EDITORIAL

Welcome to the January issue of UPDATE Magazine. Allow me to take you back to the beginning of the year 2010 when the Institute was on the brink of an Institute-wide informal consultation process with a view towards building consensus concerning a step-by-step comprehensive reform process of the Institute.

At recently held board meetings in Delft, the IHE Delft Foundation Board and the UNESCO-IHE Governing Board endorsed the need for a new response strategy to further increase the impact of UNESCO-IHE in meeting the challenges of the rapidly expanding global, regional and national needs of the water sector in terms of human resources, relevant knowledge and institutional effectiveness.

New players and potential competitors have appeared. With a growing market for water education, these new challenges will require a 300 percent increase in the number of water leaders in Africa, 250 percent in Asia and 50 percent in Latin America.

The Institute has reached its delivery limits in Delft. The 8/10 syndrome whereby eight out of ten qualified candidates were not admitted each academic year entails that annually 1800 potential students are not admitted due to the lack of resources, including that of physical space. Clearly, the 1800 aspiring young professionals cannot all be brought to Delft at the same time. But perhaps we could bring Delft, or rather the spirit and the water knowledge of Delft, to the world, particularly to the developing world where most of the pressing water issues are, whether one speaks of Africa, Asia or Latin America.

Working closely with partners who operate in the context of the Institute is an important mechanism for the institute to fulfil its functions. The signing of a vision document with 18 key educational institutes in the world recently paves the way forward towards achieving our ambitious mandate. In the coming months we will present a ‘Comprehensive Strategy for UNESCO-IHE 2010-2020’ that will guide the process that lies ahead. Your invaluable comments and support in this transitional period will be highly appreciated.

Professor András Szőllösi-Nagy
Rector, UNESCO-IHE

ARE YOU AN ALUMNUS?

We are living in an international world where email is the fastest way of keeping in touch across the globe. UNESCO-IHE follows this trend and we are increasingly sending you information by email. Do not hesitate to get in touch with us and send us your most up-to-date contact details. Your details will only be used to send you information about UNESCO-IHE. We will respect your privacy at all times and will not share your information with others without your prior consent.

ABOUT THE MAGAZINE
UNESCO-IHE Institute for Water Education produces a biennial magazine called UPDATE. We print 12,000 free copies per issue, which are sent to our counterparts across the world. UPDATE features institutional information related to water education, research and capacity development activities undertaken by UNESCO-IHE, its alumni and partners.

We have tried to make this issue of UPDATE Magazine as eco-friendly as possible. The paper, Cocoon Offset, is a high-quality, uncoated offset paper. The range is produced using ecological technology at the company’s Greenfield S.A.S. mill in France from 100%-recycled and FSC-certified de-inked pulp. The plastic that is used to cover UPDATE Magazine is made of environmentally biodegradable polymers by the company A.V.I. B.V. in Volendam, the Netherlands.

ABOUT THE COVER PHOTO
A woman waters young seedlings at the Burka Jalala Tree nursery in the Deder district in the Eastern Highlands in Ethiopia. The area is a community plantation site, which has been developed in order to provide trees for the regeneration of a badly eroded local hilly area. Photo: Panos/Crispin Hughes
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ALUMNI TRACER SURVEY
In an effort to better understand the relevance and impact of our study programmes, and in view of further improving our services for future generations of water professionals, we ask all alumni of (UNESCO-)IHE to participate in a tracer survey. The survey contains questions about the educational profile, career development, and professional networks of alumni. Ten book coupons of US$300,- will be made available for ten randomly selected respondents. Visit www.unesco-ihe.org/alumnisurvey to take part.
ENHANCING INSTITUTIONAL CAPACITY IN SOUTH AFRICA

UNESCO-IHE was recently granted two projects under the NICHE Programme. NICHE stands for the Netherlands Initiative for Capacity building in Higher Education and falls within the scope of the Netherlands’ development cooperation activities and aims to support the expansion of knowledge, skills and technology in developing countries. One project is Enhancing Institutional Capacity in Water and Waste Water Treatment with Tshwane University of Technology (South Africa), and the other project is Capacity Building for Integrated Water Resources Management in South Africa with Cape Peninsula University of Technology and the University of the Western Cape. These two projects will allow the Institute to further strengthen its ties with the water sector in South Africa.

SURVEY UNESCO-IHE MASTER PROGRAMMES

Students who recently graduated in the spring of 2010 were asked to share their experiences and give their opinion about the Institute, its services and facilities as well as answer questions about marketing issues and their study programme in general.

- 91.5% of the graduates stated that they would recommend UNESCO-IHE to prospective participants.
- Reasons for choosing UNESCO-IHE included its international environment and global recognition, the availability of fellowships, its fast response, and recommendations made by alumni.
- The overall opinion that graduates had of their respective MSc programmes showed that about 92% considered it satisfactory to excellent.
- Almost 98% of all graduates expected that what they had learned would be directly relevant for their work and 85% thought that the programme had improved their professional capability.
- Additionally, 85% finds the MSc research work relevant or very relevant for their future employment.
- Nearly 92% finds quality of UNESCO-IHE building and the lecture rooms satisfactory to excellent.
- And 87.5% gave the qualification satisfactory to excellent in terms of IT facilities.

ONE HUNDRED AND EIGHTY-FIVE (185) NEW MASTERS OF SCIENCE STUDENTS

On Thursday 14 October 2010, 185 students from 25 countries received a warm welcome during the Opening of the Academic Year 2010-2011. The Rector, Professor András Szőllösi-Nagy, welcomed the new batch of students to the UNESCO-IHE family and said that instead of calling them ‘students’, he would rather call them ‘colleagues’ as they will soon become newly graduated water professionals. He stressed that hard work lies ahead of them in the coming 18 months during which they will address the most critical water issues, learn from each other’s experiences, and discover new and innovative approaches to meet global and local water challenges. Guest speaker Mr. Wim Kuijken, Government Commissioner for the Delta Programme and member of the IHE Delft Foundation Board, then addressed the students about the importance of finding the right combination between academic excellence and developmental relevance; the main drivers for the institute’s activities. The full text of the presentation can be found on the UNESCO-IHE website: www.unesco-ihe.org/about/news.

ADAPTING TO CLIMATE CHANGE IN THE MEKONG

Eight post-doctoral research fellows from Viet Nam, Thailand and China who are taking part in the UNESCO-IHE Post-doctoral Programme on Climate Change Adaptation (PROACC) recently started their research on various topics related to Climate Change Adaptation in the Mekong River Basin. This 18-month integrated post-doctoral programme is organised by UNESCO-IHE in collaboration with partner institutes. The research outputs from the programme are intended to facilitate the development and implementation of effective adaptation strategies in the countries surrounding the Mekong River Basin. Programme Director Professor Stefan Uhlenbrook elaborates: “To address the knowledge gaps in Climate Change Adaptation in the Mekong basin a multi-disciplinary approach is needed. Eight post-doctoral researchers with backgrounds in various disciplines embedded in a coherent framework can definitely make a difference in addressing such important issues.”

The project is funded by DGIS, the Dutch Development Cooperation Programme. More information, such as an overview of post-doc researchers and the scope of their work, can be found on the UNESCO-IHE website: www.unesco-ihe.org/proacc.

WORLD WATER COUNCIL SUPPORTS ACADEMIC CHAIR ON WATER POLICY

The World Water Council announced that it will support the creation of a special ‘chair’ on water policy at UNESCO-IHE to help bridge the science and water policy communities. In this way the Council will, in close collaboration with its members and partners, support strategies for enhancing the capacities of water managers and decision-makers to address emerging challenges in water management.

SHORT NEWS
SUSTAINABLE WATER MANAGEMENT IN CITIES CONFERENCE

The Sustainable Water Management in Cities Conference is a four-day conference scheduled to take place in Zaragoza, Spain from 13 to 17 December 2010. More than 200 experts, local government officials, media specialists, key water operators and political representatives of cities and stakeholder groups will discuss sustainable water management in cities. The meeting will also propose practical ways to move forward to meet the challenges of disseminating results to a wider audience, considering the different development contexts and regional characteristics. The Conference is being organised by the United Nations Office to Support the International Decade for Action ‘Water for Life’ 2005-2015, the city of Zaragoza in Spain, and the SWITCH consortium including both UNESCO-IHE and the IRC International Water and Sanitation Centre. It draws on the approaches of the SWITCH project and the Learning Alliances. Some specific outcomes of the meeting – especially case studies – will be presented as part of the World Water Day on 22 March 2011.

NEW LIBRARY CATALOGUE SYSTEM

From October onwards the UNESCO-IHE Library presents its collection via a new platform provided by OCLC software. The catalogue can be accessed online through the UNESCO-IHE website: http://www.unesco-ihe.org/About/Facilities/Library. The UNESCO-IHE Library Catalogue contains all the bibliographical data of the Library collection including the abstracts and PDF of PhD dissertations and MSc theses. Due to copyright restrictions one can only access the PDFs of documents that are contained in the Library collection on the UNESCO-IHE premises at Westvest or through login authentication via the UNESCO-IHE portal.

The former version of the Library Catalogue (BIBIS) will remain operational until the end of December 2010 and will be discontinued after this date. UNESCO-IHE alumni will be provided with a new username and password to access the new UNESCO-IHE Library Catalogue upon request. Please address your request to library@unesco-ihe.org. An instruction manual of the new Library Catalogue is embedded in the software itself under the ‘HELP’ function.

COLLABORATION WITH HIDROEX

The Brazilian International Center Foundation of Education, Capacity Building and Applied Research in Water (HIDROEX) and UNESCO-IHE have agreed to jointly work towards a large capacity development project in the coming four years. Activities will include the training of Brazilian water professionals as well as HIDROEX staff members through a number of short courses and Masters of Science and PhD programmes in various disciplines.

LATEST ROUND OF UNESCO-KEIZO OBUCHI FELLOWSHIPS FOR YOUNG RESEARCHERS

UNESCO is calling on young researchers from developing countries to apply for a series of grants under the UNESCO-Keizo Obuchi Research Fellowships Programme (UNESCO/Japan Young Researchers’ Fellowships Programme) funded by Japan.

The programme, named in honour of a former Prime Minister of Japan, provides twenty research fellowships worth between US$6,000 – US$10,000 each. Eligible candidates are postgraduate researchers (holding a Masters degree or its equivalent) in four areas – the environment (with particular emphasis on water sciences), intercultural dialogue, information and communication technologies, and peaceful resolution of conflicts.

Young researchers from 140 countries are invited to apply to their respective National Commissions, which will select a maximum of two candidates. All applications must reach UNESCO’s Paris Headquarters by 7 January 2011. A special committee comprising experts from the four research fields will study the applications and present the donor country with their short-list.

Cecilia Tamara Avellán from Uruguay was awarded the fellowship in 2008. Avellán used this fellowship in 2009 to carry out research at UNESCO-IHE in constructed wetlands for use in Uruguayan dairy farm waste waters.

SHORT NEWS
On any given day, 2 billion people use Unilever products. Unilever is one of the leading suppliers of fast-moving consumer goods with products on sale in over 170 countries. Products range from foods to home and personal care brands, trusted by consumers all over the world. Unilever’s top 13 brands account for total sales of over 23 billion Euros. The Unilever business and brands have impacts at every stage of their life cycle: in sourcing raw materials, packaging, manufacture, distribution, consumer use and disposal.
“Unilever has a long tradition and great ambition in sustainability. We have learned that the only way to succeed in this field is to work in partnership with governments, NGO’s, knowledge institutes and other companies. Unilever stimulates its staff to play an active role far beyond the borders of the company. As part of the Governing Board of UNESCO-IHE I can play a bridging role between the Institute and Unilever or other companies. Within the board, I can perform what I call ‘reality checks’ to see if a certain concept works in a commercial environment.”

Verbakel continues: “As sustainability issues become more and more important worldwide, we need many highly motivated and educated people who can contribute to addressing these challenges. All efforts within UNESCO-IHE have to focus on the continuation of being a centre of academic excellence, and being able to deliver scientists and water professionals who can conduct state-of-the-art research as well as top leading figures who understand how to apply these research outcomes in the water sector and in communities.”

REDDING ENVIRONMENTAL IMPACT

“We spend a large amount on Research & Development,” Verbakel explains. “The budget comes close to one billion US Dollars. This is not the most important factor though, but rather where one puts the focus. We continuously measure our impact so that we can register improvements. With every new product or newly built factory we have to show how we can reduce environmental impact, forcing innovation in every little detail of what we do. This cannot be done all at once but gradually we have to improve our performance.”

CHANGING MENTALITIES

“In addition, our outspoken ambition generates a snowball effect. For example in the United States, the retailer Walmart approached us to help us co-produce environmentally sound goods. In fact, we pioneered concentrated laundry detergent and launched “Small & Mighty” with this retailer. In 2007, Walmart announced it would sell only concentrated liquid laundry detergents in its US stores. So, if we develop more environmentally friendly products, we can partner with retailers such as Walmart to help us sell those products, increasing the products’ chances of success so more resources can be spent developing it. Such examples generate a positive wave that really changes mentalities within companies.”

SOCIETY DEMANDS CORPORATE RESPONSIBILITY

But where does Unilever draw the line in taking responsibility for impacting the environment, climate change and economic development? “We fully recognise the impact of our products and critically assess our entire value chain, from the sourcing of raw materials, production and transport to consumer end-use and waste,” Verbakel elaborates. In November 2010, the company announced the Unilever Sustainable Living Plan, to decouple growth from its environmental footprint. Under the sweeping plan, by 2020, the company has committed to halve its environmental footprint of its products; help more than 1 billion people take action to improve their health and well-being and source 100% of our agricultural raw materials sustainably. “This commitment follows on Unilever’s vision announced by CEO Paul Polman in 2009 that Unilever will double the size of the company whilst reducing its impact on the environment.” With this goal, says Verbakel, “we want to be at the forefront of taking corporate social responsibility. Not only do we believe in the importance of it, society also demands it.”

“The ambition has been defined. Now we are in the process of making it happen. This is a daunting but very challenging task, especially since technology plays such a fundamental role and the Research and Development department is tasked to come up with the innovative solutions. Luckily everyone is extremely motivated to work on achieving these ambitions.”

ACCOUNTABILITY AND METRICS

In 2009 Unilever developed a set of metrics covering social impacts. These metrics seek to measure the benefits Unilever brings to society. In the November 2010 announcement, Unilever has put forth 50 separate metrics addressing economic, environmental and social targets. It involves amongst others slashing the carbon, water and waste impact of its products in half – primarily through innovation in the way the company sources, manufactures and packages its products. Verbakel noted that in 2010, the Lifebuoy hand washing soap brand became the first among the many Unilever brands to pilot the new metrics, helping track the impact of Lifebuoy programmes on hand washing behaviours over a five-year period. The development of these metrics will allow Unilever to track performance across all products and enable the company to show consumers how their small, individual actions can make a big difference.
Verbakel explains: “In order to be held accountable we cannot develop our own set of rules and use internal measurement systems. Official recognition and the right quantification are very important in this process. UNESCO-IHE, the Water Footprint Network and other knowledge institutes are instrumental in developing these measurement tools to measure high relevancy in society.”

SCARCE COMMODITY

“For the production of Unilever’s personal care products and (agricultural) food products much water is needed. With water being such a scarce commodity we need to find even more innovative solutions to minimise the uptake of this resource – even though we’ve managed to reduce our own water usage in our factories by 67% since 1995. In the past two to three years, we have treated the measurement of these figures with equal importance to our profit targets.”

Verbakel explains the segmentation of the water footprint into three segments of the value chain: the production of raw materials, the manufacturing of the products and consumer use. “At the supply side (raw material) of our products, we use the concept of sustainable agriculture. For example, in 2015 all Lipton tea (the world’s best-selling tea brand) will be certified according to the standards set by the Rainforest Alliance, an international environmental NGO. In this way, the continuous improvements in worker welfare, farm management and environmental protection, including wise water use is guaranteed. A similar set-up is used in sustainable palm oil sourcing where we work with GreenPalm certification. To date, 30% of our palm oil purchases are covered by sustainable GreenPalm certificates. “With regard to the operations side, we have established a leading position in lowering CO2 production and water use for many years now. Currently, with the establishment of new factories in the US, we aim at zero landfill, which is highly stimulated by the US government. It is interesting to see that also in developing countries now the most sophisticated factories are built, mainly because of the new insights in minimal water use and zero landfill goals can be applied.” Verbakel also noted that Unilever has been the Food Industry Leader in the Dow Jones Sustainability World Indexes for the 12th year running.

CONCENTRATED DETERGENTS

“On the consumer side, when taking into consideration that per day an estimated two billion people make use of our products, the impact we leave behind is enormous,” says Verbakel. “One of our best practices includes the concentrated detergents, which use less energy to produce, package and transport. In addition, this product allows children to turn off the water tap when brushing their teeth or to demonstrate the best way to wash one’s hands. We use role-model stars to make strong statements in our commercials. We have noticed that people tend to pick up messages through these stars much faster than when reading it from a government-distributed leaflet.”

CONSUMER USE

“In water-scarce countries, 40% of Unilever’s domestic water footprint comes from washing clothes, usually by hand. As an example, our Comfort One Rinse fabric conditioner enables users to need only one bucket to rinse rather than three, saving time and money. Some 500 billion litres of water would be saved if all our Unilever laundry product users in Asia and South Africa used Comfort One Rinse. “We collaborate closely with various consumer organisations in almost every country where we have an active presence. Multiple assessments and polls provide us with good estimates of consumer use. Among many other companies, Unilever is an active partner within the Water Footprint Network. We think that our experiences with the methodologies and the ways we measure should be shared with anyone, with governments and institutes but also with businesses. “Sustainability is not merely a nice-to-have business feature but an integral part of all businesses. Often it is difficult to share this belief with other companies, but the trend to realise the need and importance for corporate social responsibility is increasing in every way, and we hope to be a real catalyst in this regard. We don’t have all the answers, but we know we must work in partnership with customers, suppliers, governments and Ngo’s to achieve our goals.”

Water use 1995-2009 (m³/tonne of production)
© Unilever Sustainable Development Overview 2009

A NEW VISION

2009 saw the launch of a new vision for Unilever – to double the size of the company while reducing the overall impact on the environment. The commitment presents Unilever with a major challenge. The reduction they are talking about is an absolute one. It incorporates all impacts right across the value chain – from the sourcing of our raw materials through to consumer use and disposal of the products. In short, Unilever intends to decouple growth from environmental impact.

UNILEVER FACTS

• Unilever is the global market leader in all the Food categories in which it operates: Savoury, Spreads, Dressings, Tea and Ice Cream. They are also global market leader in Mass Skin Care and Deodorants, and have very strong positions in other Home and Personal Care categories.
• In 2009 Unilever invested €891 million in Research and Development.
• Unilever has 2.64 manufacturing sites worldwide. Around 50% of the raw materials that they use for their products originate from agriculture and forestry. The company buys approximately 12% of the world’s black tea, 6% of its tomatoes and 3% of its palm oil.
• The top 13 brands of Unilever account for total sales of more than €23 billion. These brands are Axe/Lynx, Blue Band, Dove, Flora/Becel, Heartbrand ice creams, Helouvan’s, Knorr, Lipton, Lux, Omo, Rexona, Sunsilk and Surf.
• In 2009 Unilever’s sales were €39.8 billion. Their share of sales in developing and emerging markets reached 49% in 2009, up from 47% in 2008. These markets include all countries in Latin America, Central & Eastern Europe, Africa and Asia, except Japan and Australia.
INTERVIEW ARJEN HOEKSTRA

“The corporate water footprint as a global standard”

According to the Water Footprint Network, reducing the water footprint should be part of the environmental strategy of every business, just like reducing the carbon footprint. Addressing the issues of freshwater scarcity and pollution is also part and parcel of corporate social responsibility.

TURNING RISKS INTO OPPORTUNITIES
Considering and mitigating the water footprint can turn risks into opportunities for those companies that proactively respond to the challenge of global freshwater scarcity. Front runners who create product transparency before others do, who formulate specific and measurable targets with respect to water footprint reduction, and who can demonstrate actual improvements, can turn this into a competitive advantage. Professor Arjen Hoekstra, Scientific Director at the Water Footprint Network and creator of the water footprint concept explains: “I am seeing a trend in the awareness, recognition and importance of the concept of corporate water footprinting in many countries around the world.” He continues: “Companies can start by reducing their water footprint in the supply chain. The Water Footprint Network sets global standards, definitions and calculation methods. Now more relevant and international recognised organisations are joining our network of professionals. Unilever, for instance, is also a partner within the Water Footprint Network. They are interested in calculating their products’ water footprint (mostly agricultural produce) to see how this can be reduced in the entire supply chain. I believe that in the next few years companies will increasingly use the water footprint as a key performance indicator.

Waterfootprint assessments have become mandatory in Spain, as part of the national implementation of the EU Water Framework Directive, a framework established in 2000 for community action in the field of water policy. It is expected that in the future, more governments will carry out water footprint assessments, to better understand how different final consumer commodities put different claims on limited water resources. The interest is largest in water-scarce regions where water is being used for export products. “Companies see these new developments as a major risk,” Hoekstra says. “Not only is their corporate image at stake, there is a looming threat that governments will start regulating more and more. This risk can be brought down when companies start to look for other opportunities, such as market advantages in terms of producing ‘greener’ products, thereby adhering to corporate social responsibility.

TOWARDS A GLOBAL STANDARD
“In the next five years this could translate into governments even adjusting their development policies based on the water footprint data. The pitfall is that everyone will use it to their own benefit; so much so that it will become a meaningless metaphor. The challenge is to try to regulate the corporate water footprint and mainstream it as a global standard,” explains Hoekstra. “It will take many more measures and significant changes in attitudes and behaviour. The world has not suddenly become simplified. Labeling and certifying products are not simple solutions to complex issues. What really matters is sustainable water management, equitable and efficient water use, and solid communication tools to reach consumers at a national, regional and eventually local level.”

COLUMN

What’s in a name – iHE …?

When the international course in Hydraulic Engineering started way back in 1957, the means of communication were quite simple. Letters were sent via surface mail (or airmail if really urgent) and course notes were hand typed using a “fresh carbon ribbon” and white-out liquid eraser for correcting mistakes. Those of you who remember these days are probably close to retirement now, those of you who don’t may experience even greater changes during your own professional lifetime. In any case, with this the abbreviation was readily established … IHE.

Then came the days of the multiple I’s and multiple E’s: the International Institute for Infrastructure, Hydraulic and Environmental Engineering. Manuscripts of lecture notes were handed to qualified secretaries and skilfully entered into the state-of-the-art word processors that filled the Typing Room. Perhaps computers were being used by some of the younger staff for calculations, but the seniors preferred blackboard and chalk – who in the developing world would be using computers after all? So the abbreviation remained – IHE … What followed may be familiar to many of us: the World Wide Web boomed and became a tool for communication – also in the developing world. More computers entered the buildings and the institute enhanced its international profile by transferring into a UNESCO Category I Institute for Water Education. But the abbreviation remained – IHE …

So what’s in store? What is our future in the era of real-time global communication, video conferencing, Skype sessions, distance learning, virtual lecturing, Twitter, Facebook and more? Should we stick to chopping down trees and sending out thousands of flyers to embassies, in the hope that someone may just stop by and apply for admittance? Or should we be developing apps for smartphones, connecting alumni worldwide, providing electronic invitations to apply for our continued education, interact online with our staff – and perhaps, following the trend set by Apple: iPod, iPhone, iPad, and change the Institute’s abbreviation into – IHE …?

Arthur Mynett is Professor of Environmental Hydroinformatics
Anique Alaoui-Karsten began as UNESCO-IHE’s new beadle at the beginning of August 2010. Her tasks include organising academic ceremonies, acting as master of ceremonies at MSc and PhD graduations, and facilitating PhD students and their promotors in the logistics of PhD defences and the production of theses. She maintains close contacts with partner universities and helps in further developing the Institute’s academic profile. Alaoui-Karsten will succeed Laura Kwak as beadle.
INTERVIEW ALUMNUS

“Knowledge is forever; no one can take that away from you.”

On 30 June 2010, the Nicaraguan National Congress designated Luis Angel Montenegro as first Water Minister of Nicaragua. Montenegro who obtained an MSc degree in Water Management from UNESCO-IHE in 2010, talks about the challenges in Nicaragua and young people making a difference in the world.

“I remember getting a call from UNESCO-IHE offering me a scholarship when I was in Honduras. I picked up the phone sleepily and had to decide on the spot whether I would take it or not. By that time I had not even received permission from the President yet. I just said “yes” and was luckily also granted permission.”

The National Congress Committee said: “Next week you may be appointed Minister. This is not the right time to leave, especially not for two years!” Of course I realised that I was jeopardising being appointed minister, but I made up my mind and decided to pursue a Master degree. I thought: “knowledge is forever; no one can take that away from me.” Fortunately in my case, politics in Latin America does not change overnight and I was elected within one month after returning to Nicaragua.

GAINING KNOWLEDGE

Now I am so thankful for having made that decision as I have learnt so much during my time at the Institute. I learnt a lot from the lecturers at the Institute and shared experiences with my fellow classmates who came from so many diverse backgrounds and cultures. Also, I gained a great deal of knowledge simply from being in the Netherlands; a country that is constantly dealing with and managing a diverse range of water issues. Without doubt, it was the Institute that gave me the technical background to assume my new duties as Water Minister of my country.

The main challenge in Nicaragua, but also in many other parts of the world, is to create awareness in people. It is not only the awareness of how to properly use and preserve water. It is also the mere fact that people never had to pay for water before, and therefore think it is free of charge. An infrastructure and hydraulic projects need to be installed and managed properly to ensure the right quality and to assure the quantity needed. This requires financial resources which need to be borne by those who use them.

THE IMPORTANCE OF NEGOTIATING AND MEDIATING

It is a matter of taking responsibility. Individuals but also large corporations have to understand that they are consumers and have to pay for their water. I am now thankful for the skills I obtained from the course on Negotiation and Mediation for Water Conflict Management as I will be able to put them into immediate practice in dealing with large corporations and negotiating the price for the extraction and supply of water. Another challenge in Nicaragua is to see how we can allow for more tourism to enter the country without causing too much substantial impact to the country’s ecology.

TREMENDOUS NEED FOR CAPACITY DEVELOPMENT

Our country’s natural resources are extensive, we have forests that are bigger than the whole of the Netherlands, but we have not been able to manage them properly. We really need more people in countries like Nicaragua to attend courses such as the ones being given at UNESCO-IHE to help guide better integrated water resources management; a concept that is quite new here in Nicaragua.

“I believe that if you want to make a change in the world, study well and try to become a decision-maker and obtain a place in the field of politics where you can make a change,” Montenegro explains. “Hierarchies and culture can be barriers to achieving change. Young people are sometimes afraid that they will not be taken seriously. But with their efforts to change the region, country and city in which they live, they will contribute to making a better and more modern world.”
Urban floods cannot be managed in isolation at city scale and responses to potential flood impacts are further complicated by overlapping political, socio-economic and environmental changes. To reverse the trend of increasing flood risk in urban areas, a major rethink of current planning and flood management policies and practices at different spatial and temporal scales is required.

To this end, the Flood Resilience Group (FRG) was initiated by UNESCO-IHE and the Delft University of Technology. The group consists of a multi-disciplinary team of scientists that aims to advance scientific knowledge and practical applications into integrated approaches to cultivate flood resilience in urban communities and built-up areas. The activities carried out by the group are threefold: (i) quantifying the impacts of changing drivers for urban flood risk, (ii) assessing the restorative and adaptive resilience of urban flooding systems, and (iii) transition management and adaptive management for urban flooding systems.

Learning and research
Since its establishment in 2007, the Flood Resilience Group has been involved in a number of national and international research projects. In the majority of these studies learning and research is implemented together with local, regional, and national stakeholders. The cities that are currently targeted include Dordrecht, Rotterdam, Haarlemmermeer, Bergen (Norway), Hannover (Germany), Sheffield (UK), Beijing (China), Mumbai (India), Dhaka (Bangladesh), Seattle (USA), Saint Louis (Senegal), and Porto Alegre (Brazil).

The Flood Resilience Group has co-authored a textbook on Urban Flood Management for students and professionals, which was recently published. See page 32 for more information about this publication.

Unknown factors
The concept of resilience provides guidance for an overarching approach towards managing urban floods which devises strategies to cope with change and uncertainty. Moreover, various insights into, and methods from, system and complexity theory provide hands-on methods to create such a framework. The transition towards a resilient approach is still beset by many unknown factors; ‘active learning’ can help us to better understand these factors and develop and implement appropriate responses. These trends pose huge challenges for flood research, especially in the field of co-creation and action research in flood management related to urban planning and design.

Flood Resilience Group

SOME SAMPLE PROJECTS UNDERTAKEN BY THE FLOOD RESILIENCE GROUP

THE MARE PROJECT
MARE stands for Managing Adaptive Responses to changing flood risk in the North Sea region. The project sets out to develop and demonstrate a transnational approach to local Flood Risk Management (FRM) through the following parallel areas of activity: setting up Learning and Action Alliances, developing a Climate Proofing Toolbox, and demonstration (Bergen, Dordrecht, Hannover, and Sheffield/Rotherham). The FRG is responsible for the development of the toolbox and guidance for climate-proofing the local adaptive measures. The Learning and Action Alliances will demonstrate and evaluate the Climate Proofing Toolbox by applying it to real FRM demonstration projects. These projects will contribute to the development of local FRM plans, as well as validating or helping to enhance the Climate Proofing Toolbox.

http://www.mare-project.eu

FLOODPROBE
FloodProBE is an EU-funded project that aims to provide cost-effective solutions for flood risk reduction in urban areas. FloodProBE develops technologies, methods and tools for flood risk assessment and for the practical adaptation of new and existing buildings, infrastructure and flood defences leading to a better understanding of vulnerability, flood resilience and defence performance.

This research supports the implementation of the Floods Directive* through the development of more effective flood risk management strategies. The work is being undertaken in close partnership with industry, and is utilising pilot sites across Europe to help provide practical industry guidance and cost-effective construction solutions. The role of the FRG is to focus on technologies and concepts for improving the performance of existing and new (i.e. multi-functional) flood defences and for increasing the flood resilience of urban systems.

* The Floods Directive was proposed by the European Commission in 2006 and aims to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive requires Member States to first carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas that are at risk of flooding.

http://www.floodprobe.eu

THE CORFU PROJECT
The Collaborative Research on Flood Resilience in Urban areas (CORFU) is an interdisciplinary EU-funded project that looks at advanced and novel strategies and provides adequate measures for improved flood management in cities. Adopting a long-term perspective, the project not only focuses on the possible effects of climate change, but also incorporates anthropogenous factors. By coupling a socio-economic model with a physical urban growth model, urban development is taken into account as a dynamic factor in the sensitivity, exposure and vulnerability to flooding. Another important factor is the incorporation of growing Asian megacities (Beijing, Mumbai, Dhaka) as well as relatively stable European cities (Hamburg, Nice, Barcelona). This should ultimately lead to different responses (e.g. smart growth policies vs flood-sensitive redevelopment). FRG focuses on the development of the urban growth and redevelopment model which provides the platform for hydraulic modelling, flood vulnerability analysis and the response framework.

http://www.corfu-fp7.eu

www.floodresiliencegroup.org
Twenty million people affected
According to Pakistani government data, the floods directly affected about 20 million people, mostly through the destruction of property, livelihoods and infrastructure, with a death toll of close to 2,000 people. The number of individuals affected by the flooding exceeds the combined total of individuals affected by the 2004 Indian Ocean tsunami, the 2005 Kashmir earthquake and the 2010 Haiti earthquake. The death toll may climb to several thousand more as flooding has spread throughout the country and countless people remain missing due to flash floods and landslides. To compound the problem further, millions of homes in thousands of villages and towns were also destroyed.

Infrastructure destroyed
Key elements of the country’s infrastructure such as dams, power stations, roads, bridges, schools, agriculture wells, and drinking water hand-pumps were severely damaged or destroyed. Throughout the region, bridges have been washed away leaving roads destroyed or rendered impassable by landslides. This makes it even more difficult for relief and rescue efforts to reach many of the affected areas.

Waterborne diseases
Waterborne diseases have also begun to appear, and these will push the number of deaths significantly higher. The harsh reality is that waterborne diseases are linked to floods — and with cholera outbreaks already reported in the northern Khyber Pakhtunkhwa province of Pakistan, this flooding event seems to be no exception. The lack of sanitation causes the fatal diarrhea disease to spread rapidly. Stagnant water poses other threats, such as an increase in the number of malaria cases.

Climate change to blame
Climate change is considered to be the root cause of the current flooding in Pakistan. This is down to the unusual climate-change-led seasonal cycle of land temperatures in Pakistan which has exacerbated the monsoon rainfall and produced the largest volume of water in the northern mountainous region of the country ever recorded in history. This led to the flooding of the Indus river basin. Various scientific studies have already shown that the monsoon regions in the world will be affected by climate change more than any other regions on Earth. A study in 2006 indicated that this trend may continue — although at the time the researchers did not unequivocally link this to climate change. However, today many scholars now believe that the present flooding may be part of a longer-term trend. “Climate change will be a small but steady contributor to rainfall in the region,” says Jeff Knight, climate variability expert at the UK Met Office Hadley Centre.
The current specialisation in Limnology and Wetland Ecosystems is the result of a new approach towards the training of professionals in environmental research and education, whereby an international network was created, and several European and East African partners have agreed to pursue the streamlining of selected post-graduate course activities. The specialisation is jointly given by UNESCO-IHE and the Austrian Academy of Sciences, in cooperation with Egerton University in Kenya. UPDATE Magazine interviewed Professor Jude Mathooko, Deputy Vice-Chancellor of Egerton University in Kenya on this partnership and his views for the future.

“I come from an area where we do not have much water. My home place is a dry area but what surprised me most is that the small streams I saw when I was young are no longer there,” Mathooko explains. “Water is an essential resource. I just followed a dream to know more about water. The more I knew about water, the more complicated it became.”

Dried out
Limnology, the study of freshwater systems, including saline water systems and the resources therein, was not so much known back then in Africa. Knowledge on limnology was mainly concentrated in Europe and in some parts of America. Scientists would come from Europe to collect samples from Africa, not even training people about limnology. In Africa large lakes and rivers used to exist. People used to find the remains of aquatic animals there. These rivers have now dried out completely. I strongly believe that limnology is the answer to questions on past climate change and a solution to the current and future climate change.

Research of the stomach
When we come to know the finer details of research in the South and the North the two are extremely far apart in the research continuum. Europe is looking at the finer details of nature, while the South is focusing on the resources for food security. This is why in the South much more research is done on fish and fisheries. In the North they can also look at bacteria in more detail. In the South no one really wants to research this. I call it research of the stomach. The government will also understand researchers better who are able to solve issues that give answers to questions on how to satisfy our immediate needs. Food resources, water quality and quantity are key research areas for people in the South. Our people and young students need to come up with new and innovative solutions. They should be trained in an environment they are familiar with where the solutions can also be found in the same environment. UNESCO-IHE can play a role in this by coming down and

"Only the scientist understands why the wilderness explains human activity and fills it with sense.”

Quote by Aldo Leopold (1948)

Benefiting from the knowledge exchange with partner institutes in the areas of research, capacity development and joint education programmes is invaluable when responding to new global challenges. Egerton University in Kenya is an excellent example of one of those partner institutes with which UNESCO-IHE has a longstanding history.

Jude Mathooko is a Professor of Aquatic Science at Egerton University, Kenya, where he has been teaching in the Department of Biological Sciences for the last 20 years. Currently, he is the Deputy Vice-Chancellor in charge of Research and Extension at Egerton University.
further developing their capacities. Limnology should be given a boost and a critical mass of students should be trained to meet this daunting challenge.

**Familiar environment**

“I was introduced to limnology in Austria. I immediately saw the opportunity to take the training to the South in a more familiar environment, rather than getting sophisticated material in Europe and sophisticated computers that are available in the North. This equipment and hardware should work in a familiar environment, Egerton University for instance. The equipment could then also be used by more students,” explains Mathooko.

“Of course, one can also gain from the positive effects of getting a different experience by interacting with other students in an unfamiliar country. So, a wise decision was made by UNESCO-IHE, the Austrian government and Egerton University to team up and work together in this course. This is the direction the world is heading in. One cannot work in isolation. One needs to work with others in mutual understanding, where everyone works as equals. This is how the world should be. And now we have been working at an equal level, it is now that we can talk about success of the programme,” he says.

One of the advances in limnology is that the integrated research in this area has become so apparent. The holistic view is that we now combine the catchment with the water systems, whereas before they were treated independently.

**Improve, diversify and expand**

Mathooko explains: “In my view, UNESCO-IHE and Egerton University can improve, diversify and expand its current programmes. Apart from limnology and wetland ecosystems, there are elements of water engineering that may be interesting to either take over or join up with. In addition, UNESCO-IHE could make a large impact in the area of water and sanitation here, especially in rural and urban areas. Also, I believe that further progress can be made in integrated project management and proposal writing to request for funding. I find that my staff members are quite weak in this area. If we could further develop this skill-set, I believe it would really help us.”

**Bridging the gap**

He continues by saying: “The South and the North research far apart from each other at the extreme ends of an aquatic continuum. The South more on the fish and the fisheries. The North more on the microbio loop. It is this distance that we have to close. Offering joint education programmes, jointly promoting publications, jointly disseminating information and jointly forming policies to the benefit of both continents are important steps in bridging the gap.”

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**Joint MSc Programme in Limnology and Wetland Ecosystems**

The joint programme in Limnology and Wetland Ecosystems is given as an MSc programme. This specialisation is jointly given by UNESCO-IHE and the Austrian Academy of Sciences (Mondsee, Austria), in cooperation with Egerton University (Egerton, Kenya). The duration of this joint programme is 18 months containing 14 three-week-modules, equally spread over the three locations, followed by a research period of 6 months. Egerton University teaches the modules on ‘Lake Ecology’, ‘Stream and River Ecology’, ‘Wetlands for Water Ecology’, and ‘Fisheries and Aquaculture’.

**Egerton University, Kenya**

Egerton University was founded as a farm school in 1939 by Lord Maurice Egerton of Tatton, a British National. In 1950, the school was upgraded to a College. In 1986, the College was gazetted as a constituent college of Nairobi University. In 1987, Egerton was fully established as a University through an Act of Parliament. See more info: www.egerton.ac.ke/.

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**UNESCO-IHE signed a vision statement on strengthening collaboration in water education, research and capacity development with 18 key education and research institutes in higher learning from around the world. High-level representatives from partner institutes assembled in Delft in July 2010, to discuss the possibilities and opportunities for setting up joint educational programmes at the Master’s level in the water sector. The development of joint educational programmes with partner institutes is one of the cornerstones of UNESCO-IHE’s policy to serve the world water sector with good quality, relevant education and training at a scale required by the sector.**

**Ambitions and collaboration**

Such programmes are based on a form of credit transfer systems between the (two) institutes and a joint responsibility in delivering part of the educational programme. The aim of the conference was to learn better the ambitions of the different institutes and to explore the best approach to developing such programmes and other forms of collaboration.

**Partner Institutions**

Participants included dignitaries from Addis Ababa University in Ethiopia, Ain Shams University in Egypt, Asian Institute of Technology in Thailand, Bangladesh University of Engineering and Technology, Birzeit University in Palestine, Dundee University, School of Natural Resources, Law, Policy and Management in Scotland, Egerton University in Kenya, Hohai University in China, Kwame Nkrumah University of Science and Technology in Ghana, Mondsee University of Limnology in Austria, The University of the West Indies, St Augustine, Campus, Universidad del Valle in Colombia, Universitas Sriwijaya in Indonesia, University of Dar es Salaam in Tanzania, Universidade de Sao Paolo Engineering School of Sao Carlos in Brazil, University of Zimbabwe, Water Resources University in Viet Nam and the WaterNet Capacity Building Programme in Southern Africa.

**Joint activities**

The main objectives of the conference include the development of a (joint) vision on the establishment of joint educational programmes (need, ambition, sense of purpose), having consultations on a common framework for the delivery of joint educational programmes (shape and layout, presentation, acknowledgement); discussing major operational principles for the delivery of joint programmes (credit transfers, marketing, finances); formulating a road map for achieving medium-term objectives (objectives, milestones, activities, policy and operational decisions); and identifying support programmes for development (staff exchange, training of trainers, lecture material development, online learning).

A full (photographic) report on the conference can be found at www.unesco-ihe.org/educconference2010.
UNESCO-IHE
GLOBAL PARTNERSHIP
FOR WATER EDUCATION
AND RESEARCH

1. Pham Hong Nga | Water Resources University
2. Hoda Soussa | Ain Shams University
3. Wim Douven | UNESCO-IHE
4. Jan Luijendijk | UNESCO-IHE
5. Maarten Siebel | UNESCO-IHE
6. Mukand Babel | Asian Institute of Technology
7. Dano Roelvink | UNESCO-IHE
8. Joana Popescu | UNESCO-IHE
9. Chris Zevenbergen | UNESCO-IHE
10. Joop de Schutter | UNESCO-IHE
11. Omar Adnan Yahya | Palestine
12. Maher Abu-Madi | Birzeit University
13. Gerold Winkler | Mendoza Institute of Limnology
14. Biswa Bhattacharya | UNESCO-IHE
15. Andreja Jonoski | UNESCO-IHE
16. Shah Alam Khan | Bangladesh University of Engineering and Technology
17. Yiqing Gua | Hohai University
18. Monowar Hossain | Bangladesh University of Engineering and Technology
19. Zoran Vojinovic | UNESCO-IHE
20. Yilma Seleshi | University of Addis Ababa
21. Jan Nonner | UNESCO-IHE
22. Vincent Cooper | University of the West Indies
23. Stefan Uhlenbrook | UNESCO-IHE
24. Nzula Kitaka | Egerton
25. Eduardo Mendiondo | Universidad de Sao Paulo
26. Kwasi Kwafo Adarkwa | Kwame Nkrumah University of Science and Technology
27. Sudip Rakshit | Asian Institute of Technology
28. Innocent Nhapi | University of Zimbabwe
29. Pieter van der Zaag | UNESCO-IHE
30. Adnan Yahya | Birzeit University
31. Marloes Mul | UNESCO-IHE
32. Susanto Robbyanto | Sriwijaya University
33. David Love | WaterNet Capacity Building Programme
34. Carlos Madera | Universidad del Valle
35. F. Maito | University of Dar es Salaam
36. Edgar Quiroga | Universidad del Valle
37. Maarten van Rijn | Conference Facilitator
38. Kebreab Ghebremichael | UNESCO-IHE
39. Hans van Bruggen | UNESCO-IHE
40. Tadeu Malheiro | Universidad de Sao Paulo
We, representatives of 19 universities, research institutes and international entities from around the world, reflecting upon our long-standing cooperation, hereby commit to a joint vision and mission with the objective of strengthening the global collaboration in education, research and capacity development for water and the environment.”
The Asian Institute of Technology (AIT) promotes technological change and sustainable development in the Asian-Pacific region through higher education, research and outreach. Established in Bangkok in 1959, AIT has become a leading regional postgraduate institution and is actively working with public and private sector partners throughout the region and with some of the top universities in the world.

In October 2009, the double degree programme in Urban Water Engineering and Management was launched, replacing the UNESCO-IHE, Delft-based Integrated Urban Engineering specialisation. Worldwide, this is the first specialisation in urban water management that covers the entire water cycle, addressing engineering, management and institutional aspects. Currently two other double degree programmes have been developed with the Institute, namely Environmental Technology for Sustainable Development and Agricultural Water Management for Enhanced Land and Water Productivity.

Professor Sudip Rakshit, Vice-President for Research at AIT elaborates: “Currently we have three joint education programmes with UNESCO-IHE but we would like to do more in terms of extending our collaboration, also in the area of joint research activities. Strengthening and consolidating the activities we are currently undertaking must, of course, not be overlooked in this process.”

“There is so much that AIT can learn from UNESCO-IHE and vice versa of course,” Rakshit explains. “Both our institutes are similar in so many regards, that we can only complement each other. Also at AIT no one is considered a foreigner with so much diversity in experiences, backgrounds and nationalities. We see the same at UNESCO-IHE where people from all over the world come to study and undertake research. Some conservative minds may think that we are competitors, but we feel the opposite: it is a win-win situation.”

ICID and UNESCO-IHE: a complementary partnership

“...Several Masters and PhD students are already involved in joint activities, such as the World History of Water Management Short Course at UNESCO-IHE.”

Far-reaching impact

The current partnership is mutually beneficial and has been in existence since the 1950s. For over half a century, UNESCO-IHE has been teaching generations of water experts. For its part, ICID has provided an international platform for networking, policy debates and dialogue since it was first established in 1950. ICID is keen to publish research findings of young water professionals. Its high profile, international network can be used to disseminate the knowledge. ICID can also help up-and-coming water professionals, and the industry as a whole, with recruitment drives and advertisements.

Uniting the best minds in the field in this way, and giving them an internationally renowned network through which they can exchange knowledge and share best practices about irrigation and drainage, is already having a far-reaching impact on the water sector. Hayde encapsulated this as follows: “Our presence in ICID is not only important for personal scientific networking, but brings opportunities in advertising the activities of UNESCO-IHE, recruiting potential participants for our programmes, short courses and holds the potential of scientific research projects, as well. All these opportunities have already been realised in my past activity in ICID and at UNESCO-IHE at the same time and I hope to continue these efforts as well. Indeed, through networking, I have brought in many projects and have helped the organisation maintain a high profile.”

When asked about ICID’s plans for the next biennium, Hayde explained: “We combine our efforts and expertise to look at different

PROF. MADRAMOOTOO

“There is a personal link which forges strong human bonds of friendship and collaboration.”

What are ICID’s main challenges?

The main challenges are the growing level of water scarcity, competition for water, and how agriculture can be a more efficient user of water, especially in light of climate change. The debate of food vs fuel is also of concern since we are using scarce land and water resources to produce fuel. This is a very critical debate in light of the food security issues. The overall performance of our irrigation and drainage networks is also facing scrutiny given the large public investments in the sector. In terms of public financing and accountability, the question is often asked whether the socio-economic and financial benefits of these investments are being achieved for the public good. Irrigation and drainage systems are complex enterprises in that we are dealing with numerous small farmers who are very heterogeneous in their farming operations. This makes it extremely difficult to manage the system, especially with an ageing infrastructure. For this reason, we are thinking of the best institutional, finan-
key issues in the world and identify ways
to address the most urgent challenges.*
Challenges such as adapting and managing
land and water resources for urban, rural and
industrial areas, producing enough food to
meet the demands of the expanding popula-
tion, and improving water safety and flood
protection.
Hayde is part of a long line of UNESCO-IHE
staff and alumni who have held positions
on ICID’s Executive Council. Professor
Bart Schultz, Professor of Land and Water
Development at UNESCO-IHE was President
Hj. Keizrul bin Abdullah from Malaysia was
Vice President of ICID from 2002 to 2005.
On his appointment, Hayde stated “... I am
very much honoured to take on this position
[of Vice President] and I certainly believe
that the work at ICID complements my work
at UNESCO-IHE.”

UNESCO-IHE alumni gathering
Several generations of UNESCO-IHE
alumni from Indonesia met for an informal
dinner on 13 October 2010. The most
senior alumni, a former Director General
of Water Resources from the Ministry of
Public Works, graduated in 1977 while
the youngest alumnus graduated in 2010.
The group numbered 34 in total and had
originally gathered in Yogyakarta, Indonesia
for the Executive Council meeting of the
International Commission on Irrigation and
Drainage (ICID). The group consisted of
two ex-Director Generals of Water
Resources from the Ministry of Public
Works: Ir. Siswoko (grad. in 1977), Ir.
Iwan Nursirwan (grad. in 1983) and two
ex-Secretaries of the Directorate General of
Water Resources: Ir. Susilo Soekardi (grad.
in 1979) and Ir. Eddy A. Djajadiredja (grad.
in 1981). The Director General of Research
and Development of Water Resources: Ir.
Moh. Hasan (grad. in 1980) and the Director
of Rivers: Ir. Piyoto Subandrio (grad.
in 1986) were also present.
Several UNESCO-IHE staff members
attended this impromptu reunion, includ-
ing: Professor Bart Schultz, Dr Abraham
Mehari Haile, Dr Laszlo Hayde and Dr
F.X. Suryadi. Special guests included Dr
Robiyanto Hendro Susanto from Sriwijaya
University (UNESCO-IHE’s Double Degree
Programme partner in Indonesia) and Ir.
Paul van Hofwegen (World Bank and former
UNESCO-IHE lecturer). The meeting was
greatly appreciated by the alumni and they
expressed their wish and strong intention
to have such meetings in the future to foster
informal exchanges of information between
UNESCO-IHE staff and Indonesian alumni.

ICID places a high emphasis on involving young water
professionals in its activities, and young water profession-
als are precisely UNESCO-IHE’s audiences”, explains
Dr Laszlo Hayde. As Vice President (2009-2012) of
ICID, the largest interna
tional NGO specialising in
irrigation, drainage and water
management for food pro-
duction, and Senior Lecturer
in Irrigation Engineering at
UNESCO-IHE, Hayde is ide-
ally placed to understand the
complementary partnership
between UNESCO-IHE and
ICID, and its future potential.

Why do you consider UNESCO-IHE to be a valuable partner for linking your activities
to ongoing research?
I hope that IHE can sponsor some special
training programmes in different ICID
member countries, and also contribute to
the new IPTRID by helping our NCs to
build and develop their research capacity.

How would you like to see the
partnership with UNESCO-IHE develop in
the coming years?
I place a lot of importance on this special
relationship between the two institutions.
With the active participation of many
UNESCO-IHE staff in ICID and our
member countries, there is a personal
link which forges strong human bonds of
friendship and collaboration.
Twenty-seven capacity development interventions are being implemented and around 3,000 people will be trained as part of the ‘Lake Victoria Region Water and Sanitation Initiative’, that is promoted by UN-HABITAT. A 5-member Capacity Building Consortium contracted for this project consists of the Federation of Canadian Municipalities, UNESCO-IHE, the Gender and Water Alliance, SNV Netherlands Development Organisation and Netwas International.

Lake Victoria: WATSAN in Small Towns

The ‘Lake Victoria Region Water and Sanitation Initiative’ (LVWATSANI) supports the Governments of the riparian states to achieve the Millennium Development Goals for water supply and sanitation, with emphasis on innovative solutions and speedy delivery in small towns in the Lake Victoria basin. The LVWATSANI includes an initial investment component; capacity development; and follow-up investments. Work is ongoing in an initial group of 10 small towns in Kenya, Tanzania and Uganda with a joint population of about 390,000 and preparations are underway to start work in a second group of 15 towns.

Lake Victoria
Lake Victoria is the second largest fresh water lake in the world and the largest lake in Africa. The Lake catchment provides the livelihood of about one third of the combined populations in the three countries or about 30 million people, of which more than 50 percent lives below the poverty line. The rapidly growing urban centers in the Lake Victoria basin are playing an increasingly important role in the economic development of the region. Most of these towns are experiencing unplanned growth and this is negatively affecting basic infrastructure, living conditions, the environment and the fragile ecosystem of the Lake.

Water-related challenges
Challenges in the towns around Lake Victoria include the recent water sector reform that has not yet fully matured, run-down infrastructure where no major investments were made in the past decades, and the lack of recognition for the different needs of women, men, children, minorities and vulnerable groups. The water distribution networks usually cover less than 30% of the urban area and there is a heavy dependence on unsafe water sources causing a high prevalence of water related diseases. Also, high rates of leakage, high energy and water treatment costs, and low billing and collection ratios form a large constraint. As a result, operational expenses for water services are often in excess of revenues. Sanitation and solid waste services are virtually non-existent.

Progress up-to-date
Initial investments in eight of the ten towns have now been substantially completed. These have included the rehabilitation of the water infrastructure, construction of distribution mains including water meters, valves and water kiosks, the construction of rainwater tanks, public latrines in schools, institutions and public spaces, the establishment of micro credit facilities for household latrines, the supply of solid waste tractors with trailers and bins, the construction of waste transfer stations, the supply of computers, lab equipment and tools, and fast-track capacity building in 5 key areas.

The immediate investments, including some fast-track training and capacity building, have already resulted in a significant improvement in the performance of the water utilities in the project towns. For example, unaccounted-for-water has been reduced from an average of 56% of water produced to 42%. Revenues have increased by an average of 65%. As more water has become available, the utilities are now making efforts to increase the number of water connections. The achievement of cost recovery for operations and maintenance is a major improvement. The impact of interventions so far has encouraged the stakeholders to engage in the capacity building and long-term investment processes.

Capacity Development
With a growing awareness of the benefits of a regional approach among East African Community countries, the
observations and the study of related documents, the teams designed a programme consisting of 27 different demand-responsive CD interventions for a target group of about 3000 people in the towns. This target group includes all stakeholders that have been subdivided in 6 main groups and 29 subgroups. The six groups include the water utility, the local government, supra-local government bodies, vulnerable groups, the private sector, and other groups. The 29 subgroups represent the different entities, task groups and/or hierarchical levels within the 6 groups. In the case of the water utility four subgroups are distinguished, including the Board and Managing Director, Senior managers, Middle level managers and professional staff, and Technicians and operators.

The CD interventions have durations between 1 and 3 days, with some being implemented once and others more often depending on demand and size of the target group. A programme with 110 CD events is presently being implemented in the ten towns, but also at national and regional levels. The set of 27 interventions includes ten interventions on environmental services (water, sanitation, solid waste), four on pro-poor governance, three on gender and vulnerable groups, and ten on local economic development. The interventions were designed by the group of international partners and are being implemented by a regional capacity builder, Netwas International. The group of Netwas facilitators was capacitated through a Training for Trainers workshop and one-on-one contacts with their colleagues in the international partners group. The interventions are problem-oriented and output-focused. All interventions conclude with a Personal Action Plan with a set of activities that will make a contribution to the improvement of the water environmental services. The Action Plans emphasise ‘quick wins’ that will demonstrate the ability of empowered stakeholders to achieve immediate results.

regional capacity building initiatives emphasize regional networking as a model to protect and manage Lake Victoria as a shared resource. Capacity development (CD) is considered an essential tool to increase the local ‘ownership’ of environmental (drinking water, sanitation, solid waste) services. The project aims to empower local stakeholders with a view to secure their active interest in the sustainable and equitable delivery of the services. The capacity building is phased in between the immediate and long-term investment components of the project, and it is expected that the empowered stakeholders will participate in the formulation of the long-term investment component, but also beyond that in the development and management of environmental services. The CD interventions have been designed in response to specific on-the-ground issues in each town. These issues were surfaced through systemic action research, a methodology where multi-disciplinary teams of experts conducted in-depth interviews with all stakeholders. Together with field
The third in a series of workshops organised by the EU-funded Horizon 2020 Capacity Building/Mediterranean Environment Programme (CB/MEP) in partnership with UNESCO-IHE recently delivered eighty professionals from fourteen Mediterranean countries. Focusing on Advances in Urban Wastewater Management in Coastal Areas, the specific training workshops support the Horizon 2020 initiative and its objective to de-pol-lute the Mediterranean Sea by 2020. This is envis-aged through developing the capacities of partici-pants from Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, occupied Palestinian territory, Syria, and Tunisia. Albania, Bosnia and Herzegovina, Croatia, Montenegro and Turkey are also covered by an extension of the project.

MORE DEMAND FOR REUSE
Damir Brdjanovic, Professor of Sanitary Engineering at UNESCO-IHE and Thematic Expert for Wastewater Treatment for the Project, elaborated: “Water scarcity is a major issue for the Maghreb and Mashrek countries, where a warmer climate, less rainfall and more demand for reuse of wastewater prevails. Currently the targeted number of water professionals to be trained through 150 various capacity development activities is around 3,500 people.” The main learning objective was to update the knowledge of the participants and give a state-of-the-art overview of urban wastewater management with a specific focus on coastal areas. Although these three courses were similar in theory, they did not mirror each other in every way. A tailor-made approach to sub-regional characteristics (differences) was adopted by choosing lecturers who had particular experience in these regions and by adjusting the practical part of the materials to the characteristics of the sub-region in question. One of the specific challenges was finding the right content and learning objectives for all the participants, given the enormous heterogeneity of the group: different nationalities, age, experience and backgrounds. The participants repre-sented various organisations, and occupied a wide variety of functions within the water sector. So far all the course participants have actively engaged in the training courses and gave us very positive feedback about them afterwards.

STRONG IMPACT
For the upcoming 150 courses in which UNESCO-IHE and approximately 10 staff members will be involved, it will be interesting to see whether we can get a more homogene-ous group of people, for instance, from ministries and other
governmental organisations (institutions where decisions about the water sector are made). In this way, our capacity development activities would directly target people who are making decisions. This would have a very strong impact of these capacity development projects. Then, a separate training programme could be developed with more specific content and material for participants with training needs in, for instance, operation and maintenance. “I also greatly appreciated the fact that the participants were enthusiastic and positive about learning from and exchanging each other’s experiences. The way in which we encouraged communication helped establish networks within countries, as well as networks between countries, thereby enabling participants to share their views and problems with each other. A spin-off for UNESCO-IHE may be an increase in the number of PhD researchers. Our network in the Francophone countries is currently not so strong. We are seen as international players, but in these areas we do not have a very strong presence. This opens up new venues (European, African and Asian initiatives). In this way the Institute can expand its network and at the same time UNESCO-IHE staff can acquire new teaching experience outside the Netherlands, which is also a good training exercise,” Brdjanovic adds.

Contact: Professor Damir Brdjanovic b.brdjanovic@unesco-ihe.org

Horizon 2020
The quality of the Mediterranean environment is increasingly being jeopardised by human activities. The coastal and marine areas in particular are under threat. Rapid and insufficiently controlled urbanization, as well as the unsustainable development of industry, agriculture and tourism play an important role in this degradation process, which has so far resulted in: water scarcity, pollution of the environment (water, soils, air) by untreated wastewater, municipal, agricultural and industrial waste, coastal degradation due to the pressure of human activity and the effects of climate change, land degradation, desertification and biodiversity losses.

During the 10th Anniversary of the Barcelona Process Summit in 2005, the Euro-Mediterranean Partners committed themselves to increasing efforts to substantially reduce the pollution of the Mediterranean by 2020 in what is called the “Horizon 2020 Initiative” (H2020). Horizon 2020 was endorsed during the Ministerial Conference about the Environment which took place in Cairo in November 2006 and is one of the key initiatives operating under the Union for the Mediterranean (UIM). It specifically tackles the following sources of pollution: municipal waste, the treatment of wastewater and industrial emissions. A 2007-2013 Road-Map has now been adopted: it focuses on the following four pillars:

- Identifying projects to reduce the most significant sources of pollution.
- Identifying capacity-building measures to help neighbouring countries create national environmental administrations that are able to develop and police environmental laws.
- Using the EC’s research budget to develop a greater knowledge of environmental issues relevant to the Mediterranean and ensure that this is shared.
- Developing indicators to monitor the success of Horizon 2020.

The Partners also committed themselves to implement the Mediterranean Strategy for Sustainable Development, launched by the Mediterranean Commission for Sustainable Development established under the United Nations Environment Programme Mediterranean Action Plan (UNEP/MAP), and to ensure close coordination and cooperation with other relevant stakeholders.

Horizon 2020 aims to substantially reduce the pollution of the Mediterranean Sea by 2020 and tackles the sources that account for around 80%, i.e. municipal waste, urban waste water and industrial emissions. A 2007-2013 Road-Map was adopted by the Environment Ministerial Conference held in Cairo, Egypt in November 2006, and for its implementation and monitoring three working groups/components were formed: one on investments for pollution reduction (PR); one on the required capacity building (CB) for achieving H2020 objectives; and one on H2020 review, monitoring, and research (RMK).

Under each component, a project is currently being run.

Missed opportunities
We live in a world where the pressure on water resources is growing and where many of the surface water resources are over-committed. Yet there are still many opportunities that are not being utilised. It is this gap between responding to a crisis and making the most of existing opportunities that should concern us.

One such opportunity is to make combined use of surface and groundwater. During recent periods of drought, agricultural production in several of South Asia’s mega irrigation systems actually went up rather than down: a little known fact that was not widely reported. Production levels increased because local farmers made more effective use of shallow underlying groundwater and were therefore less susceptible to water-logging. This is why it is important to use flood-based farming systems, such as space irrigation, which is currently used by millions of farmers, although it is still under-exploited.

The three ‘R’s: recharge, retain and reuse. Better use of groundwater buffers has equal potential.

Discussions about the use of groundwater have often been limited to its overuse, yet much can be gained by focusing on recharge, retention and reuse efforts (the three Rs). This, in turn, is linked to moisture conservation. There is much potential to increase yields in rain-dependent areas by better soil water management, using a range of techniques. The common denominator in all of this is that the solutions mentioned above are a little more complex than conventional approaches as they require an understanding of local realities – as well as the capacity to recognize the ingenuity of local management or the potential for it.

In order to capitalise on the new approaches, the way in which we approach water management needs a complete overhaul. The water harvesting community is in danger of locking itself into seeking to “upscale small-scale solutions” and not seeing the bigger picture, where water can be buffered at scale. The irrigation and drainage community has not been as innovative as it might have been, and is not coming to terms with the multiple functions that irrigation systems serve.

The Integrated Water Resources Management community has focused too much on the process side. A huge range of opportunities is seen between - not within - these communities of practice. There is therefore a need for a new clan in water management, a need to learn from the evidence of what is already happening on the ground, and to better understand the science behind it in order to seek out new applications.

Abraham Mehari Haile is Senior Lecturer in Integrated Land and Water Development, a.meharihaile@unesco-ihe.org
Raising awareness on this issue has so far been very successful in this Seminar through the high level of participation of over 30 enthusiastic participants from over 10 countries in Sub-Saharan Africa. With the growing acceptance of the reality of climate change in Sub-Saharan Africa (SSA) and elsewhere, flood-based farming systems that harness water in variable conditions are increasingly being recognised as an important, yet currently underdeveloped, form of irrigation, water management and route to food security. For a long time, policy focused on conventional irrigation and on the creation of storage reservoirs, ignoring other forms of irrigation. Using flood flows and maximising returns in flood-based farming are still not routinely practiced. The techniques and approaches are insufficiently understood by the majority of land and water professionals. Yet, an estimated 5,000,000 ha of land is suitable for flood-based farming systems.

**SOURCES OF FOOD**

Abraham Mehari Haile, Senior Lecturer in Irrigation and Drainage Systems Design and Management and Agronomy at UNESCO-IHE and Coordinator for the Seminar explains: “Flood-based farming or spate irrigation has a long history of being one of the major sources of food for the marginalised and the poor. Millions of people depend for their basic livelihoods on these systems. It is extremely important that we push this forward.” He continues: “It is important to distinguish why flood-based farming or spate irrigation is different from the conventional systems. In conventional irrigation systems there is always some kind of water supply. In the case of spate irrigation, one needs to deal with the uncertainty of floods. We need to mitigate these floods and change it for a more beneficial use. Special techniques are required to divert these floods. A broader perspective is needed than that of perennial systems where water can be regulated at one intake and where there is a well defined water regulation system. In my view it is necessary for the new generation of irrigation engineers to be aware of these differences so the systems can be properly designed and managed.”

**OTHER SYSTEMS NEEDED**

“Small floods need to be regulated through simple intakes and stabilising the river beds through long-crested weirs,” Haile explains. “Large floods can be regulated by having several off-takes downstream, directly taking water from the wadi or the river. The level of concentration of sediment is also much higher in spate irrigation systems, ten percent versus 0.2 percent in perennial systems. This means other sediment control and management systems are needed. Another big difference is that for spate irrigation to be successfully implemented, a very coherent local farmers’ association is needed. When floods destroy one diversion band, the entire community will be affected. Establishing this requires different approaches.”

**ALLEVIATE POVERTY**

Henrie Manford Njoloma, Associate Director of the Foundation for Irrigation and Sustainable Development in Malawi and alumnus class of 2002 says: “In my country flood-based farming systems have not been seen much as ways to alleviate poverty. It is enlightening to know that floods are not just a menace, but rather an asset. I want to introduce this system to the current livelihood projects in flood-prone areas in Malawi. Currently the projects we have established are not sustainable due to the heavy flooding.” Tena Alamirew, Academic Vice-President at Haramaya University, explains: “In Ethiopia water means everything to us. Harvesting and managing water is definitely a primary...
area for intervention at the national, regional and local level. All of the major critical issues we are dealing with: water scarcity, water management, improved techniques and strategies to tackle the increased flood risk due to the changing climate. The benefits and impacts of these strategies include family upheaval, community disruptions, injuries and unemployment. In Nepal alone, an average of 300 people die every year due to floods, floods that occur together with landslides and debris flows. These hazards also continue to be a threat in many Asian countries such as Bangladesh, China, India, Nepal, Thailand and Viet Nam.

Asian alumni enhance knowledge on flood risk management

Human as well as natural activities have been altering the planet for centuries. The climate is changing and these changes pose threats. The projected consequence of climate change includes an increase of extreme hydro-meteorological events. The increased incidence of flood events, stronger hurricanes, typhoons, other storms and heat waves in recent years seems to confirm these projections.

A Regional Refresher Seminar on ‘Participatory management of flood risk in the changing climate’ was held in August 2010 in Kathmandu, Nepal. Eighteen UNESCO-IHE alumni from Asia attended the 8-day course.

Improved techniques and strategies

The Seminar brought Asian and European experts and flood management practitioners together to learn from each other’s knowledge, experience and current practices and explore improved techniques and strategies to tackle the increased flood risk due to climate change. Participants established a common framework for a community of practice that would help them maintain a sustainable and continuous network to share their experiences and good practices.

Impacts

Floods remain one of the most frequent and devastating natural hazards worldwide and cause impacts on society that go far beyond the economic cost and disrupted facilities. These impacts include family upheaval, community disruptions, injuries and unemployment. In Nepal alone, an average of 300 people die every year due to floods that occur together with landslides and debris flows. These hazards also continue to be a threat in many Asian countries such as Bangladesh, China, India, Nepal, Thailand and Viet Nam.

The Seminar stimulated participants to view flood risk and its management in the context of the changing climate. The benefits and importance of involving all stakeholders, including the groups that are most vulnerable to floods, into the flood risk management processes (preparedness, monitoring, prediction and mitigation), were discussed. The participants were shown stage-of-the-art hydrological and flood modelling, as well as operational flood forecasting and warning systems, together with case studies from Europe and from the region.
STOCKHOLM WORLD WATER WEEK 2010
As in recent years UNESCO-IHE was present in Stockholm, Sweden for the annual Stockholm World Water Week, which was held in early September 2010. UNESCO-IHE co-convened a session on the United Nations Capacity Development for Water and Waste Water Management in Coastal Areas together with the United Nations Environment Programme (UNEP), the UNESCO International Centre for Coastal Ecohydrology, and the University of Algarve (ICCE). Participants were challenged to share their experiences with water and waste water management in coastal zones and small island development states.

1ST INTERNATIONAL DELTA CONFERENCE
The first international delta conference ‘Deltas in Times of Climate Change’, which was held at the end of September in Rotterdam, was a tremendous success. The conference attracted over 1,200 participants from all over the world and from different backgrounds: science, policy and practice. The participants debated climate adaptation strategies for deltas and delta cities and exchanged knowledge. Many contacts between scientists, policymakers and practitioners were established, refreshed and deepened. Relations between delta cities in and outside Connecting Delta Cities (CDC) were strengthened and the Delta Alliance was launched. More information can be found on the www.climatedeltaconference.org.

MOU WITH NWWEC
The National Water and Wastewater Engineering Company of Iran (NWWEC) recently signed a cooperation agreement with UNESCO-IHE expressing interest for continued cooperation after the termination of the Training and Capacity Building Project for the Iranian water and wastewater companies, a project in which some 1,000 professionals were trained. NWWEC Chairman Samareh Hashemi indicated his intention to engage UNESCO-IHE in strengthening the capacity of the Power and Water University of Technology as the in-service capacity building organisation of the Iranian water and wastewater sector.

MAINSTREAMING SPATE IRRIGATION IN HIGHER EDUCATION
At the end of September a workshop on Mainstreaming Spate Irrigation in Higher Education was held at the Institute. The Workshop was organised in partnership with the UN-Water Decade Programme on Capacity Development, the Food and Agriculture Organization and MetaMeta. Plans for mainstreaming were prepared for seven countries. In addition, a website with the resource material was created and will serve as the workspace for supporting the inclusion of spate irrigation in the curricula of universities and polytechnics. More information can be found on the website: http://www.unwater.unu.edu/workshops/. During the Workshop the publication ‘Guidelines for Spate Irrigation’ was launched. For more details about this publication go to page 32.

'DELTA CITY OF THE FUTURE’ DESIGN COMPETITION
The Harcourt Habitat team from Denmark won the Delta City of the Future design competition which was organised by the city of Rotterdam in cooperation with UNESCO-IHE’s Flood Resilience Group. After an initial elimination round, seven teams were invited to participate in a 24-hour pressure-cooker session during which they worked on a new design task. This task consisted of creating a safe-haven located in the Rotterdam unembanked area combined with an international disaster center from which aid can be shipped to any part of the world. Gain an impression of the final session on the website by visiting: www.unesco-ihe.org/Delta-City-of-the-Future.

PAST EVENTS
MAINSTREAMING SPATE IRRIGATION IN HIGHER EDUCATION
At the end of September a workshop on Mainstreaming Spate Irrigation in Higher Education was held at the Institute. The Workshop was organised in partnership with the UN-Water Decade Programme on Capacity Development, the Food and Agriculture Organization and MetaMeta. Plans for mainstreaming were prepared for seven countries. In addition, a website with the resource material was created and will serve as the workspace for supporting the inclusion of spate irrigation in the curricula of universities and polytechnics. More information can be found on the website: http://www.unwater.unu.edu/workshops/. During the Workshop the publication ‘Guidelines for Spate Irrigation’ was launched. For more details about this publication go to page 32.
IWA WORLD WATER CONGRESS AND EXHIBITION

The IWA World Congress was held in Montréal, Canada, at the end of September 2010 and gathered over 3,500 water professionals from 90 different countries. UNESCO-IHE was actively present at the Congress through various sessions and in the exhibition. The Institute co-ordinated the workshop on ‘Sustainable Water Services for the Urban Poor: Indicators and Benchmarking for Improved Utility Performance’. This was done together with the Universidad Sao Paulo, IWA and other partners in the PROBE (Benchmarking for Pro-poor Water Services Provision) research project. Water and sanitation utilities, regulators, practicing water professionals and academics were invited to share their knowledge and experiences and to give recommendations for further actions. At the Montréal Congress, the new Journal of Water, Sanitation and Hygiene for Development was officially launched (see page 32 for more information about this publication).

WATER SECTOR LEADERS DISCUSS SOLUTIONS TO WATER PROBLEMS IN THE ARAB WORLD

Leaders from the water sector in the Arab world came together mid-July 2010 in Abu Dhabi to discuss solutions to the Arab World’s water problems. They looked at green growth, renewed dialogue and diplomacy to resolve pressing issues. These issues included the need to focus on capacity building for senior water managers, transborder water issues, and the shift to demand management. The discussions were underpinned by the recognition that resolving issues goes beyond technical solutions and must include politics and communication. “We need a shift in the way we think about water, one that moves away from supply management to one that better integrates demand management,” stated H.E. Mohammed Al Bowardi Secretary-General of the Abu Dhabi Executive Council, in a message to the meeting. The Forum was organised by the Arab Water Academy. Professor András Szőllösi-Nagy, Rector of UNESCO-IHE delivered a key-note speech on policy discussions and capacities for water sector decision-makers in the 21st century.

WATER RIGHTS AND A CHANGING CLIMATE

With a changing climate, will the right to water and water rights change as well? On 22 September 2010 a colloquium on this topic was held at UNESCO-IHE in the framework of celebrating the 30th anniversary of the University for Peace. Diplomats, lawyers and water experts came together for the event which was co-organised by the Netherlands IHP Committee, UNESCO-IHE, CPWC, the Alliance for UPEACE and the Netherlands National Commission for UNESCO. As the first speaker, Professor Laurence Boisson de Chazournes (University of Geneva) gave an overview of the international legal frameworks concerning (access to) water, noting inter alia that water was not yet well embedded in the international legal discourse on climate change. Professor Thea Hilhorst (Wageningen University) highlighted the importance of considering the social, institutional and socio-economical contexts, and Professor Joyeeta Gupta (VU University Amsterdam and UNESCO-IHE) employed the framework by Boisson de Chazournes to present three competing legal discourses. In his keynote speech, Justice Gregory Hobbs (Colorado Supreme Court, USA) explained how legal cases on water often start and are subsequently dealt with. H.E. the ambassador of Bolivia brought attention to the resolution on access to clean water and sanitation as a human right, recently adopted at the General Assembly of the United Nations. H.E. Barend ter Haar, the Netherlands’ Ambassador to UNESCO, explained the reasoning behind the Dutch abstention, and emphasised that the right to water alone is not enough and should be part of a functioning legal and governance system. The presentations of the day are available for download from the www.hydrology.nl website. A publication on the topic, based on the lectures, will be published later this year.

By Michael van der Valk

He obtained a BSc from Pennsylvania State University (1954), followed by an M.F. from Yale University (1955) and a PhD from Cornell University (1965). Since 1965, Professor Loucks has been working in the faculty of the School of Civil and Environmental Engineering at UNESCO-IHE since 1976. A widely acclaimed lecturer in his field, Loucks has contributed significantly to enhancing the quality of education at the Institute. On a global level, he is an internationally renowned professor in his field and has made a key contribution to the development of new knowledge in this area.

Appointment of the UNESCO-IHE Honorary Fellowship in a learned or professional society can be either to honour exceptional achievement and/or service within the professional domain of the awarding body or to honour contributions related to the domain from someone who is professionally outside it.
Farewell to guest lecturers in different continents. “When I first started lecturing in Delft, people were not expecting more than an interesting story. It was enough to interest them. Over the years I saw the courses develop into Masters of Science programmes,” Dr. Leeuwangh explains. “But what has always remained the same is the high level of enthusiasm the students brought with them to class. Most people who arrived in Delft were very eager to learn anything that they could apply to their home countries. They found ways to use this information in their own setting. This has not changed and made me eager to stay on as guest lecturer for 36 years.” He continues: “I was a lecturer in ecotoxicology. The ultimate goal in this field is assessing the risks that chemicals pose to the environment. When you are able to do a risk analysis it will be the starting point for what you are going to do to extract the polluting toxins. In some cases you may decide not to do anything because that in itself may harm the environment. This approach is very much dealing from the basis of understanding. I tried to teach the students that toxicology is a living science, and that we learn from the mistakes we make. Sometimes you can predict when problems arise, but we need to learn from the errors and then take the appropriate measures to prevent them from happening again. In all cases one needs to assess the risks for the user (man on the land), the consumer, the environment, as well as the effectiveness of counter measures and the framework for decision makers. They decide which standards will be tested, taking into account the economical weight, whether it is wise and has benefits or whether the risks are too high. The difficulty in this is clearly that toxicologists do not make the decisions. They merely know what the risks entail and need to subsequently advise on the various options and consequences. Politicians are becoming more and more aware of the importance of having legal frameworks to deal with such polluters. I am happy to see that the world has gradually become a different place and there is a better understanding of an integrated approach to solving environmental challenges. Knowing that many UNESCO-IHE alumni form part of this network of change gives me great comfort. It was such a great pleasure to have taught at the Institute. I have now reached the age of 67 and have decided to go and travel the world. And finally UNESCO-IHE can put that overhead projector in the museum as I am probably the last person who insisted on using it.”

RECENTLY APPOINTED PERSONNEL
Viola Heijdens Herman, PEO Advisor
Antique Klass-Harten, Baseline
Ger Tielman, Moodle and e-Learning Advisor
Gerrit van Groot, Lecturer in Aquatic Ecology/Water Quality
Jeroen Snijders, Senior Application Manager
Ami Kumar, Post-Doctoral Fellow
Wilmar Ceton, ICT Manager
Gordon de Wit, Service Desk Officer
Maarten Hofstra, Senior Advisor Policy Analysis and Water Governance
Macarena Acevedo Johns, Lecturer/Researcher in Water Resources Economics

CHANGED POSITIONS
Stefan Ulbrich, Director Academic Affairs, a.i.
Maria Kennedy, Professor in Water Treatment Technology
Vera Schouw-Kuttner, Secretary of the Rectorate
Tineke Heijpman, Senior Lecturer in Sanitary Engineering
Mick van der Wegen, Senior Lecturer in Hydraulic Engineering
Kobus Groenewald, Senior Lecturer in Water Supply
Abraham-Michael Heile, Senior Lecturer in Land and Water Development

DEPARTED STAFF
Jan Barteev, Researcher
Iris Peersboom, Secretary of the Rector
Dirk de Leeuw, Post Doctoral Fellow
Lindsay Reemers, Senior Lecturer in Hydraulic Engineering
Dona Schuurman, Reproduction Officer
Indus & Assisante, Receptionist/Administrative Assistant
Anemey Tilmann, Senior Lecturer in Water Resources Management
Markus Karsten, Senior Lecturer in Management & Organization of Sanitation
Monika Bjerres, Programme Coordinator Water Science and Engineering
Sandra Querol-Mannie, Senior Lecturer in Sanitary Engineering

Lindsay Beevers, Senior Lecturer in Hydraulic Engineering

MARIA KENNEDY APPOINTED PROFESSOR OF WATER TREATMENT TECHNOLOGY
Maria Kennedy was promoted to Professor of Water Treatment Technology in the Urban Water and Sanitation Department per 1st October 2010. As a result of this appointment, she also became Head of the Water Supply Engineering Core.

WIM DEETMAN APPOINTED CHAIR OF THE DELFT FOUNDATION BOARD
On 1 September 2010, Mr Wim Deetman was appointed Chair of the IHE Delft Foundation Board. Deetman is a Dutch politician and statesman and former Minister of Education. He will succeed Mr Henk Vonhoff who was Chair of the IHE Delft Foundation Board since 2003.

STAFF NEWS

Maria Kennedy was promoted to Professor of Water Treatment Technology in the Urban Water and Sanitation Department per 1st October 2010. As a result of this appointment, she also became Head of the Water Supply Engineering Core.
The basis for the water footprint concept and methodology has been laid by Professor Arjen Hoekstra at UNESCO-IHE and further developed at the University of Twente, the Netherlands. The concept and methods have been firmly established in scientific literature. Today, tens of institutions and thousands of individuals have expressed interest in further developing and/or applying the water footprint methodology. The interest focuses on questions such as: How can I implement proper water footprint accounting in the context of my country or organisation? How can I identify the spots where water footprints have the largest impact? How can those impacts be reduced or possibly offset? Carry the Virtual Water digital companion anywhere and become more conscious about how much water our everyday food and beverages really consume.

The Virtual Water app offers a broader range of products than the printed edition—plus full interactivity. Use the slider to adjust the amount of each product. Swipe to navigate and compare products and flip to get quick facts.

Website: http://virtualwater.eu/ and don’t forget to have a look at http://www.waterfootprint.org too.

In addition, see the interview with UNESCO-IHE Governing Board member John Verbakel on page 6 about Unilever’s efforts in corporate water footprinting and read the interview with Professor Arjen Hoekstra on page 9 on reducing the water footprint across the entire supply chain.

The internet has become an increasingly important source of information. A diverse range of online resources on water, infrastructure and the environment can provide useful tools for water professionals and others interested in water-related teaching materials, scientific research findings, sharing the best (and worst) practices from the field, and much more. In every issue of UPDATE Magazine we would like to share three online resources with you. Send an email to the editor to update@unesco-ihe.org if you wish to share any of the websites, blogs, twitter streams, networks or communities with our readers.

### WATER, CLIMATE AND ... WINNERS!

Max Edkins from Cape Town is the recent winner of the ‘Water, Climate and... Action’ video contest for his entry ‘Climate Theatre.’ The video travels with a street theatre troupe and captures its pursuit of raising Climate Change awareness among rural communities. Sergio Canella from Italy won the second prize for his feature ‘Carpa Diem,’ a tale of a fish, and two siblings engaged in an intense conflict over water! ‘Modern Day Uab,’ the third prize-winner, shows how an ancient folktale from Palau is unfolding again in today’s world of GHG emissions and changing climate. The contest was organised by the United Nations World Water Assessment Programme and TheWaterChannel.tv. The contest was supported by CONAGUA and Consejo Consultivo del Agua, Mexico.

For more information and to see the winning videos: www.waterclimate-action.org

### MOST POPULAR VIDEO ON THEWATERCHANNEL.TV

Hope in a changing climate

Shot on location in China, Rwanda and Ethiopia, Hope in a Changing Climate is being broadcasted globally by BBC World and screened in 19 nations. The film documents the uplifting story of how ecosystem restoration helps stabilize climate, reduce poverty, and support sustainable agriculture. The video was produced in 2009 by the Environmental Education Media Project. More info: www.hopeinachangingclimate.org. View the video on www.thewaterchannel.tv
**COURSE INFORMATION | 2011**

Innovative learning at the UNESCO-IHE Institute for Water Education equips professionals with the research, managerial and technical skills needed to deal with challenges in the fields of water, the environment and infrastructure in their countries. For the latest information on the above courses, including content, dates, duration and tuition fees, please see our website: www.unesco-ihe.org/education.

### MSc PROGRAMMES

#### MSc PROGRAMME IN ENVIRONMENTAL SCIENCE
- Environmental Planning and Management
- Environmental Science and Technology
- Environmental Technology and Engineering
- Environmental Technology for Sustainable Development
- Limnology and Wetland Ecosystems
- Water Quality Management

#### MSc PROGRAMME IN MUNICIPAL WATER AND INFRASTRUCTURE
- Sanitary Engineering
- Urban Water Engineering and Management
- Water Supply Engineering

#### MSc PROGRAMME IN WATER MANAGEMENT
- Water Conflict Management
- Water Resources Management
- Water Services Management
- Water Quality Management

#### MSc PROGRAMME IN WATER SCIENCE AND ENGINEERING
- Agricultural Water Management for Enhanced Land and Water Productivity
- Ecophysics
- Flood Risk Management
- Hydraulic Engineering and River Basin Development
- Hydraulic Engineering - Coastal Engineering and Port Development
- Hydraulic Engineering - Land and Water Development
- Hydroinformatics - Modelling and Information Systems for Water Management
- Hydrology and Water Resources
- Integrated Land Development and Management Planning

**ONLINE COURSES 2011**

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* These short courses are NOT eligible for NFP fellowships. These short courses are held at Egerton University in Kenya.
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Sung Kyu Maeng

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physically-based flow routing method and its practical applications. This method is used in today’s era of record-breaking floods to forecast flood levels by various Hydrological Forecasting Services. By knowing in advance when, where and at what level a river will crest, appropriate protection works can be organised, thereby reducing damage to life and property. Through its real-life case examples and problem listings, the book teaches hydrology and civil engineering students and water-resources practitioners the physical forecasting model and allows them to apply it directly in real-life problems of streamflow simulation and forecasting. The guide was designed to be used as a textbook for courses on Hydroinformatics and Water Management, and includes exercises. A CD-ROM with MATLAB codes is enclosed for simulating streamflows and creating real-time hydrological forecasts.

This book is an introduction to hydroinformatics applied to urban water management. It shows how to make the best use of information and communication technologies (ICTs) to manipulate information to manage water in the urban environment. The book covers the acquisition and analysis of data from urban water systems to instantiate mathematical models or calculations, which describe the physical processes that have been identified. The models are operated within prescribed management procedures to inform decision-makers who are responsible to recognized stakeholders. Urban Hydroinformatics pays particular attention to modeling, decision support through procedures, economics and management, and implementation in developing countries. The book is written with post-graduate students, researchers and practising engineers with all aspects of urban water management in mind.

This publication brings together ideas and practices on improving various aspects of spate irrigation: social organisation, engineering, water management, water rights, agronomy, economics and links with river management. Spate irrigation is very different from other water systems: there is a large uncertainty – whether and when floods will come, whether they are manageable, and which area they will cover. This uncertainty makes the cooperation between farmers different and very unique. Countries and regions with large areas of spate irrigation include Yemen, Pakistan, Iran, Ethiopia, Sudan and North Africa, many of which have a recent history of disturbance. Though inherently linked to enormous risks, these flood-based farming systems can be very productive, and in many parts of the world, spate irrigation, is the ‘only means available’ for survival.

Guidelines for Spate Irrigation. Irrigation and Drainage. Paper 65

Frank van Steenberghe, Philip Lawarence, Abraham Meheri Haile, Mahaer Salman and Jean-Marc Fours


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Recursive Streamflow Forecasting: A State Space Approach

Jozef Szilagyi and Andres Szillassy Nagy


A practical guide to real-time streamflow forecasting that provides a rigorous description of a coupled stochastic and physically-based flow routing method and its practical applications. This method is used in today’s era of record-breaking floods to forecast flood levels by various Hydrological Forecasting Services. By knowing in advance when, where and at what level a river will crest, appropriate protection works can be organised, thereby reducing damage to life and property. Through its real-life case examples and problem listings, the book teaches hydrology and civil engineering students and water-resources practitioners the physical forecasting model and allows them to apply it directly in real-life problems of streamflow simulation and forecasting. The guide was designed to be used as a textbook for courses on Hydroinformatics and Water Management, and includes exercises. A CD-ROM with MATLAB codes is enclosed for simulating streamflows and creating real-time hydrological forecasts.

Urban Hydroinformatics

Roland Price and Zoran Vojinovic


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Journal of Water, Sanitation and Hygiene for Development

Editors-in-Chief are Damir Brdanovic, UNESCO-IHE and Jamie Bartram, University of North Carolina at Chapel Hill.


The Journal of Water, Sanitation and Hygiene for Development is a peer-reviewed journal devoted to the dissemination of high-quality information about the science, policy and practice of drinking-water supply, sanitation and hygiene at local, national and international levels.

Urban Flood Management

Chris Zevenbergen, Adrian Cashman, Niki Evelpidou, Erik Pasche, Stephen Garniv and Richard Ashley


Along with windstorms, floods are the most common and widespread of all natural disasters. Although they can often be predicted, they cause significant loss of life, damage and destruction, as many urban communities are located near coasts and rivers. As flood events appear to be rapidly increasing worldwide, an advanced and universal approach to urban floods and how to manage them will help to reduce their impact. Developed by a team of specialists, this volume is intended for use in teaching university students of hydrology, geography, civil and environmental engineering, and management about urban flood management. Professionals will also find this book a useful reference tool. See for more information: www.floodresiliencegroup.org

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