Summary of the proceedings of the AquaKnow e-conference on knowledge management for technical cooperation in the water sector in developing countries

The identification baseline for the Aquaknow.net content management platform

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The mission of the JRC-IES is to provide scientific-technical support to the European Union's policies for the protection and sustainable development of the European and global environment.

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GENERAL BACKGROUND OF THE WATER KNOWLEDGE MANAGEMENT PLATFORM

Context
Information management and capacity building are increasingly recognized as important features in effective and efficient provision of aid in the water sector. Worldwide, the number of web sites and initiative is increasing very quickly. These sites offer complementary but also overlapping services. Historically, collaboration and funding of these platforms has been haphazard. Advances in information technology (in particular for collaborative platforms with the WEB2.0) and rapid changes in the water sector bring new opportunities for improving and enhancing the role of water knowledge management in the sector. The transfer of knowledge to developing countries and the production of knowledge inside developing countries belong to many processes that have raised the issue of whether greater collaboration in water knowledge management would be beneficial and worth promoting.

Water knowledge management platform group
The Water knowledge management platform (WKMP) group has been created in this context. This informal group was composed of representatives of the major funders of technical cooperation in water knowledge management, the main water knowledge management platforms, in the EU and elsewhere, as well as universities and learning centres in the water sector. Its objective was to promote collaboration for an effective water knowledge management defining a list of concrete activities which would be jointly carried out and a road map toward a stronger coordination among all stakeholders.

A first working group meeting was held on 28 January 2008 to promote collaboration for an effective water knowledge management. It confirmed the will to foster efforts to develop a road map towards stronger cooperation which would include two initiatives: i) undertake concrete actions on joint collaboration on capacity building and water knowledge management and ii) develop a longer term consensus on a common approach to supporting knowledge management within the water sector.

E-conference
To move forward in the discussion, a three weeks electronic conference, entitled "Water knowledge management", was planned as from 19\textsuperscript{th} of April 2008. The general principles of an e-conference are detailed in the annexe 2 (instruction to participants). Each one of the themes addressed in the e-conference will refer to both initiatives mentioned in the former paragraph.

Themes
Three themes were addressed during the conference, one per week. The themes are the following:

- Generation and dissemination of knowledge in developing countries (week 1)
  5 African regional centres (as it will be shown in the rest of this document), specialised in the water sector (universities, research centres) are under identification by the NEPAD, supported by the IRD. The possibility of supporting these centres is conceivable as it would give them a more weight, legitimacy and sustainability.

In the year 2000, African countries and international Community adopted the Millennium Development Goals at the United Nation Millennium Summit. African leaders have identified water scarcity and related insecurity as
one of the causes of the continent’s increasing economic decline. In 2001, the African Union set up the New Partnership for Africa’s Development (NEPAD) as specific African initiative to address the Millennium Development Goals both at local and continental levels.

One of the key limitations to a harmonious development and management of water resources in Africa is the lack of human and institutional capacity to assimilate modern advances in science and technology which are necessary to deal with the complex interactions between the hydrological cycle and social needs, while preserving environment. Developing science, technology and capacity will generate knowledge, which, if well managed, will draw up the basis for governance of water resources and will address most of the urgent needs regarding water. Since knowledge resides within people, there is a need to build capacity and create expertise.

In 2003, the first NEPAD Ministerial Conference on Science and Technology decided to launch one of the main flagship programmes of NEPAD aimed at establishing networks of centres of excellence dedicated to research, development and capacity building. Five African regional centres, specialised in the water sector (universities and research centres) are under identification by the NEPAD Science and Technology Office, supported by the South African Water Research Commission (WRC) and the French Institute for Research and Development (IRD).

At a regional scale, it is planned to select these centres, possibly one per African region. The centres will have regional vocation for research, training and networking of water institutions and stakeholders. They will promote comprehensive approach of water regional problems, organize data collection and dissemination, host regional training programmes and coordinate specific events (workshops, conferences).

The centres will be identified among existing institutions with effective technical, financial and administration facilities as well as scientific expertise and capacity to train researchers, professionals, etc. The centres will develop solid partnerships with the Northern countries as well as with the African community.

The programme focuses on supporting a hub of centres rather than individual institutions disconnected one from the others. The centres should develop effective systems for the shared collection, generation and dissemination of knowledge. At a continental scale, these centres will be coordinated by the NEPAD Science and Technology Office.

- **Joint actions for water knowledge management** (week 2)

Concrete joint actions/events would aim at sharing and harmonising our positions towards beneficiaries knowledge management and capacity building. These actions/events could also be the first step to refine a common Water Knowledge Management Strategy.

In 1998 the EC published very comprehensive guidelines “Towards sustainable water resources management”. Although they have served a very useful purpose there is a recognition that they need to be updated to take account of developments in the water sector since 1998. An analysis of the use and continued demand for the guidelines (December 2007) indicated that they were used: by donors to ensure the development of better proposals; by the public sector in developing countries as a check list on the development of national policies and strategies; by civil society when proposing new initiatives; by the private sector as a training and guidance tools and for educational and training purposes. The analysis also pointed out that the guidelines needed to be more interactive perhaps by making use of web based tools and/or by
closer connection to communities of practice. The content itself needs to be updated by taking into consideration the emergence of new financial modalities and the implications of the Paris Declaration and should strengthen aspects such as water governance, climate change, energy as well as other areas. The training value of the guidelines has also been recognized and in this respect some updating and reformatting of the content would also be needed. If the guidelines were to serve as a tool for all EU member state support to water sector policies then they would need to be checked for compatibility with policies of member states.

The updating of the EC guidelines and transfer of knowledge to developing countries is one of many processes that have raised the issue of whether greater collaboration in Water Knowledge Management would be beneficial and worth promoting. The updating of the EC guidelines as well as capacity building and knowledge transfer is a concrete opportunity to test the will to work jointly on a final product. The concept of the centers of excellence discussed in week 1 is one of several other possible joint actions that could be taken and the discussion in week 2 gives an opportunity to take this concept further.

- **New challenges of information management in the internet age** (week 3)

  Each organisation working in the Water sector has its own knowledge base, its own strategy for knowledge management toward capacity building. A common sector approach to knowledge management toward capacity building would reduce gaps and overlapping. On the other hand existing information is not always easily accessible by sector stakeholders and beneficiaries. Traditional search engines – as Google – do not give always direct access to the relevant information and in any case do not structure it.

  There is a clear message from WSIS (World Summit on Information Society):

  ICTs (Information and Communication Technologies) cut horizontally across all our efforts to achieve the MDGs but can also create a global democratic village (the promised but elusive e-Agora).

  The contribution of ICTs in MDGs is critical and highlighted by various institutions. For example, facilitation of knowledge exchange and networking among policy makers, practitioners and advocacy groups and use of networks for information sharing are especially mentioned in relation to the ways ICTs can contribute to MDG Goal 7.

  a. The Basics of Knowledge Management (KM)

  It is not the purpose of this e-conference to analyze this “buzzword” of modern times, but it is useful to remind of a few basic concepts:

  - “KM is not only the capturing, transferring and leveraging what everybody in an organization knows, but also what everybody thinks and believes.”

  - It is useful also to remember that knowledge is explicit or tacit and is more than information which in turn is more than just a collection of data.

  The issue for the water sector:

  Each organisation working in the water sector has its own knowledge base, and its own strategy for knowledge management which conforms to its own objectives. This has led to a – welcome - abundance of information which is available today through the internet and numerous initiatives and platforms that bring together practitioners and researchers of the field and help disseminate experiences. A common sector
approach to knowledge management especially with respect to capacity building and information sharing, would reduce gaps and overlapping and strengthen our efforts. However, there is a lack of a clear consensus on knowledge management strategy for the sector as a whole.

Such a strategy would require a clear mandate, a consensus on the goals and the means to achieve them and naturally a needs analysis and an intelligent mapping of existing resources and initiatives to facilitate the development of a common action plan.

The question should not only revolve around the organizational constraints but also around the “political” aspects of building a sustainable KM strategy for the sector.

In this day and age of the internet, possibly one route to think about would be to learn from the “open source” approach (open & collaborative) which is democratic but also inclusive, eschewing the outdated battles over “ownership”.

This approach could possibly be applied to the issue of updating the EC guidelines but also reaching a common agreement on improving our existing knowledge management platforms.

Chairman
All along the three weeks that the conference lasted, it was lead by Mr Jay Bhagwan, Director of the Water Use and Waste Management in the Water Research Commission in South Africa.
Summary proceedings of the first e-conference on water knowledge management
Overview

Context
These aims sit within a context where information management and capacity building are increasingly recognized as crucial features in efficient provision of water services. Knowledge stimulates national and regional policies, enforces positive impact of interventions and fosters sector performances. Advances in information technology and rapid changes in the water sector bring new opportunities for improving and enhancing the role of water knowledge management in this sector. The production and dissemination of knowledge inside developing countries become increasingly recognized as crucial elements of global cooperation in the water sector.

Purpose
The purpose of this E-conference on water knowledge management was to stimulate the debate on how South-South and South-North joint actions on water knowledge management can improve sector performance. The intention is that this opening debate will help to shape a number of initiatives that are already planned as well as inspire new ones.

Structure
The e-conference was structured around 3 themes
Week 1: Generation and dissemination of knowledge in developing countries
Week 2: Joint actions for the water knowledge management
Week 3: New challenges of information management for the water sector

Outcome and way forward
Some 145 participants from 67 organisations (annex 1) registered to the e-conference representing a wide variety of stakeholders including: Government bodies responsible for the water sector; donors in the water sector; water knowledge management platforms; UN organisations; Research institutions; Capacity building and training organizations; Civil Society organizations; water sector practioners and representatives of the private sector. Around 80 exchanges took place during the 3 weeks. The outcomes can be summarized in 5 points:

1. Solutions such as centres of excellence anchored in the regions (Africa) are a good way forward
2. There is a strong consensus that jointly supported training and seminars are potentially one of the most practical and useful initiatives that could be taken in the sector
3. Information – access to information and the conversion to knowledge are all challenges that joint actions can help overcome.
4. There is a consensus on the need for common approaches to knowledge management but skepticism about top down or artificially created solutions – user shaped solutions are more chaotic but more likely to work

5. There is a desire amongst a core group of participants for deepening the exchange of views.

Week 1: Generation and dissemination of knowledge in developing countries

What other similar initiatives and activities are relevant?
The participants noted several relevant initiatives in Africa like: Interstate schools; 2iE, International Institute of Water and Environment Engineering; AIIST, African Institutes for Science and Technology; UCLGA United Cities Local Governments of Africa or Nile Basin Capacity Building Network: SCARDA, Strengthening Capacity for Agricultural Research and Development. Or in Asia/Pacific: CI IFEN international centre for research on el Niño; Xi'an Jiaotong- Liverpool University ; Asia Pacific-water forum or existing centres/networks based in Europe like Tyndall Centre on climate change, UK; Joint Research Centre, EC; IRC, WaterNet, NL.
Background information on these initiatives was given together with links to websites.

A discussion followed on the many years of experience of some of the centres of excellence set up in French speaking Africa. The issue of financial sustainability and the need for centres to adapt to changing needs was deeply discussed.

What are the expectations on partnership?
JRC noted that it had been involved in providing specialist information technology related support to centres of excellence. IRC noted the importance of innovation in knowledge generation, dissemination and capacity building. UNESCO_IHE see its focuses on building educational partnerships with other universities and supporting the process of network development (e.g. WaterNet). Other participants noted the importance of South-South partnerships and the barriers of communication and the need for more funding for regional workshops to enhance exchanges within Africa. A new idea of instituting a Scientific Journal based in Africa was raised. A new idea of supporting the creation of a sustainable water resources management university in China was raised.

What is the role of centres in excellence in relation to AU, NEPAD, AMCOW & others?
UNESCO_IHE notes that the AWPF knowledge hubs process which up to now has focused on Asia could be a relevant model. The IAST initiative is closely linked to continental initiatives with Africa and
also has parallel in Asia (through the Asian Institutes of Technology). A number of participants mentioned that for the centres of excellence the key issues were: i) communication facilities, ii) funding and, iii) networking. Independence from political institutions whilst also ensuring that the work of the centres was political relevant was noted as an important balance that needed to be struck. Another comment made was that centres of excellence could in some circumstances lead to more sustainable and replicable capacity building results as they are not project based like much technical assistance projects TA. Centres of excellence could be the reference institutions in dissemination and supporting water knowledge at regional and continental level.

What other aspects are relevant?
The link between independent advice and political relevancy was taken up. There is lots of experience of using a variety of tools for generating and dissemination of knowledge e.g. thematic working groups; workshops; grants for south-south cooperation; participation in international conferences; common regional annual meetings. Experience of these tools was available and could be built on.
Week 2: Joint actions for the water knowledge management

Is there a consensus on the need for joint action?
The week 2 discussion reflected a strong consensus that joint training and seminars were potentially one of the most practical and useful initiatives that could be taken in the sector. Participants noted several examples of joint training that were already yielding good results e.g. the train4dev initiative. Several commentators expressed a need for more joint action on training. It was noted that coordination of training and capacity building was still far from common practice - and there was therefore much scope for improvement in this area.

Centres of excellence were seen as one way forward for establishing training that was learner centred but at the same time a caution was sounded, reflecting some of the comments during week 1; the centres would need to evolve naturally and respond to the market dynamic of supply and demand rather than be artificially created.

What factors influence the contribution of joint action on WKM to capacity building?
A debate on the meaning of knowledge management of the water sector lead to useful distinctions being made between: knowledge and information. Further distinction was drawn between knowledge at the individual level, the institutional level and the sector level. These insights are highly relevant for capacity building, awareness raising and policy adjustments which is perhaps the greatest challenge facing the water sector - perhaps even more than funding.
Capacity building at the individual level has not always spilled over to the institutional and sector level. A comment from South Africa noted the difficulty of scaling up knowledge. People could be trained at the individual level but to have an institutional and sector impact new ingredients were necessary - most fundamentally shifts in attitude and close coordination by knowledge generators, knowledge disseminators and knowledge users. A number of participants noted the importance of bridging the gaps between education, research and practical use in the field. Each area reflects different parts of the knowledge chain from generation, to dissemination, to use and feedback. Some organizations such as IRC which have decades of experience in building capacity noted the links between information management, knowledge management and knowledge sharing and how these lead to learning and improved sector performance. Small incremental steps were advocated.
Several views were expressed about the importance of cultural and political factors in knowledge management and sharing. The existence of knowledge friendly organizations is essential to sector development. It is not only the availability of knowledge and information but also the attitude towards information and the power it provides, that is crucial. Not all contexts, especially in the developing countries are favourable. One observer, later echoed by others, noted the importance of influencing the demand side of knowledge - the implication being that the major bottlenecks might not be on the
availability of or even access to knowledge. The relevance of politically relevant organizations such as NEPAD in providing a favourable context for knowledge sharing was mentioned.

**What is the contribution of open source thinking on joint actions?**
The contribution of open source thinking and use of advanced IT approaches in knowledge sharing was discussed and mixed views were recorded. For some, the open source approach holds great promise, others note that although beneficial it may leave many in the developing countries, who have inadequate internet connection, behind.

**Week 3: New challenges of information management for the water sector**

**What are the common principles of management of information for the water sector?**
As reinforced in earlier weeks the distinction between information and knowledge was highlighted. The balance between the need for global information and local relevance/realities was also raised as well as the possible hindrance of language and internet access especially in African countries. Organisations in the water sector have to be more willing to share information in an open and freely accessible manner. A specific challenge is how to manage information whilst also adopting democratic, transparent, and inclusive approaches (like Wikipedia).

**Are common tools needed for the sector?**
The conference concluded that no single tool exists and it was not useful to develop “yet another web site”. Using a combination of freely available, easy to use Web 2.0–like tools should be considered a “best practice” and should be preferred over development from scratch. A “clever search engine” well adapted to the sector was called for. A meta-website with semi-dynamic content was proposed where the selected websites can be enhanced by the community and/or as a function of the assessment of the website. Peer/expert-review is needed in order to ensure centralised content consistency and quality but without reducing the democracy of access.

**How can water knowledge management be improved?**
Web2.0 technologies and free/open-source, user-driven tools readily available in the web, (e.g. through Google search & groups, facebook, digg, wikis, YouTube, various "mash-ups" etc) could evolve into one coherent "platform", making them inter-linked and referring to each other in a user-friendly way. This may offer solutions in terms of exploiting social collaborative and sharing options, improving accessibility of knowledge. This concept can be coupled with the right incentives for users to become providers themselves and share knowledge which can also address the challenge of resources to maintenance a site.
What are the obstacles to improved water knowledge management?

No single factor emerged but a mixture of many of the mentioned factors which together represent obstacles in differing degree. Lack of time on the part of people to codify and share their specific knowledge, combined with the lack of clear ways to do this is probably the most common practical constraint. Donor initiatives are often part of short-lived projects whereas long-term strategies are needed.

**Does Water knowledge management need to be streamlined – if so how?**

The need is recognized but there is a health level of skepticism about how it can be achieved. There are financial, institutionally related feasibility constraints. Only a “think out of the box” approach is likely to create a breakthrough. Creating yet another formal partnership with specific rules and procedures could limit the effort and an informal approach would seem more promising. Instead a strong desire was expressed to learn more from the inherently democratic aspects of knowledge exchange in the internet itself and opt for the development of non-branded, fully independent platform/tools.
Outcome and way forward

**Outcome**

1. Solutions such as centres of excellence are a good way forward – they need to achieve sustainability either by long term support to their core mandate and/or by being able to evolve naturally and respond to the market dynamic of supply and demand.
2. The centers will function well if they retain independence from political institutions whilst also ensuring that their work is politically relevant.
3. There is a strong consensus that jointly supported training and seminars are potentially one of the most practical and useful initiatives that could be taken in the sector
4. Shifts in attitude and close coordination by knowledge generators, knowledge disseminators and knowledge users are key to improving water knowledge management.
5. Cultural and political factors in knowledge management and sharing need attention
6. The whole knowledge chain from generation, to dissemination, to use and feedback needs to be considered.
7. Information – access to information and the conversion to knowledge are all challenges that joint actions can help overcome.
8. There are many tools – but no super tool – a creative combination of existing tools is best
9. There is a consensus on the need for common approaches to knowledge management but skepticism about top down or artificially created solutions – user shaped solutions are more chaotic but more likely to work
10. There is a desire amongst a core group of participants for deepening the exchange of views perhaps using new tools.

**Way forward**

The way forward will emerge from further discussion amongst the participants and an initiative will be made to collect reflections on this matter. So far some of the views expressed include:

1) Rotating the leadership of future events
   Further e-participation is done under through rotation (UNDP for example) could host the next "event" and experiment with format/ technology. There is a body participants who are keen to take the process forward. Then the idea is that the rotation will continue - perhaps passing to an institute in the developing countries (perhaps one of the centres of excellence which might be ready say in early or mid 2009 to host the third round. Each round could be radically different in format and might widen the group of participants or might tighten it.

2) Using sub-groups to focusing on particular themes
i) Discuss and let participants propose practical ways to move forward with EC guidelines updating (e.g. practical tools, organizational aspects, who to involve, how is it administered, and possibly scope and expected outcomes). ii) Discuss the WKM platform to be developed in more detail: building on suggestions made so far, and tapping into everybody’s knowledge.

3) Use of survey-questionnaire technique to obtain and quantify thoughts on different aspects.

4) Provide the participants with access to new technology to see if this leads to spontaneous follow up (e.g. web2.0 functionalities with uploading capacity)
# ANNEXE 1: LIST OF ORGANISATION PARTICIPATING TO THE E-CONFERENCE

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<th>Organisation</th>
<th>Country</th>
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<td>Private Sector</td>
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<td>African Government</td>
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<td>29</td>
<td>Ministère de l'Hydraulique, de l'Énergie et des Técnologies de l'Information et de la Communication</td>
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<td>Autorité du bassin du Niger</td>
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<td>CICOS - Commission des forêts d'afrique centrale</td>
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ANNEXE 2: OUTLINE DESIGN FOR E-CONFERENCE: INSTRUCTIONS SENT TO PARTICIPANTS

- An e-conference is a discussion on a specific theme among a group of people conducted via the Internet using email (e-group). The e-conference may also take place with the support of an internet website.

- It appears as an interesting alternative to the traditional seminars and workshops, because it saves mission costs and lets to the participant more flexibility in his implication and time scheduling.

- In general, an e-conference lasts around 3 weeks, with distinct themes/questions/goals to be achieved/discussed in each week.

- E-conference roles are divided in 4 main categories:
  - The chairperson
    - Opens each e-conference with a welcome message and introduces background and themes
    - Works in close cooperation with facilitators and organisers during the conference
    - Summarises discussions and the next steps at the end of the conference
    - Contributes to discussion: stimulate and steers discussion during e-conference together with the week's facilitator
    - The e-conference synthesis paper will be drafted by the organiser and the facilitators but it is expected that the Chair will provide final approval

  These responsibilities would not be too time consuming

  - The facilitator, responsible for one theme (lasting preferably one week):
    - Promotes the e-conference:
      - suggests potential e-conference subscribers
      - Sends the announcement out to his/her contacts
    - Welcome message to participants at the beginning of his week (1 page maximum). in order to reiterate the questions set in the Background Paper and open up the discussion
    - Develops and launches the questions to be discussed, contributes to the discussion and animates the debate
    - Contacts participants when necessary to stimulate the debate
    - Contributes and steers discussion during e-conference together with the chair
    - Makes a summary of the discussions at the end of the week, which will contribute to the final e-conference synthesis paper

  These responsibilities could mean dealing with 1 to 5 messages per day, plus the preparation of a summary

  - The organiser / backstopping
    - Suggests themes and questions
    - Develops the background material
    - Organises and manages the technological support of the conference
    - Screens the incoming emails before sending out to participants (main criteria: removal of repetitive (dialogue) or highly irrelevant emails)
    - Updates and adjust the e-group web site
    - Works jointly with the facilitators for the redaction of the final synthesis paper

  - The participants
    - Take part in the discussions through emails and contribute to e-group page
Abstract
In the framework of the EC project called “AquaKnow” an e-conference was organised on knowledge management for technical cooperation in the water sector in developing countries. The e-conference was organised by DG AIDCO and DG JRC and was held in June 2008. The chairman of the conference was Dr. Jay Bhagwan, Director of the Water Use and Waste Management in the Water Research Commission in South Africa.
Some 145 participants from 67 organisations active in the water sector in Africa, in Europe and in Latina America participated to this e-conference. The organisations were public, private, NGOs, research and high education institutions, etc...
This e-conference was an unique event to bring together an important amount of field experiences in treating the knowledge related to the water sector in the context of technical cooperation oriented to capacity building in developing countries.
This technical report resumes the many ideas put on the table and extracts some of the conclusions that were used in the design and development of the Aqua know Content Management System developed by the Water4Dev team of the IES institute of the DG JRC of the European Commission.
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