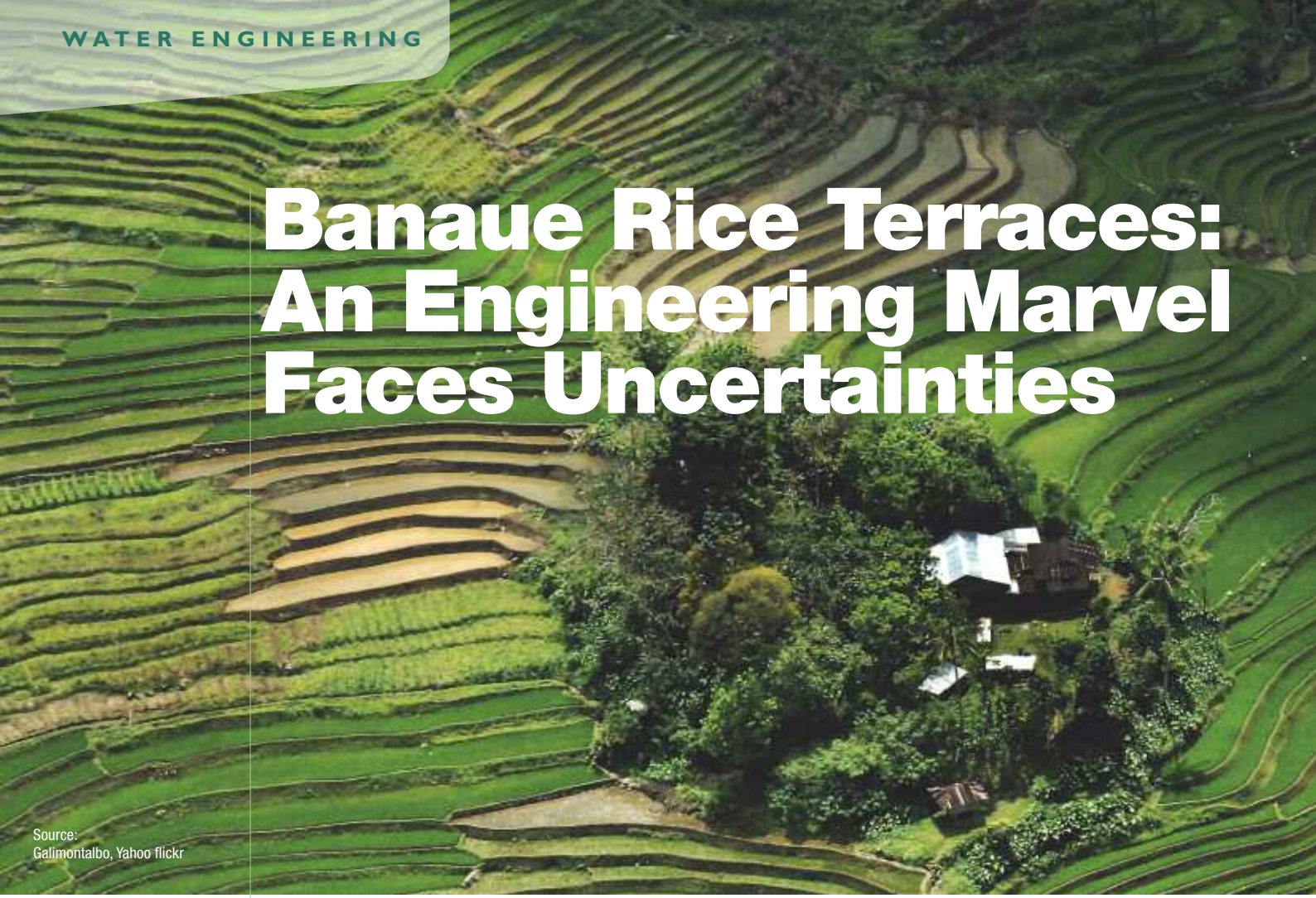
Banaue Rice Terraces: An Engineering Marvel Faces Uncertainties



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The "eighth wonder of the world" faces an uncertain future as modernization lures the Ifuagaos away from the centuries-old rice terraces.

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The Ifugao rice terraces of the Philippines are often referred to as the “eighth wonder of the world.” These rice terraces had been declared a UNESCO World Heritage slte and aside from being a central tourist attraction. the terraces have been the subject of considerable studies by visiting and resident scientists.

The rice terraces cover a vast expanse of cultivated mountain slopes and are a testament to the amount of collective effort used to transform an otherwise unsuitable terrain into one that is both productive and awe-inspiring. Upon seeing the Ifugao rice terraces, one anthropologist declared: “the rice terraces are the most impressive scenes in the Philippines, the highlight of all its marvels.”

Ifugao Province occupies the eastern and central slopes of the Cordillera mountains in Northern Luzon. It is drained by the Magat River, a principal branch of the Cagayan River. The entire area is covered by precipitous highlands, some reaching 2,300 meters. It is on these slopes that the natives used crude tools to carve the terraces which cover an area of 100 square miles. Most are stone - walled and average six to eight feet high. Some walls, however, exceed 25 feet. In all, they span about 400 miles.

What make them so awe-inspiring are their astounding dimensions. Although terracing cultures can be found in other parts of Asia and Central America, only in Ifugao province has such an exceptionally high level of development been achieved.

Henry Otley Beyer was one of the earliest scholars to study Ifugao culture. He postulated that if the walls of the terraces were to be stretched out in one straight line, the total length would be equal to half the earth’s circumference.

Engineering Marvel

The terraces are not only admired for their magnitude. They are also hailed as an engineering achievement. The complex and extensive irrigation systems that have evolved reveal an amazing feat of hydraulic engineering executed by a “primitive people” with tremendous ability in resource management. It took incredible skill and ingenuity to sculpture the mountains, for the natives had to rely mainly on water which they used as carrying agent to transport rocks and huge stones. Nothing was considered non-transportable. Mountainsides were converted into stepped irrigated slopes, and springs, streams and rivers into irrigation canals.

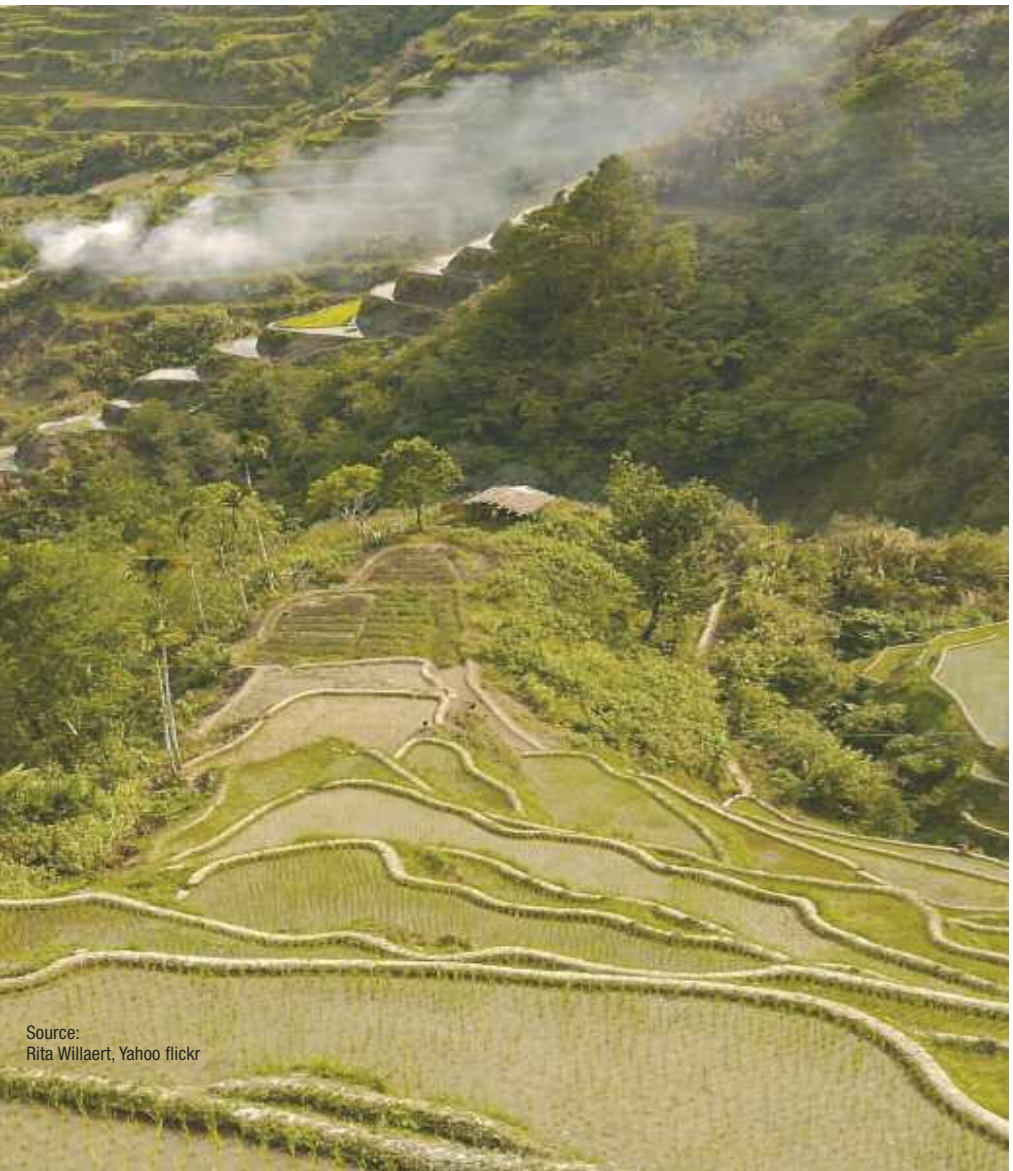
The immensity of the terraces attract the tourists. The complexity of this engineering marvel is what attracts the anthropologists who

want to determine the age of the terraces and the origins of the people who built them.
Radio carbon 14 data on some sites explored by the archeologist Robert Maher support earlier theories that the Ifugao natives have been occupying the mountain slopes for almost 2000 years - could the terraces be 2,000 years old?
As scientists continue to aim at resolving the age of the terraces, archaeologists, engineers, geologists and social scientists continue to arrive.
Indeed, the influx of scientists was such that it led one American archeologist to suggest that "virtually every anthropologist who visits the Philippines must have found himself in Ifugao at some point during their stay."
In the late 1990s officials of the American Civil Engineers (ASCE) conferred the "International Historic Civil Engineering Landmark Award" on the Banaue Rice Terraces - the 19th structure in the world to receive the honor.
Upon conferring the award, ASCE president Luther W. Graef said, "As a civil engineer, I am astounded how the use of civil engineering principles such as hydrology, sustainable development, and efficient use of water resources and water irrigation are all embodied in the careful design of this remarkable ancestral land management program."
Graef added, "Stretching a breathtaking 400 miles long, the terraces represent a rearrangement of the Cordillera mountain range from bedrock to topsoil, and bring forest water from 1,800 meters high, down to the lowest tiers..."

"e8 is a non-profit international company created in response to the 1992 Rio Summit. It is composed of 10 leading electrical companies from the G8 countries"

Rice Terraces Conservation

Those visiting the rice terraces are now confronted by a phenomenon far more pressing than determining the age of the terraces and it is a disturbing occurrence that is more and more visible: the terraces are in a continuing state of decline and neglect. This prompted UNESCO to include the Banaue rice terraces in the list of "World Heritage Sites in Danger."
Farmers have been vacating their rice fields for years. Beyer even went as far as to say the farmers started to leave their terraces 500 years ago. In those early years, however, the problem did not seem immediate because of the more or less equal number of terraces being vacated and new ones being built. Unfortunately, in recent years, the frequency of abandonment has increased while the number of new terraces being built has continued to decline. The old farmers are unable to till their land and their children are lured by city life and have chosen to leave the mountains.
In the past, the government gave incentives to encourage families to continue taking care of the rice terraces. Without the support from the current government, this breathtaking engineering marvel has been slowly losing its luster.
But help is on the way. Early this year, a group of international power companies donated a $1 million hydroelectric project to help save the rice terraces. Japan's Tokyo Electric Power Co., in behalf of e8, built a hydro plant in the Ambangal River.
e8 is a non-profit international company created in response to the 1992 Rio Summit. It is composed of 10 leading electrical companies from the G8 countries and its mission "is to play an active role in global electricity issues within the international framework and to promote sustainable energy development through electricity sector projects and human capacity building activities in developing and emerging nations worldwide."
e8 Executive Director Johane Meagher said, "It is our goal not only to pursue sustainable energy development but to raise awareness of the cultural heritage of one nation. The Ifugao Rice Terraces is a cultural site and must be protected,"
The Ifugao Ambangal hydro plant is expected to generate some $70,000 in annual revenue which will go to the Rice Terrace Conservation Fund.



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Rita Willaert, Yahoo flickr

Changing the way we think

A preview of the Keynote Speech to be given in Brisbane.

Written by:
Dr. Sharon Nunes,
Vice President, Smarter Cities Strategy & Solutions, IBM
New York, USA

Water is an incredibly precious commodity, and current events paint a rather grim picture of the global water supply. Just take a look at recent headlines from around the world: one-third of all Yemenis lack access to safe water[1]. The Chinese government plans to collect and melt the snow in Beijing this winter to avoid a shortage. Egyptian farmers have resorted to using untreated sewage to irrigate their crops2 due to a lack of water.
Forecasts for the future are even more alarming. One-third of all U.S. counties [3] are poised to suffer water shortages by 2050, according to one report. Lebanon could see a 25% decrease in precipitation [4] and a 25% increase in evaporation by the end of the century, while water demand is expected to triple by the year 2050. In Asia, researchers project that water supplies could fall short [5] of demand by 40% in 20 years' time. It's not hard to find distressing water news from almost any corner of the planet.

Water shortages won't necessarily just result in rations, either. Aside from the fact that a severe shortage could wipe out entire species of animals and spread disease, shortages could also lead to an energy crisis. Water is used to pump oil out of the ground; it's used to generate the steam that turns turbines in power plants, and it's used to keep power plants cool. It takes, for example, up to 60 liters of water to use a 60-watt light bulb for 12 hours. Without water, the power would go out, and when the power goes out, so does the economy.

In India, violence has already erupted [6] due to water shortages. According to one report, a family was killed by a mob in the state of Madhya Pradesh, after they were found to have illegally drawn water from a municipal supply.

And then, of course, there's the matter of food. Without an adequate water supply, it's impossible to grow crops, so water shortages would pose a major threat to food security [7]. It may not significantly harm developed countries, such as the U.S., but it would likely have a devastating effect in emerging regions such as Africa and Asia.
But water security isn't just a humanitarian issue. Some of the largest corporations have rightly identified water as a major threat to the way business is conducted. More than half the corporate respondents of a recent survey said they expect to experience some sort of problem related to water in the next one to five years. Coca-Cola warned in its annual report that water is a limited resource facing unprecedented challenges [8], and will increasingly require the company's attention.

Conservation is part of the solution, but there's something even more basic that water utilities should do: Plug leaks. It sounds obvious but it's not a trivial matter. In the U.S., some municipalities lose up to 50% of treated water to leaks. In the Philippines, 29 billion cubic meters of water [9], worth roughly $9 billion, are lost every year due to leaky infrastructures and inefficient agricultural irrigation. Leaky infrastructures are a particularly embarrassing problem when you consider that in many cases, there would be enough water to meet demand if it weren't for an outdated or poorly maintained infrastructure.

Although leaks are a sweeping problem, throwing a bunch of engineers at it may not be the only answer. One possible solution lies in information technology. In the not-so distant past, fixing a leak wasn't as difficult as trying to find it. Today, a network of thousands, if not millions of wireless sensors can be used to collect data, and by analyzing that data, we can detect significant water loss in nearly real-time. We can almost immediately identify where we're losing and using water, how much water is being used and who is using it. If water consumption patterns change dramatically, we will know within minutes. More importantly, the technology can be used to predict potential problems, too -- we can identify vulnerabilities in the infrastructure and repair equipment before it breaks. London's water supply system used to lose 900 million liters of water [10] a day, and some 240 leaks had to be repaired daily. After replacing 1,300 miles of cast-iron water mains, and installing a vast network of wireless sensors, the city now only loses 670 million liters per day. (Clearly there is still room for improvement.)

Water mismanagement is a problem ideally suited for information technology. Ford Motor has spent the last decade analyzing its water consumption [11] and using a custom-built software program to reduce usage. So far, it has paid off: The company saves more than $1 million per year in water costs at one facility in Ohio alone. And IBM dramatically lowered fuel, electricity and water usage at its Vermont semiconductor plant. By analyzing data collected from a network of more than 60,000 sensors, we reduced water usage at this facility by 27%, saving $3 million per year.

Five years ago Johnson & Johnson's goal was to reduce water use by 10% by the end of 2010. The company shaved water consumption by 14%, a year early. What's notable about Johnson & Johnson's achievement is that its green work also helped pad its bottom line: The company's environmental projects have delivered a 19% return and saved the company an estimated $50 million [12]. Similarly, Levi's had the novel idea of using water scarcity as a marketing opportunity: the company is releasing a pair of "Water>less" jeans that reportedly require 28% less water [13] to manufacture.

In the current economic environment, local municipalities would be wise to embrace IT as a cost-efficient way of making their utilities smarter. In cases where a major infrastructural upgrade isn't in the budget, data collected and

about water

analyzed by an IT system can provide effective guidance as to which repairs are essential and which are not. And in rural areas where the infrastructure isn't built yet, information technology can help engineers design the most efficient system so that every single drop of water is optimally utilized. Many agricultural-intensive regions, such as Hawaii [14], have used water management software to analyze rain patterns in an effort to optimize agricultural development. Bakersfield, Calif.-based fruit grower Sun World threw out the Farmer's Almanac and now relies on hard data. The company began using IBM analytics to keep an eye on its water consumption and irrigation patterns and has lowered fuel use by 20%, reduced water consumption by 8.5%; and cut labor costs by 10% at a time when California increased its minimum wage.

On a consumer level, this same sort of data has driven change in people's behavior. Smart meters, which have only been rolled out in a small percentage of counties in the U.S., will provide detailed breakdowns of how, where and when water is being used. Armed with this data, consumers are more likely to modify their behavior. The water bills consumers get today reveal nothing about patterns and trends in water usage, and certainly will not spur change.

And at this point, change is not a luxury -- it's necessary. It's coming at us whether or not we're prepared for it. The question we have to ask ourselves now is whether we can attack these problems thoughtfully, before we face a global crisis, or whether we'll wait until there are massive shortages to come up with solutions under duress. Most people would agree that the former is preferable.

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Personal Reflections

Written by:
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The hydraulic engineers were at the forefront of science for millennia: for example, the engineers who designed the Roman aqueducts, the Chinese engineers who built the Grand Canal between Guangzhou and Beijing, and the scientists who devised the water gardens of Villa d'Este (Italy), Nishat Bagh (India) and Versailles (France). The last fifty years marked a change of perception in our community with a focus on environmental sustainability particularly in developed countries. I am convinced that the future of Hydraulic Engineering lies in a combination of innovative engineering, some outstanding research scholarship and a higher education of quality. Let us nor forget that the technical challenges in hydraulic engineering are enormous and closely linked with the wide range of relevant length scales, from a few millimetres for the wall region of a turbulent boundary layer to over 1,000 km for the length of a major river, the broad range of time scales from less than 0.1 s at the turbulent dissipation scale to about 108 s for reservoir siltation, the huge variability of river flows, the non-linearity of the basic governing equations... and most importantly with the total dependence of Mankind on water. Who would forget that Life on our Planet is impossible without water resources?

Hydraulic engineering is not a virtual discipline but a real-world vocation. Professional experience is critical, including field experience and individual observations, to comprehend the variability of river flows from zero during droughts to gigantic floods, natural fluid instabilities, interactions between water, solid, air and biological life [1,2]. Virtual resources cannot explain the present political instabilities centred around water systems and freshwater system issues, nor the broad and complex scope of the relevant issues: e.g., water quality, pollution, floods, droughts. Hydraulic engineering is a real-world science for a better society; it is not an electronic toy, a play station or a game box [2,3]. Simply there is nothing "virtual" about hydraulic engineering!

The forthcoming 34th IAHR Congress is part of a long series of major event, formerly known as IAHR biennial congress, that is regarded as the world's major international scientific event in hydraulic engineering. It is a honour to contribute to a IAHR congress, as well as a service to the community. For example, I remember well my first participation in 1993 in Tokyo; I was very excited to meet so many distinguished scholars and hydraulic engineers. I remember also the first time that I was asked to chair a session in 1999 in Graz: what a thrill but also a privilege to act as chair and moderator of a session regrouping some leading hydraulic speakers! I cannot forget also the Arthur Ippen award lecture that I presented in 2003 in Thessaloniki [4,5].

The 34th IAHR Congress will take place in Brisbane, Australia, together with the 33rd National Hydrology and Water Resources Symposium and the 10th National Conference on Hydraulics in Water Engineering. The Congress theme "Balance and Uncertainty: Water in a Changing World" reflects upon the central roles of hydraulic engineers, hydrologists and water resource experts in our rapidly changing world. The theme is directly relevant to the Australasian region as well as to the broad international community.

This event will provide an unique opportunity for hydraulic researchers and hydraulic engineers to work together for the betterment of our society. Despite new communication means including emails, Skype, Facebook, Twitter ..., nothing will ever replace the face-to-face meetings. The 34th IAHR Congress is the ultimate opportunity for all of us working in hydraulic engineering to meet the real hydraulicians. What a thrill to meet the true experts! I remember my first international meeting in 1990 in Belgrade where I met Professor Roger Arndt; I read many of his works on cavitation and cavitation damage, and it was enlightening to discuss with him one-on-one.

During the last decade, some contributions in hydraulic engineering have involved unethical behaviour, and the trend seemed to have accelerated with the proliferation of publications. Recent journal editorials presented some experience of unscrupulous activities [6, 7, 8]. Each researcher and professional should read these because cheating and dishonesty are very serious matters discrediting the entire profession. As a senior expert reviewer, editorial board member and editor, I am regularly engaged in peer-reviews, and I have seen some appalling ethical standards [2, 3]. Cheating has its roots in a relatively small number of unscrupulous people, but these dishonest individuals discredit our entire discipline.

The Organisation of the 34th IAHR Congress is committed to a high standing of the congress proceedings papers with a thorough, independent peer-review process combined with high ethical standards. This will ensure some high-quality proceedings papers and presentations for the benefits of the profession and more broadly of the community. The IAHR should endorse such a rigorous peer-review process for all major IAHR events, and it should adopt some stringent ethical standards for all publications including its journals.

Hydraulic engineers must be broad-minded and acknowledge that excellence and scholarship has no linguistic nor geographical boundaries. The 34th IAHR Congress will be another demonstration of the broad-based interests in hydraulics. Engineers and researchers will be able to gain first hand experience in real professional situations, interact with the world-leading experts and comprehend the complex interactions between engineering and non-engineering constraints. The great Albert Einstein himself studied river hydraulics [9]; our discipline is not for the faint-hearted. In fact I believe that hydraulic engineering is a true challenge for the finest minds of our society!

I am a hydraulician with several years of professional experience and two decades in academia. I am proud to be a hydraulic engineer!

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Looking to the Future
2009 IAHR Awards Committee

In the spirit of increased transparency and broader engagement of the IAHR membership, the IAHR Council invited the 2009 Awards Committee (AC) to reflect on the selection process and encourage increased nominations for the next award's cycle that starts at the end of 2010.

Written by:
2009 IAHR Awards Committee:
Philip Burgi, Peter Davies, Angelos Findikakis and Peter Goodwin

It has been a privilege to serve on this committee as it provides an opportunity to view the remarkable talent, research innovation and commitment to education that is prevalent throughout the IAHR community. The future of IAHR is very bright when observing the awareness of environmental and social issues, the key role of emerging technologies and the dedication to prepare the next generation of our IAHR research community. The downside is that this deep pool of talent, distributed across a broad range of water engineering, makes judging of individual achievements very difficult. These perspectives from the past Committee are intended to supplement the IAHR award details (www.iahr.org/awards/) and assist future nomination preparation. The AC eliminated any current members of the IAHR Council for award consideration to avoid the perception of favoritism. Most of the work was done (preliminary assessment and rankings) through the Internet but the final decision was taken following three teleconference calls, each set one week apart. This period allowed more detailed assessment by the AC and reflection prior to the final decision. Specific comments on the individual awards include:

Jan Schoemaker Award:
nominations came from three sources:

(1) Nominations of the Journal of Hydraulic Research editorial team made through the editor. The editor declined to rank these nominations.
(2) The IAHR Secretariat received nominations with justification from third parties. These nominations were very well argued and persuasive.
(3) The AC reviewed all journal issues for the Award period and added additional recommendations to the pool of papers considered.

Since the Editor has access to confidential peer reviews (which of course the AC does not), the AC invited the Editor to ratify the selection as a final quality control.

Arthur T. Ippen Award: this award recognizes excellence in research and commitment to IAHR by a younger member. It is very difficult to compare brilliance between early-career and mid-career researchers since the cumulative productivity is quite different and the education and career-progression systems vary between countries. Other ACs in the future may differentiate differently, but we looked for quality peer-reviewed articles, impact of the research and the ability to generate research funds or programs. Multi-authored and/or interdisciplinary articles were considered a 'plus' where appropriate in the research field. We also looked for trends in career development. It is expected that the early stages of a career would result in several papers between a PhD student and their mentors. Researchers may continue collaboration with their mentors periodically for their entire careers, but we looked for evidence that the researcher had also developed an independent leadership role in research activities. This AC also considered the resources available to the researcher during their initial years – for example did she/he have to put basic research infrastructure in place.

> **"We encourage all Committees and individual IAHR members to consider nominating colleagues who are making major contributions in your area."**

In the next competition, nominations will be made through the electronic membership platform (eMP) to ensure consistency of nominations in terms of length of nominations and the type of material that can be submitted. The Ippen and Yalin Awards are seldom won on the first submittal and we encourage nominations that were not successful this year to be resubmitted in the future.

We would like to thank all the Committee (formerly Section) Chairs and individuals who invested time in preparing a strong set of nominations. It is your effort that maintains the prestige and integrity of the process.

10 QUESTIONS TO...

Prof. Mohamed Ghidaoui 2007 Ippen Award Winner

Interviewed by Prof. Jean-Paul Chabard , Chair 2011 IAHR Awards Committee and Dr. Christopher George, IAHR Executive Director

1 You were Ippen Awardee in 2007. Has this made any difference to your life? More precisely, what is the impact of that Award for your professional career?

Indeed it has! The preparation for the Ippen lecture provided me the opportunity to reflect on my research and its relevance. Such reflection has been of utmost importance and helped fine tune my future research direction. In addition, the award prompted me to read the works of Professor Ippen in detail, which I found to be most inspiring, enjoyable and rewarding. Moreover, the award has invariably provided me with more opportunities to be involved with IAHR and its activities.

2 What is it like for a Northern African to live in China?

Fantastic! Hong Kong is truly a world city that combines the great things you expect from world cities in the west such as New York, London and Paris and the great things you expect from Asian cities such as Tokyo and Shanghai. Hong Kong is a highly peaceful, developed, open and fair place. In my 17 years Hong Kong, I build my academic career, got involved in building our university (when I joined, HKUST was only two years old and my department only one year old), witnessed the handover of Hong Kong in 1997, the handover of Macau in 1999, the great economic rise of mainland China, etc. My wife, Najoua, who is also Tunisian, also enjoys Hong Kong. My baby daughter, Maya, is born in Hong Kong and will no doubt call it home.

I'm lucky to have three homes: Hong Kong, Tunisia and Canada. I'm a native of Tunisia and spent the first 18 years of my life there. The next 10 years were in Canada at the University of Toronto, where I obtained all my tertiary education. Two weeks after my PhD defence, I moved to the newly built Hong Kong University of Science & Technology (HKUST) and have been there since. In this fascinating journey I learned much about different cultures. Of course there are cultural differences between Tunisia, Canada and Hong Kong, but I found such differences interesting and enriching and not a handicap or detraction.

3 Do you see universities in South East Asia developing rapidly in quality and reputation?

In fact this is already happening! As governments are injecting more funds into universities in the region, major positive transformation in research and education are taking place. These universities are hiring top notch faculty with PhDs mainly from best universities in USA and Canada. They have access to large pool of excellent Asian students. They are also actively pursuing top international students. For example, Hong Kong launched the "Hong Kong Fellowship Scheme" in 2009 with the aim to attract the best and brightest students in the world to pursue their PhD programmes in its institutions (http://cerg1.ugc.edu.hk/hkpfs/index.html). In its first round, more than 100 top notch students from around the world are already studying in Hong Kong. A browse through any university ranking reveals that Asian universities are consistently up there with the best in the world.

4 You work is in the field of environmental fluid mechanics. What do you think will be the main challenges for researchers in this field during the next ten years?

One of the grand challenge is to engineer and/or re-engineer urban and coastal water systems so that Hong Kong and other cities in China and the rest of the world enjoy a harmonious and robust relationship between humans and the hydrosphere both in the near and far future. The harmonious relationship is one where (i) the human need for water is met with minimum disturbance to the quality and quantity of the natural water cycle, (ii) under a future with uncertain climate, the destructive forces of water as well as hydrologic extremes (e.g., floods, droughts and Tsunamis) are mitigated and (iii) the carbon footprint is minimized and every drop of water is saved.

Currently, the human-water relationship is far from harmonious and is untenable: the human impact on water systems is tremendous and the vulnerability of humans and other systems to water's destructive forces are serious. Significant proportion of water in the hydrological cycle is intercepted by humans for domestic, industrial and agricultural use and then discharged back into the environment at a different, often lower, quality and at a different time and location. That is, human activities have changed the course, chemistry and time scale of the natural hydrological cycle. More than 50% of accessible surface fresh water is put to use by humanity for navigation, recreation and other activities, over 60% of the human population lives within 100 km of coasts and rivers and their activities have resulted in tremendous changes to the quality of these systems and 50% of mangrove ecosystems have been transformed or destroyed by human activities. In terms of the vulnerability of the human race to water's forces, recent reminders include the 2004 Tsunami, which killed more than 300,000 people and destroyed cities and villages, and the

Mohamed S. Ghidaoui, born on August 24th, 1964 in Tunisia, received the BASc, MASc and Ph.D. in civil engineering from University of Toronto, Canada. Since 1993, he is with the Department of Civil & Environmental Engineering, Hong Kong University of Science & Technology (HKUST), where he is a full professor. He is a court member of the university and the chairman of both its undergraduate studies research committees. Ghidaoui is a Member of IAHR and of ASCE. He is also a Member of the IAHR Fluid Mechanics section, and a founding chair of the new IAHR section on fast transients. He served as the chairman of the IAHR-Hong Kong Chapter from 2004 to 2007 and was one of its founding members. He is an Associate Editor of the Journal of Hydraulic Research from 2003; an Associate Editor of the Journal of Hydro-environment Research, IAHR APD Journal from 2007, and an Editorial Board Member of the Journal of Hydroinformatics, IAHR from 2000. His awards include the Arthur Ippen Award (2007), Erskine Fellowship, University of Canterbury, NZ, the Albert Berry Memorial Award, American Water Works Association, and the University of Toronto Fellowship.

2005 hurricane Katrina, which had devastating effect on the population of New Orleans in particular and the southern coast of the United States in general. In addition, the severity and frequency of urban flooding has increased tremendously over recent years and ocean levels have increased by 20 cm over the last century and are expected to grow even faster in the coming decades, due to global warming, exposing coastal cities to high risks. The impact of people on water resources and the vulnerability of human and other systems to the destructive forces of water are critical in megacities. Dealing with these problems requires researchers to go back to the fundamentals—peer deeper into the processes of turbulence, waves & currents and their interactions and better understand fluid motions at different scales and the interactions between scales.

5 You are Chair of the IAHR Working Group on Fast Transients. Why establish this now? Was the science not fully researched twenty-thirty years ago?

A couple of examples will highlight the critical need and role for research in rapid transients. At present, water loss in water supply systems is a serious problem worldwide (about 40% of water is lost) and incurs major waste of energy, water and money and is known to pose serious health risks to consumers when some of the water that has leaked out makes its way back into the pipes during low-pressure periods. Defects develop with age in pressurized conduits, such as water supply lines and pumped drainage systems. Partially blocked valves, changes in pipe wall thicknesses due to bio-film build up, corrosion and material spalding and deposition are frequent causes. Such defects lead to significantly higher pumping costs due to increased skin and form drag and to potential deterioration in the quality of the liquid being transported. Recently, researchers turned to rapid transient to develop leak and defect detection methods in pressurized systems. Such methods are most promising and well poised to result in huge savings of water and energy.

The recent accident at Sayano-Shushenskaya, Russia, which killed over 70 people and caused major economic and environmental disaster, puts fast transient and its devastating forces in sharp focus. Plenty of video footages of this accident can be found in YouTube. Accidents of this kind can only be mitigated through better appreciation and understanding of fast transients (waterhammer). This is especially critical given the renewed interest in hydropower.

Fast transients in urban drainage systems led to costly and dangerous failures and to spectacular Geysers in many cities around the world (see http://www.youtube.com/watch?v=4aQySL0sKys). At present there is no mathematical model that can capture the rich flow physics in rapid transient in poorly vented drainage systems. Yet, such problems can only get worse with increasing population and change in land use in cities as well as the increase in extreme precipitation events due to climate change.

Viscoelastic pipes are becoming more commonly used in practice due to their ability to reduce the potential magnitude of pressures in fast transients. As a result, the interaction between the fluid and the viscoelastic pipe needs to be better understood, modeled and predicted. In summary, research up to the late 70th focussed on how to solve the classical waterhammer equations numerically and how to best include hydraulic elements such as pumps, air chambers etc. in such models. The research focus over the last 20 years is on (i) the understanding of the factors affecting wave transformations through conduits such as unsteady friction, flow stability, visco-elastic effects, air-water interaction in rapid transients, and fluid-structure interactions, (ii) the development of transient-based methodologies to detect defects such as leaks and blockages—a highly promising field that could revolutionize the water industry and (iii) the understanding of the mechanisms of rapid transients in drainage systems that lead to geysering and flooding. As an associate editor for JHR, I handle a large number of papers on fast transients each year.

6 You have lived and worked in Tunisia, Canada and now Hong Kong! Do you think the world is getting smaller? Do you think there will be ever increasing research collaboration in the future?

I studied in Tunisia & Canada and worked in Hong Kong. The flux of young people between countries is increasing with time and the driving forces are by and large education and economic well being. Environmental consideration is becoming another major driving force for migration.

Genuine collaboration is built on shared research interests, values and vision. Of course, as more academics and researchers travel to conferences and meetings, the chances of meeting people to build genuine collaboration increases.

How could IAHR play a stronger role in bringing the research and practice community together?

There is a two way flow between research and practice, where research ideas make their way into practice and where problems that arise in practice spur new research. With this in mind, IAHR needs to make concerted efforts to accelerate such a flow. In fact, IAHR has recently organized special sessions and meetings at conferences and symposia devoted to disasters such as the Sumatra Tsunami, hurricane Katrina, and the recent oil spill in the Gulf of Mexico. These sessions were great and brought researchers and practitioners together to discuss important societal problems. It would be good if such sessions become an integral part of IAHR conferences and symposia. Another possibility would be for IAHR journals to actively seek articles that pose certain research challenges encountered by practicing engineers. Such articles will go along way in accelerating the flow between research and practice and vice-versa.

As an Arabic speaker, do you think the recent launch of the IAHR Middle East and North Africa Collaboration Committee could help in promoting Arab science?

Engaging more regions is always great! With this in mind, I think it is also important to find a way to engage African countries and revive the IAHR African division. The middle east and Africa are facing major water challenges both in quantity and quality and have unique problems for which they developed unique solutions; thus, I have no doubt that such engagement will be of tremendous benefit to all.

What is your opinion about IAHR structural changes? Do you think that IAHR is supportive enough about innovation?

If implemented well, the re-structuring of IAHR under the great leadership of the late professor and visionary Gerhard Jirka will ensure that IAHR plays a prominent role in society's quest for a harmonious balance between water and humans. The stated objectives of the re-structuring, which I fully support, are "(i) making IAHR more attractive to its diverse membership (individual and corporate) by virtue of more effective and efficient management structure, (ii) providing a more prominent role for IAHR in water research and engineering practice by appealing to a wider group of interested individuals and organizations in the water sector and (iii) reducing some of the financial shortfall of IAHR by increasing income from products and services." Professor Jirka showed us the way forward, the onus is on us to get there!

What would be your main recommendations for the strategic actions of IAHR in the future?

IAHR needs to strategize and devote more concerted effort to the following:

1. enhance students' interest in hydraulic engineering so as to attract a larger pool of bright and devoted individuals to form a strong force across nations that can tackle the many water challenges that face humanity,
2. promote hydraulic engineering to society in general and engineers and decision makers in particular with the view to garner better support for research, increase membership, and ensure that hydraulic engineers influence policy making and their solutions are implemented,
3. establish strong links and collaboration with other water and environment associations,
4. foment inter-disciplinary research and education with the view that the success of future water projects requires the partnership between traditional hydraulics knowledge and ecology, economics, humanities and social science, climate change, etc.,
5. facilitate exchange of ideas and information among academics, practicing engineers, and policy makers at both regional and international levels, and
6. establish an "IAHR with no frontiers" which helps hydraulic engineers in all parts of the world—an obvious starting place would be to further strengthen the links with Africa and the middle-east.

Call for Nominations 2011

IAHR members are invited to submit nominations for the Arthur Thomas Ippen Award, Harold Jan Schoemaker Award, and M. Selim Yalin Award. These awards will be presented at the 34th IAHR World Congress, Brisbane, Australia, June 26 –July 1, 2011.

17th Arthur Thomas Ippen Award

For outstanding accomplishment in hydraulic engineering and research

The Founding Statement and the Rules for Administration of the Award are as follows:

Founding Statement

The Ippen Award was established by the IAHR Council in 1977 to memorialise Professor Ippen, IAHR President (1959-1963), IAHR Honorary Member (1963-1974), and for many decades an inspirational leader in fluids research, hydraulic engineering, and international co-operation and understanding. The Award is made biennially by IAHR to one of its members who has demonstrated conspicuously outstanding ability, originality, and accomplishment in basic hydraulic research and/or applied hydraulic engineering, and who holds great promise for continuation of a high level of productivity in this profession. The awards are made at the biennial congresses of IAHR, where the most recent recipient delivers the Arthur Thomas Ippen Lecture. The Award fund, which was established by Professor Ippen's family, is authorised to receive contributions from association members and friends of Professor Ippen. The 2009 Award was made to Prof Yarko Niño, Chile.

Rules for the administration of the award

1. The Arthur Thomas Ippen Award (hereinafter referred to as the Award) will be made biennially, in odd-numbered years, to a member of IAHR who has developed a conspicuously outstanding record of accomplishment as demonstrated by his research, publications and/or conception and design of significant engineering hydraulic works; and who holds great promise for a continuing level of productivity in the field of basic hydraulic research and/or applied hydraulic engineering.
2. In selection of awardees preference will be given to members under 45 years of age.
3. Each awardee will be selected by the IAHR Council from a list of not more than three nominees submitted to the Council by a Committee (hereinafter referred to as the Awards Committee) composed of the Technical Division Secretaries and chaired by IAHR Vice President, Prof. Jean-Paul Chabard. The Awards Committee will actively seek nominations of awardees from the IAHR membership, and will publish at least annually in the IAHR Newsletter an advertisement, calling for nominations. The advertisement will include a brief description of the support material which is to accompany nominations.
4. The awardee for each year will be selected by the Council by mail ballot in January of the year of the Congress.
5. The award need not be made during any biennium in which the Council considers none of the nominees to be of sufficient high quality.
6. The awardee will present a lecture, to be known as the Ippen Lecture (hereinafter referred to as the Lecture), at the IAHR World Congress following his election. The subject of the Lecture will be agreed upon by the awardee and the IAHR President. The Lecture will be published in the Congress Proceedings. Public presentation of the Award will be made by the President during the opening ceremonies of the Congress.
7. The awardee will be given a suitable certificate which will state the purpose of the Award and indicate the specific contribution(s) of area(s) of endeavour for which the awardee is recognised. The awardee also will receive a monetary honorarium upon presentation of the Lecture. The terms of the honorarium will be published in the announcement of each biennial Award. The monetary honorarium for the Award is US$1,500.
8. Wide distribution of awardees among different countries and different areas of specialisation is to be sought by the Award Committee and by the Council.
9. No individual shall receive the Award more than once.

Written by:
Prof. Jean-Paul Chabard
2011 IAHR Awards Committee Chair

Previous Winners

Y. Niño, Chile (2009) for his outstanding basic contributions in fluid mechanics with applications to sediment transport and environmental flow processes.

M. S. Ghidaiou, HK China (2007) for his outstanding contribution to research in environmental fluid mechanics.

A. M. Da Silva, Canada (2005) for her outstanding contributions in the area of fluvial processes and in particular, sediment transport.

17th Harold Jan Schoemaker Award

for the most outstanding paper in the Journal of Hydraulic Research

IAHR members are invited to submit candidates for nomination for the Harold Jan Schoemaker Award. This Award will be made for the 17th time at the 34th IAHR World Congress, Brisbane, Australia, June 26th - July 1st, 2011 to the author(s) of the paper judged the most outstanding paper published in the IAHR Journal of Hydraulic Research in the issues, starting with Volume 46 (2008) no. 5 up to and including Vol. 48 (2010) no. 4. A proposal for nomination shall be completed with a clear argumentation (maximum one page) regarding its outstanding quality and why the paper is of such a specific quality that it outweighs the other papers of the considered series.

Founding Statement

The Schoemaker Award was established by the IAHR Council in 1980 to recognise the efforts made by Professor Schoemaker, Secretary (1960-1979), in guiding the Journal of Hydraulic Research in its formative years. The Award is made biennially by the IAHR to the author(s) of the paper judged the most outstanding paper published in the IAHR Journal.

Rules for the administration of the Award

1. The Harold Jan Schoemaker Award (hereinafter referred to as the Award) will be made at each biennial IAHR Congress, to the author(s) of the paper judged the most outstanding and published in the IAHR Journal during the preceding two-year period.
2. The awardee will be selected by the IAHR Council from a list of not more than three ranked nominees submitted to the Council by a Committee (hereinafter referred to as the Award Committee) composed of the Technical Division Secretaries and chaired by Prof. Jean-Paul Chabard. The Award Committee will actively seek nominations of awardees from the IAHR membership (also non-members whose employers are corporate members will be considered)
3. The awardee will be selected by the Council by ballot. The awardee(s) shall be notified immediately by the Executive Director.
4. An award need not be made during any biennium in which the Council considers none of the nominees to be of sufficient high quality.
5. The award will consist of a bronze medal and a certificate.

Previous Winners

H. Morvan, D.W.Knight, N.Wright, X.Tang (2009) for the paper "The Concept of Roughness in fluvial hydraulics and its formulation in 1D, 2D, and 3D numerical simulation models" (Vol. 46, 2008, No.2)

K.Blankaert and U.Lemmin (2007) for the paper "Means of noise reduction in acoustic turbulence measurements" (Vol. 44, 2006, no. 1)

E.J. Wannamaker and E.E. Adams (2007) for the paper "Modelling descending carbon dioxide injections in the ocean" (Vol. 44, 2006, no. 3)

A. Carrasco and C. A. Vionnet (2005) for the paper "Separation of Scales on a Broad Shallow Turbulent Flow" (Vol. 42, 2004, no. 6)

Submit nominations:

Prof. Jean-Paul Chabard is co-ordinating nominations received for the 2011 Award. The nominations should consist of a concise statement of the qualifications of the nominee, a listing of his/her outstanding accomplishments, pertinent biographical data, and a proposed statement of the endeavours for which the nominated awardee would be recognised. Each nomination should not be more than two typewritten pages in length.

Nominations for the three awards must be sent by January 15, 2011 to:

Prof. Jean-Paul Chabard, Chair IAHR Awards Committee, Project Manager EDF, Vice-President of the International Association for Hydro-Environment Engineering and Research (IAHR)
EDF R&D - 1, avenue du Général de Gaulle
92 141 – Clamart CEDEX , France
Tél. : +33 (0) 1 47 65 30 69
jean-paul.chabard@edf.fr

Alternatively you can also nominate through the IAHR Website www.iahr.net under About IAHR/Awards

3th M. Selim Yalin Award

for significant and enduring contributions to the understanding of the physics of phenomena and/or processes in hydraulic science or engineering, and demonstrated outstanding skills in graduate teaching and supervision

IAHR members are invited to submit candidates for nomination for the M.Selim Yalin Award. This Award will be made for the 3rd time at the 34th IAHR World Congress, Brisbane, Australia, June 26th-July 14th, 2011. The Founding Statement and the Rules for Administration of the Award are as follows:

Founding Statement

The M. Selim Yalin Award was established by the IAHR Council in 2006 to honour the memory of Professor M. Selim Yalin, Honorary Member (1925-2007), and Fluvial Hydraulics Section Chairman (1986-1991). Professor Yalin is remembered for his prolific and pioneering research contributions in fluvial hydraulics and sediment transport, and for his inspirational mentoring of students and young researchers. The Award is made biennially by IAHR to one of

its members whose experimental, theoretical or numerical research has resulted in significant and enduring contributions to the understanding of the physics of phenomena and/or processes in hydraulic science or engineering and who demonstrated outstanding skills in graduate teaching and supervision. The awards consisting of a certificate and cash prize are presented during the IAHR World Congresses. The Award fund, which was established by the family and friends of Professor Yalin, is authorised to receive contributions from association members and friends of Professor Yalin.

Rules for the administration of the award

1. The IAHR M. Selim Yalin Award (hereinafter referred to as the Award) will be made biennially, in odd-numbered years, to a member of IAHR whose experimental, theoretical or numerical research has resulted in significant and enduring contributions to the understanding of the physics of phenomena and/or processes in hydraulic science or engineering and who has demonstrated outstanding skills in graduate teaching and supervision.
2. Each awardee will be selected by the IAHR Council from a list of not more than three nominees submitted to the Council by a Committee (hereinafter referred to as the Award Committee) composed of the Technical Division Secretaries and Chaired by a Council Member. The Award Committee will actively seek nomination of awardees from the IAHR membership, and will publish at least annually in the IAHR Newsletter an advertisement, calling for nominations. The advertisement will include a brief description of the support material which is to accompany nominations.
3. The awardee for each biennium will be selected by the Council either at its meeting during the preceding even-numbered year or by mail ballot in January of the year of the Congress.
4. The award need not be made during any biennium in which the Council considers none of the nominees to be of sufficient high quality.
5. Public presentation of the Award will be made by the President during a public ceremony taking place within the Congress.
6. The awardee will be given a suitable certificate which will state the purpose of the Award and indicate the specific contribution(s) of area(s) of endeavour for which the awardee is recognised. The awardee also will receive a monetary honorarium, the terms of which will be published in the announcement of each biennial Award.
7. Wide distribution of awardees among different areas of specialisation is to be sought by the Award Committee and by the Council. Efforts will also be made to ensure a wide geographical distribution.
8. No individual shall receive the Award more than once.

Previous Winner

I.Nezu, Jpana (2009) for his outstanding research contributions in both fundamental hydroscience (in particular for his pioneering work in turbulence measurements and analysis) and applied hydraulic engineering, and for his dedication to teaching and young professional mentoring.

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International Association for Hydro-Environmental Engineering and Research

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