

Workshop Report

The IWRM Knowledge Centres Workshop

25 August 2012, Stockholm, Sweden



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Introduction

The IWRM Knowledge Centres workshop was on August 25, 2012, in Stockholm, Sweden. Sixteen lecturers and researchers from universities shared experiences in teaching water management with examples of using the GWP IWRM Toolbox. The goal of the workshop was to build a working relationship with GWP Partner universities. The workshop was organised partly based on the recommendations of the respondents to a Toolbox users' survey conducted in March to May 2012.

Objectives

1. To promote the IWRM ToolBox among universities that teach water resources management and explore ways to better position the IWRM Toolbox in those programmes;
2. To assess the range of courses/programmes that are or are not currently being taught in universities;
3. To explore the possibility of establishing IWRM Knowledge Centres to meet the capacity needs for teaching various aspects of IWRM as well as capacity building programmes;
4. Exchange information and experiences among universities and create synergies with the goal of sharing experiences and recommendations that may be useful for others.

Recommendations

- The following is a summary of recommendations made at the workshop.
- The Toolbox can be used as supplementary sources of information in academia but not to promote is as the main source of information for universities.
- The Toolbox can be used as a learning/discussion forum so everyone working in water management and related fields can contribute ideas and views.
- Giving introductory presentations about Toolbox in universities at the beginning of a new semester to familiarise students and lecturers regarding the existence of the knowledge products in the Toolbox would increase the use of those products in the Toolbox.
- The Toolbox quality control could be done in regions and this would have to be through universities who would be able to peer review case studies. The suggestion is to highlight all peer reviewed case studies in the Toolbox for universities and research institutions to easily identify them.
- Linkages to other case studies from other organisations, links to conventions and treaties, need for glossaries, papers that are peer reviewed could be highlighted in the Toolbox. Knowledge products from other capacity building institutions (Cap-net, UNESCO-IHE) are an asset of the IWRM ToolBox.
- Need to add all water treaties and conventions into the IWRM Toolbox.
- Need to add glossary of terms.
- Introduce Toolbox as an e-learning forum for managers and practitioners (and junior lecturers).
- Short postgraduate courses in IWRM for larger audience should be promoted along with university programmes.
- There should be a way to provide IWRM information such as pedagogic materials (PowerPoint with practical cases studies and a guidebook).
- More tools could be added and the integration of sector tools, e.g. agriculture, forestry, urban and rural development could be developed.

Overview

GWP's 2009-2012 strategy states that the GWP Toolbox is "central" to our efforts to connect those who can provide knowledge with those who need knowledge. There are several universities that already teach various aspects of IWRM related courses and programs. Some universities already use the IWRM Toolbox, such as a Masters Program in a West African network of eight universities and a South African program conducted in 16 countries that use the IWRM Toolbox structure in their curricula. Other universities picked up the IWRM Toolbox in Ethiopia, Hungary, Ukraine, and Nanjing Province (China). These efforts are usually ad hoc and driven, commendably, by the individual initiative of GWP Partner universities.

The purpose now is to be more intentional and focused about expanding the use of the IWRM Toolbox in academia and other training institutions. The intention is to work with GWP Partners to facilitate the growth of IWRM Knowledge Centres so that the IWRM Toolbox is used in universities for knowledge exchange and capacity development on priority water needs. The Centres are also expected to play an important role in policy support for government agencies. By promoting IWRM ToolBox use in educational institutions, we ensure that it benefits from the latest thinking in the world of water resources management and at the same time we ensure that the tools are applied by present and future water professionals.

Workshop structure

The workshop consisted of three parts: introductory items, case studies and discussion groups.

The introduction on the GWP mission and the evolution of the IWRM Toolbox were given by Executive Secretary Ania Grobicki and Knowledge Management Officer Danka Thalmeinerova.

Five case examples on how IWRM is addressed in universities were presented. Each case showed the usage of the IWRM Toolbox in university education (see below).



In the afternoon session, the participants were divided into small discussion groups where each group focused on a specific set of questions. Each group was tasked with discussing a set of questions providing ideas based on experiences of courses and programmes being offered in their faculties and universities. These group discussions provided a good analysis of the IWRM Toolbox.

Examples of IWRM university courses

West Africa: Module for graduate and post graduate courses

A good number of IWRM graduate and post graduate courses are taught in a West African network of 8 countries. In particular, 5 universities in the West African region conduct their programmes and teaching based on a module that has incorporated many of the aspects of IWRM. These are both masters and PhD programmes and students are co-supervised by professors from different universities. Some of the graduate and post-graduate courses with IWRM modules include the following:

1. Bachelor of Geography at University Gaston Berger at Saint LouisGB
2. Master of Geography at University Gaston Berger at Saint LouisGB
3. Master in Hydrogeology at University Cheikh Anta Diop DakarCAD
4. Master in Water Resources, Environment Development at University Cheikh Anta Diop DakarCAD
5. Doctoral School Water, Water Quality and Usages (Ecole Doctorale Eau Qualité et usages de l'Eau EDEQUE)
6. Two Regional courses on ground water and IWRM (African Groundwater net AGW Net, Capnet, BGR Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) in Hannover [Federal Institute for Geosciences and Natural Resources], GWP West Africa)
7. Initiative under auspices of GWP-West Africa to develop IWRM curricula in water resource within the sub region



South East Asia: Water Management Programmes at Asian Institute of Technology (AIT)

The AIT is an international institution offering graduate studies in Masters and PhD with variety of programmes in the field of water and the environment. The institute also partners with other key international institutions such as the UNESCO-IHE. The academic focus of the institution has areas where students are trained with water being the major component. The programmes range from long distance programs to certificate programs as well as Masters and PhD programmes. Some of these include: e-learning Diploma Program on IWRM and Certificate Program on Service Oriented Management of Irrigation Systems (SOMIS). Other full time courses offered as part of Masters program include the following:

1. Water Resources Management, Water Economics and Governance
2. Training courses on IWRM
3. e-learning Diploma program on IWRM (since 2005)
4. Watershed Hydrology
5. Water Resources Management
6. Water Economics and Governance
7. Water Quality Management
8. WRM Planning Workshop

Caribbean: Water Resources Management at the University of the West Indies

The university has a good number of courses focusing, among other areas, on disaster management, natural resource management, climate change, water resources management. Many students can completely specialise in the water resources management and the programmes range 12-15 months. The first semesters are compulsory while students can choose elective courses. The university collaborates with UNESCO-IHE. In this collaboration, the programme uses modular teaching approach and EDULINK Programme Capacity Building for Water Programs in Higher Education in the Caribbean. Other institutions in this collaboration are University West Indies St Augustine, University of Guyana, College of Science, Technology and Applied Arts of Trinidad and Tobago. In addition, the university has a partnership with Colombia University (Colombia Water Center, Colombia International Research Institute for Climate and Society, Colombia Center for New Media Teaching and Learning). Specific programmes taught at the university include the following:

1. MSc. Natural Resources Management
2. Coastal and Marine Management
3. Climate Change
4. Water Resources Management
5. Water and Wastewater Services Management
6. Environmental Engineering

China: Hohai University

Hohai University is the first institution in Chinese history providing training in water engineering since 1915. It is the oldest and biggest water university in China as well as the largest in the world dedicated to research and education of hydraulic engineering and water resources. The university offers a range of programmes for both masters' and bachelors' with very many courses in the areas of hydrology and water resources. Much of the funds come from the Chinese government. Some of the colleges, schools and research centres specialised in water management include the following:

1. Hydrology and Water Resources
2. Water Conservancy and Hydropower Engineering
3. Harbour, Coastal and Offshore Engineering
4. Environment
5. Yangtze River Three Gorges Project
6. South-North Water Transfer Project
7. State Key Engineering Research Center of Efficient Utilization of Water Resources and Engineering Safety

Slovakia: Technical University in Zvolen

The technical university has a focus on integrated landscape management. It approaches integrated management not as a single topic but as a systematically organised set of topics. Very vital among the fields taught include:

- Ecological and environmental management
- Geographical disciplines
- Ecology and landscape ecology
- Social-science topics

Some of the courses and programmes taught both at Bachelor and Master degree include the following:

1. Managerial basement
2. Projecting basement
3. Complementary topics
4. Natural scientific basement
5. Environmental basement

Discussion

Other experiences of teaching IWRM and water related courses and programmes were also shared throughout the discussions by participants. Many of the universities had similar courses and programmes like the ones elaborated. Therefore many of the areas previously presented for the workshop discussion are covered as part of existing courses such as geography and water resources management. However, new and emerging issues are not covered, for instance, adaptation to climate change, water and food security, water, food and energy nexus, etc. It is therefore crucial for GWP's IWRM Toolbox and IWRM Knowledge Centres to create synergies to tackle some of the emerging issues highlighted.

IWRM introduction in university curriculum: participants' perspectives

A lot of discussion revolved around on how to integrate learning in the universities and especially as it relates to integrating different disciplines. One of the important things that came up was if IWRM should be treated as an academic or professional programme. It came out that most of the components of IWRM are already taught in universities. Other universities treat them as single courses while others handle them as subjects under the courses and programmes offered at Bachelor and Master courses. For IWRM to be completely included in university education the following were realised to be key and should be taken into account:

- IWRM is very broad to produce specialists. There was a consensus among the participants for having IWRM as a short side course in addition to the main programmes with specific disciplines. The participants thought IWRM is more suitable if taught as a supplementary/additional course/programme rather than as a complete Bachelors or Master. This reinforces the idea of applying the IWRM Toolbox for training and capacity building as supplementary education. This could be realised through the IWRM Knowledge Centres that can offer the services and the capacity needs to deliver the knowledge needed. This would also respond to the needs of the governments and other implementing agencies that are struggling with the management of water resources.
- Another idea was to not formulate new courses but rather integrate the IWRM principles into already existing courses and programmes. In this way, IWRM would produce graduates who can add value to their countries but not produce “jack of all trades, master of none”.
- Approval of new IWRM course by academic board is time consuming and cumbersome. However, opportunities exist to restructure existing programs and many universities are allowed to modify and enhance their curriculum. This could help in integrating the IWRM Toolbox in programmes and courses.

IWRM Knowledge Centres

The IWRM Knowledge Centres are planned to be national and regional universities interested in promoting IWRM and committed to sharing water knowledge and building capacity. The Centres are also expected to play an important role in policy support for government agencies. The Centres will take a lead in communicating and sharing knowledge with universities and institutions in accordance with a region’s priorities.

There was support from the workshop participants on the idea for introduction of such Knowledge Centres. The workshop explored possibilities of establishing IWRM Knowledge Centres that will play a key role in knowledge exchange and capacity building regionally on priority water needs.

GWP collaboration with universities will create synergies in terms of joint production of knowledge materials, peer review, and translations, especially for students to translate documents from English to other languages such Chinese, French, Spanish, Russian, etc. A concrete suggestion was to build on a big potential for students and lecturers from Hohai University to help in this regard. This would enable IWRM Toolbox to become more relevant and increase its use in Chinese universities.

Analysis of the IWRM Toolbox

The following provides an analysis of the IWRM ToolBox driven by the workshop participants.

Strengths of IWRM Toolbox in university education

- Lots of knowledge resources in the IWRM Toolbox have the added value to bring resource materials for lecturers and students.
- The IWRM Toolbox is simple and straight forward which is easy to use. There are already examples of how resources can be used in a teaching environment although the use of material solely depends on the nature of the tasks being given to students
- The IWRM Toolbox provides a good example for multiple disciplines and for easy integration of sectors.

Weaknesses of IWRM Toolbox and improvements required

- Most of the IWRM Toolbox case studies are not peer reviewed and the IWRM Toolbox has relegated it to being used as a supplementary source. It was suggested that those case studies that are peer reviewed should all be marked to differentiate them from those that are not peer reviewed. It became evident during the workshop that the IWRM Toolbox has a variety of relevant case studies; most of them are not peer reviewed making it difficult for universities to rely on as the main source.
- Indigenous knowledge systems are not part of the case studies documented in the Toolbox. There was a discussion that the IWRM Toolbox should become more dynamic to incorporate indigenous knowledge. Case studies that document indigenous knowledge should as much as possible be included to improve application at local levels (for instance waste disposal systems by communities).
- Regional balance in terms of coverage; participants pointed out that much of the knowledge materials are still not a complete representation of all the regions. They therefore propose that the IWRM Toolbox would have to make more efforts more on balancing the number of case studies in all the regions.

The way forward and conclusions

With respect to the future of the initiative, there was a strong perceived need for an overarching plan/strategy. Participants were in favour of continuing a close collaboration on matters of knowledge sharing and capacity building in the regions. Partnering with organizations that specialize in areas such as instructional design, governance, and philanthropy were seen as potentially beneficial to the project.

The second phase of this initiative will be planning for regional follow up workshops to identify the priority focus areas of each IWRM Knowledge Centre. This is expected to go hand-in-hand with planning for capacity building training in some key areas where a region feels it is lagging behind. The number of workshops to be conducted will be determined by the resources available. The continued engagement and expansion of the IWRM Knowledge Centres should result to a broader programme on the application of IWRM Toolbox knowledge to enhance better water management.

An evaluation will be prepared after one year of activities.

Annex 1: Agenda of IWRM Knowledge Centres Workshop

Saturday, August 25, 2012

8:30 – 9:00	Arrival at GWP Global Secretariat, and coffee/tea
9:00 – 9:15	Participants introduce themselves (briefly)
9:15 – 9:45	Introduction to GWP: Dr. Ania Grobicki (Executive Secretary)
9:45 – 10:15	IWRM and evolution of the Toolbox: Dr. Danka Thalmeinerova (Knowledge Management Officer)
10:15 – 10:45	Morning break
10:45 – 12:15	IWRM and advanced university education: Case presentations <ul style="list-style-type: none"> ➤ West Africa: Prof. Serigne Fay, Techniques Université Cheikh Anta Diop, Dakar, Senegal ➤ South East Asia: Prof. Mukand Babel, Asia Institute of Technology, Bangkok, Thailand ➤ Caribbean: Dr. Adrian Cashman, University of the West Indies, Barbados
12:15 – 13:15	Lunch
13:15 – 14:00	<ul style="list-style-type: none"> ➤ Central Europe: Prof. Laszlo Miklos, Technical University Zvolen ➤ China: Prf. Guan Yiquing, Hohai University
14:00 – 15:15	Small Group Discussions on Key Questions: Moderated by Mr. Steven Downey (Head of Communications)
15:15 – 15:45	Afternoon break
15:45 – 16:45	Small group leaders report back and plenary discussion
16:45 – 17:00	The way forward and wrap-up
18:00 – onwards	Dinner

Annex 2: List of participants

	Name	University	Country	Region	Email
1	Francis M. Mutua	University of Nairobi	Kenya	EAF	fmutua@uonbi.ac.ke
2	Moses Tenywa	Makerere University	Uganda	EAF	tenywamakooma@yahoo.com
3	László Miklos	Technical University Zvolen	Slovakia	CEE	laszlo.miklos@savba.sk
4	Maria Cheveresan	University of Civil Engineering, Bucharest	Romania	CEE	maria.cheveresan@utcb.ro
5	Akpojevbe Omasanjuwa	The University of Gambia	Gambia	WAF	masapele@yahoo.com
6	Serigne FAYE	Techniques Université Cheikh Anta Diop /Dakar	Senegal	WAF	fayes@ucad.sn
7	Dogara Bashir	National Water Research Institute	Nigeria	WAF	dogara.nwri@gmail.com
8	Adrian Cashman	University of the West Indies	Barbados	CAR	adrian.cashman@cavehill.uwi.edu
9	Riad Nurmohamed	Anton De Kom University of Suriname	Suriname	CAR	r.nurmohamed@uvs.edu
10	Mukand Babel	Asian Institute of Technology	Thailand	SEA	msbabel@gmail.com
11	Guan Yiqing	Hohai University	China	China	yiqingguan@hhu.edu.cn
12	Cong Zhentao	Qinghua Univeristy Beijing	China	China	congzht@tsinghua.edu.cn
13	Anna Matros	Polytechnic of Namibia	Namibia	SAF	a.matrosgoreses@googlemail.com
14	Arpita Mandal	University of the West Indies	Jamaica	CAR	mandalarpitaster@gmail.com
15	Hodson Makurira	WaterNet, University of Zimbabwe	Zimbabwe	SAF	hmakurira@eng.uz.ac.zw
16	Anna Spinerova	Faculty of Ecology, TU Zvolen	Slovakia	CEE	Anna.spinerova@savba.sk

Annex 3: Concept Note

IWRM Knowledge Centers: advancing IWRM in education institutions

The Purpose

The aim of this initiative is to promote the use of GWP's IWRM ToolBox in universities for knowledge exchange and capacity development on priority water needs.

The Need

GWP's 2009-2012 strategy states the GWP ToolBox is "central" to our efforts to connect those who can provide knowledge with those who need knowledge.

There are several universities that already teach various aspects of IWRM. These programs evolved from a need to provide a supplementary education to traditional water management subjects. Water management education nowadays needs a better understanding of multi-disciplinary aspects of water governance such as legal issues, participatory approaches and conflict resolution techniques. New courses are being offered to address the relationship between water and land management, to understand causalities between water demand in agriculture and food production, increased use of hydropower generation and its impact on aquatic environment, and capabilities of the water sector to cope with climate variability and change.

This integrated approach is precisely the approach taken by the IWRM ToolBox. The IWRM ToolBox comprises an impressive collection of tools, case studies, reference documents, external web sites and other supporting material in a structured and organized way that can provide an academically solid base for IWRM advanced education.

There are universities already using the IWRM ToolBox, such as a Master Program in a West African network of eight universities and a South African program conducted in 16 countries that use IWRM ToolBox structure in their curricula. Other universities picked up the IWRM ToolBox in Ethiopia, Hungary, and Nanjing Province (China). These efforts are usually *ad hoc* and driven, commendably, by the individual initiative of GWP Partner universities. The purpose now is to be more intentional and focused about expanding the use of the IWRM ToolBox in academia.

In addition, the majority of IWRM Toolbox users originate from the developed world. Of the top five countries accessing the ToolBox online (USA, UK, India, Sweden, and Germany), only one is in the developing world. Therefore, it is critical to promote the use of the IWRM ToolBox more broadly, which is vital for the implementation of IWRM in places where it is not yet applied.

According to a ToolBox User Survey (February to April 2012), 88% of ToolBox users say that the ToolBox improves their understanding of IWRM and 85% of the Survey's respondents say that the structure of the IWRM ToolBox is easy to understand. GWP needs to build on this positive view by spreading ToolBox use more aggressively. (Respondents came from: government 26%, education 26%, NGOs 26%, consultancies 14%, students 5% and others 3%.)

The Beneficiaries

The primary beneficiaries will be students, teachers, and researchers in universities and institutions where water resources management is taught. We have first approached those academic institutions that are GWP Partners but the program is not restricted to them. The students have the potential to not only be future water managers, but also leaders in other sectors and in the world of

development more broadly.

In addition to the benefit these institutions will gain by embedding a 'ready-made' IWRM framework into their water management curriculum, there will be 'spin-off' benefits as these institutions network together to share relevant regional and national experiences. Individuals will create connections with peers and experts in their fields of interest, helping them share experiences and ideas to tackle specific water management challenges. This will tap the expertise of these academic institutions, an expertise that will benefit the ToolBox and the GWP network, and possibly result in the publication of knowledge products.

One of the indications of GWP success during its 15 years is that many IWRM knowledge materials are published, and taught, by international policy and advocacy organizations, such as UN-Water, UNDP, UNEP, DHI, SIWI and others. The GWP thrust will be toward its Partners and in those regions and countries where we are active and therefore where we need to expand the benefits we offer to our knowledge partners.

The Content

The IWRM Knowledge Centers will be national and regional universities and other educational institutions interested in promoting IWRM and are committed to sharing water knowledge and capacity building. The Centers will take a lead in communicating and sharing knowledge with universities and institutions in accordance with that region's priorities.

Depending on the need and the resources, the knowledge management group at the GWPO Secretariat and GWP's Technical Committee members can support selected institutions to develop a curriculum using the IWRM Toolbox. It is envisioned that the program will support the development of curriculum built on existing strengths within specific disciplines such as hydrology, chemistry, engineering, and geography, and expand it to include key elements of IWRM such as economics, ecology, public health, and policy planning.

The Phases

The first step begins with 15-20 university lecturers who will participate in a consultation and planning meeting held in conjunction with the August 2012 GWP Consulting Partners meeting in Stockholm. A selection of those participants was based on interest shown by them in response to a letter sent by GWP to academic Partners and selected people known to have a keen interest in GWP and the IWRM ToolBox.

A preliminary agenda includes the discussion on the following topics:

- What subjects are and are not currently taught at your water program curricula?
 - Water Quality Management – Assessment tools for better decision making
 - Surface water and Groundwater Data Management – permits and information management
 - Flood, Drought and Risk Management
 - River Ecology and Environmental Flows
 - Climate Change, Adaptation and IWRM
 - Economics and Financing of Water Resources Management – The benefits of IWRM for economic development
 - Gender, Public Health and Public Awareness – the human side of water management
 - Policy, Law and Enforcement in IWRM – keeping the processes going.

- IWRM is about efficiency. This includes efficiency in water use but it also includes financial and

economic efficiency. How are these aspects addressed in your water program curricula?

- What are the capacity needs for teaching the various aspects of IWRM? The following list (not exhaustive) is to help your thinking:
 - Climate change and IWRM
 - Agriculture and rural development
 - Energy and IWRM
 - Ecology and IWRM
 - Economics and Financing of IWRM
 - Stakeholders and Public Participation in IWRM, Conflict resolution and Consensus finding
 - Institutions for IWRM/ Law and Policy for IWRM.

It is anticipated that the participants will present their experiences in introduction and teaching IWRM. The discussion should help tailor a workplan which will be driven by the participants. The results will be shared with all universities that are GWP Partners (from the database), GWPO (Secretariat and Technical Committee), and Regional Water Partnerships.

The second phase (depending on the outcomes of the first) will likely be regional follow up workshops/meetings to identify the priority focus areas of each IWRM Knowledge Center and to conduct training in which IWRM Toolbox knowledge materials and/or the Toolbox structure should be imbedded into the water management curricula. The number of workshops to be conducted will be determined by the resources available.

A final report will be prepared after one year to summarize the findings of this initiative. The continued engagement and expansion of these IWRM Knowledge Centers will depend on those findings and future human and financial resources.

Your suggestions and recommendations as we pursue this program are welcome.

The Toolbox and IWRM Knowledge Centres workshop was on August 25, 2012, in Stockholm, Sweden. In total, 16 participants from universities (lecturers and researchers) shared their experiences in teaching IWRM with examples of IWRM Toolbox application.