SIWI

WORLD WATER WEEK

in Stockholm
August 20–26, 2006

2006 Synthesis

Contents

Note to the Reader

In its role as organiser and host of the 2006 World Water Week in Stockholm, the Stockholm International Water Institute has taken upon itself the responsibility to author the Overarching, Policy, Business and Scientific conclusions found in this document. On SIWI's behalf, Mr. Felix Dodds of the Stakeholder Forum for a Common Future authored the NGO conclusions.

As such, the statements and opinions contained therein do not necessarily reflect the official position of the co-convening organisations of the 2006 World Water Week. Rather, they represent SIWI's synthesis, prepared for the benefit of the participants and the broader water and development communities, of the range of issues, ideas and viewpoints addressed during the week in their totality.

The Workshop, Seminar and Side Event conclusions, on the other hand, are contributed by the respective co-convening organisations.

SIWI is also responsible for authoring the Panel Debate, Prize and Award conclusions.

Highlights

The 2006 World Water Week in Stockholm featured a number of new agreements, initiatives, launches and celebrations.

- To fight corruption in the water sector, the Water Integrity Network (WIN) was launched by the International Water and Sanitation Centre, Stockholm International Water Institute, Swedish Water House, Transparency International and Water and Sanitation Program-Africa. AquaFed joined the Network during the week as well. For more information, visit www.waterintegritynetwork.net. The Swedish Water House, together with WIN, launched "Corruption in the Water Sector: Causes, Consequences and Potential Reform," a policy brief available at www.swedishwaterhouse.se
- The Comprehensive Assessment of Water Management in Agriculture revealed insights from its examination of policies and practices of water use and development in agriculture over the last 50 years. For more information, visit www.iwmi.org
- Through a presentation of the synthesis and the final report of the 4th World Water Forum, the outcomes of the Forum, held in Mexico in March 2006, were presented. One of the examples of concrete outputs of the Forum presented was the creation of the Asia-Pacific-Water Forum (APWF). To download the reports, visit www.worldwaterforum4.org.mx
- The Global Water Partnership (GWP) celebrated its 10th anniversary with a Consulting Partners meeting to review its achievements and guide its future strategic focus. H.R.H. The Prince of Orange also launched a celebratory book, "The Boldness of Small Steps." More information and the book's introductory chapter in several languages are available at www.gwpforum.org
- A Memorandum of Understanding (MOU) signed by SIWI and the Council of Scientific and Industrial Research (CSIR) South Africa aimed to foster knowledge creation that leads to concrete water-driven social, economic and environmental improvements.
- Professor Asit K. Biswas of the Third World Centre for Water Management in Mexico received the 2006 Stockholm Water Prize, worth USD 150,000, for "outstanding achievements" from the hands of H.R.H. Crown Princess Victoria of Sweden.
- Mr. Wang Hao, Mr. Weng Jie and Ms. Xiao Yi from China were awarded the 2006 Stockholm Junior Water Prize. The students from Shanghai received the Prize from the hands of H.R.H. Crown Princess Victoria for a project on using low-cost, ecologically friendly technology to restore a polluted urban river channel.
- The World Agroforestry Centre (ICRAF) released policy brief findings which provide insight into the ways trees can be best managed to advance watershed management objectives and the implications for watershed management policy and programme design. For more information, visit www.worldagroforestry.org
- The United Nations Environment Programme highlighted dramatic and damaging environmental changes with "Africa's Lakes: Atlas of Our Changing Environment." The atlas compares and contrasts satellite images of the past few decades with contemporary ones. For more information, visit na.unep.net/AfricaLakes/
- WWF released a report, "Rich Countries, Poor Water," which showed that a combination of climate change, drought and loss of wetlands, along with poorly thought out water infrastructure and resource mismanagement, is creating a truly global crisis. It documents water problems in countries such as Australia, Spain, USA and Japan. For more information, visit www.wwf.org
- UN-Water announced "Coping With Water Scarcity" as the theme for the next UN World Water Day on March 22, 2007. For more information, visit www.unwater.org
- The World Business Council for Sustainable Development launched a new report, "Business in the World of Water – WBCSD Water Scenarios to 2025," which looks at possible futures for business and society. For more information, visit www.wbcsd.org
- SIWI and the Stockholm Environment Institute (SEI) launched the Green-Blue Initiative (GBI) together with several core partners. The goal of the initiative is to further green water policy development and proper linkages to land use management policies. For more information, visit www.siwi.org
- The Navigating Peace Initiative at the Wilson Centre launched two new policy briefs, one on cooperation around water and the other on groundwater in Southern Africa, in connection with the Week. For more information, visit www.wilsoncentre.org/water
- The African Ministers' Conference on Water and several partners produced the "Stockholm Message on Transboundary Groundwater for Africa" and agreed on establishing a follow-up process to support countries in strengthening transboundary groundwater cooperation.
- Sydney Water received the 2006 Stockholm Industry Water Award in honour of its innovative "Every Drop Counts (EDC) Business Program."
- The 2006 Swedish Baltic Sea Water Award was presented to Mr. Björn Carlson for his donation of SEK 500 million (USD 62.6 million) for projects and initiatives which contribute to improved water quality in the Baltic Sea.

Photo: SIWI

Overarching Conclusions

Photo: SIWI

Can wider sharing of the benefits derived from water (if not the water itself) among riparian countries reduce tensions and improve livelihoods in transboundary basin settings? Does benefit-sharing drive development, improve access to water and sanitation services, stimulate food- and energy production and decrease pollution?

Because water is unevenly available around the world, and benefit sharing is one possible way to even out this physical reality, the 2006 World Water Week focused considerably on seeking answers to questions about the approach, as well as potential policy options.

What did we learn? Although benefit sharing has worked in some basins due to bi- and multi-lateral agreements, improved institutions, and strong basin organisations, the theory provides one reality while life's lessons often provide quite another. Basins are different and blue-print solutions don't exist; thus, theories aside, the questions posed above find their answers in the relations between humans. As some participants said, if you cannot even develop a system to share the physical resource of water, how can you expect to develop systems to share benefits (and with them, the implicitly shared vision, values and rights)?

Many seminars showed how most basins are dominated clearly by one or a few countries (hegemons) that benefit, at least for now, from securitising water. Power usually defines transboundary relations, not solidarity or ethics.

The way forward is to first accept that building successful transboundary water management involves many aspects and is a lifetime commitment of involved partners. Second, ensure the availability of reliable data and information that can be shared transparently by all parties. Third, understand and respect the influence of politics beyond not just the river, but beyond the water sector; issues of security, trade, culture, economy, etc., are relevant. Fourth, in addition to managing the water, manage the relations with people and institutions by communicating and coming to agreement with all concerned peoples and stakeholders.

A revolutionary approach? No, but nonetheless these four steps are challenging in practice. The common denominator is trust among all actors. On the bright side, the week showed how trust is often easiest to build from below. So-called Track II initiatives can play a critical role, stimulating co-operation among non-governmental actors (including scientific and technical experts).

And what of both transboundary and national water management in the face of climate change? As French polymath Paul Valery said: "The trouble with our times is that the future is not what it used to be." Vulnerability to natural climate variability has increased because of the way our societies are planned and organised, how we live and which natural resources we consume. More than ever, we are tampering widely with our climate, adding a critical risk factor that makes planning for the future even harder.

Climate change may force us to accept with finality that full control over our future is not possible. It may challenge the way we manage water and stimulate water governance so that it is both decentralised, sector-wise, to allow for flexibility, and centralised, basin-wise, to cope with complex interactions between actors and systems.

Coping with both floods and droughts will be even more important in the future. The UN system placed "Coping with Scarcity" centre-stage with its 2007 World Water Day theme. Adaptation strategies are increasingly important and require cooperation among actors at all levels in society. Urban areas, where 93% of all deaths due to flooding occur, are particularly important. Urbanisation trends are therefore an integral part of the climate change issue, though water experts haven't prioritised the connection highly enough.

The third major issue on the 2006 World Water Week agenda is the most critical water resource issue for the future: water for food. Producing enough food for future generations will require basin-wide planning and a focus on both rain fed and irrigated agriculture. Improved management of rivers is required, but also of groundwater. In transboundary settings, such hydrologic systems increase complexity and complicate interaction and communication between up-stream and down-stream users.

Under current management, rivers are drying up, basins are "closing" (i.e. all water committed), groundwater levels are falling and rain is being used inefficiently. People are also consuming more. Ultimately, conflict between different users (though less likely countries) may result. In seminars, cases demonstrated synergies between sustainable food production and ecosystem benefits. Innovative approaches and knowledge exist, but science needs better integration with policy making.

Transboundary water management, climate change and water, and water for food were in focus during the week, but many other issues were on the agenda. We hope the summaries and conclusions from those in this report will be inspiring, stimulating and thought-provoking.

Photo: SIWI

Policy Conclusions

The sharing of transboundary water is challenging for many countries and sub-regions around the world. Some countries, particularly those upstream, perceive comprehensive cooperation as being too risky; they don't want to negotiate away future water uses. For many upstream countries or downstream countries with hegemonic (dominant) status in a sub-region, realpolitik still dominates power politics. The notion of sub-regional political, economic and cultural interdependence is yet to be fully acknowledged and explored. The politics which water management within a basin (including groundwater basins) is subordinated to provide the lens through which transboundary water management needs to be analysed. Thus, efforts to de-link water from the overall political situation are futile. Rather, one could (and indeed should) make use of the potential unifying power that a transboundary water resource provides to increase the sharing of benefits, deepen dialogue and thereby assist in economic development. If this is to materialise, an unrelenting effort by the countries and the donor community is needed.

A number of obstacles to effective management of transboundary waters exist today. Indeed, the weakness of international law is as apparent in transboundary water situations as in other areas; the power of the hegemons in a basin to "get their way" at the expense of the weak is evident, and regional institutions are often impotent in overcoming political obstacles due to national considerations. The Water Week repeatedly showed how hydro-hegemons can shape the nature of interaction – for unilateral or collective good.

If joint management of transboundary waters is achieved and a situation in which benefits are shared can be accomplished, this process could make a significant contribution to global peace and stability, as well as to poverty reduction. Indeed, cooperation on such waters is imperative to a better recognition of ecological issues and requirements, economic development and poverty reduction, and it is notable that many of the Millennium Development Goals (MDGs) are dependent on the availability of adequate water resources in one manner or another.

More than half of the available global blue water resource is flowing in shared basins. From a food production perspective this is important. In order to feed the growing world population cooperation and rational utilisation of the scarce global water resources of the world is imperative. However, to feed the growing population of the world it is also critical to reemphasising (new) solutions of using rainwater. Thus to reap the large food benefits from the underutilised green water a new water management paradigm needs to be put in place. It is important to remember the relationship between food and trade. For decades, food importing countries have benefited from the alleviation of their strategic water shortage with highly subsidised imported food from the North temperate regions. Though this relationship can relieve the burden on some countries to be food self-sufficient, it also places the weak and non-diversified economies in the South at risk, should the relationship somehow change.

From a natural resources perspective improved transboundary water management is also imperative. The benefits that could be reaped from for example an improved flood control in a transboundary river could help to mitigate the effects of floods, thus creating benefits for the downstream country. The upstream country could be compensated for that service. There are agreements to this extent; however, these concentrate mainly on sharing the resource physically, but not the benefits. This has helped to avoid conflicts in the past but is not sufficient for a widespread regional development.

The so-called Track II processes in transboundary water can provide a long-term path for improved cooperation between governments (Track I). Track II entails lower level stakeholder cooperation on, for example, technical and research cooperation, and national capacity building on Integrated Water Resources Management (IWRM) to level the playing field. But Track II only develops in conducive environments. It cannot

Photo: Mats Lannerstad

balance weak regulatory or governance conditions. This has to be acknowledged by both donor and recipient countries.

There is a need to set new funding mechanisms in place for countries sharing the same basin. Such new funding mechanisms should address both regional cooperation as well as national IWRM capacities. Generating cooperation in transboundary basins largely consists of promoting a process of building collaborative structures and institutions, commonly at both the national and regional levels. For a donor or other funding organisation to engage in building such cooperative structures in a shared river basin demands courage and a vision that must transcend the lifetime of a single project. A 'Shared Waters Facility', tasked to support processes of transboundary water co-operation, in which negotiation support is included, may be a way forward. Also, a seminar in Stockholm revealed the critical role (and need to strengthen) existing river basin organisations, nationally as well as in transboundary settings.

One thing to note, however, is that decentralised solutions – particularly in the area of water supply and sanitation – can be useful even within the broader context of integrated planning and management. There are sector experts and specialists, and they should be used.

Economic valuation is recognised as an important element of water management and provides a key that can assist in the decision making process. One such tool gaining increasing attention is compensation. An example of a compensation scheme within a river basin setting is payment provided to upstream inhabitants for land and water management practices that promote maintenance and enhancement of downstream ecosystem services as well as protection against floods. This can create economic win-win situations in which both or countries are interested. Compensation schemes should be both short- and long-term oriented, and it is important to recognise that they can be applied in a proactive way to conserve existing ecosystems and their services, as well as restore already degraded ecosystems. Compensation can take a number of forms, including direct payment, soft credits and certification. It can also be used as a platform for negotiating and defining a range of human and environmental rights, such as water rights. Challenges facing this area of valuation are the issue of distribution of compensation benefits and evaluating otherwise unrecognised services.

Good water governance is difficult to achieve due to the amount of corruption in the water sector in many places. The Water Week found that anti-corruption lessons from other sectors can be tailored to the water sector and to national governance reforms. To fight corruption, building political commitment and broad-based stakeholder engagement is critical. Preventive rather than reactive methods are most effective, for once entrenched in social and economic systems, corruption is difficult to remove.

Policy also includes the gender component. The week emphasised that clear performance indicators for gender sensitivity in water projects are needed. It is politically correct to pay lip service to gender these days, but it is also time to hold governments, organisations and institutions accountable for gender mainstreaming. Concrete measures include gender sensitive budgeting, education and involvement of youth, mentoring, and making partnerships effective in achieving the goal of gender mainstreaming.

It is noted on the ecosystem side, for example, that wetlands can act as buffers against flooding and also mitigate adverse environmental results.

For safe water storage and regulation during floods and droughts, multi-dimensional and harmonised cooperation for efficient management of water resources is required to reduce impacts of floods and droughts. Policies should promote the development of effective experience which enables the careful processing of information and provides links to stakeholders in an appropriate manner. A strong call for strategic planning to reduce the impacts of floods and droughts was issued in Stockholm.

Forecasting of floods and droughts were discussed with particular intensity. It is essential, since it helps to raise preparedness and mitigate impacts. The challenge is to translate forecasts into feasible public awareness campaigns. Also, multi-dimensional concepts/approaches to deal with multiple issues are needed and should consider structural and non-structural issues, entire basins and the whole cycle of risk management. Finally, utilities require improved training, capacity development and best practice awareness raising on emergency preparedness.

If countries are unable to share water they might be more attracted to share benefits beyond water because of the advantages stemming from that. To build political will, trust and incentives for increased benefit sharing, it is important to continue to develop methodologies for benefit sharing beyond water itself. This is not an easy task and will require further enhancement of trade and economic ties between countries sharing the same surface and groundwater.

Photo: SIWI

Scientific Conclusions

Photo: SIWI

Scientific issues in Stockholm had a series of interrelated aspects as a backdrop. One was the importance of data and information, a necessary pre-requisite in the work of scientists as well as lay people. Another was methodologies for analysis of data/information and interpretation of the findings. A third was how to facilitate the accessibility and understanding of scientifically based knowledge. A fourth aspect focused on time: new circumstances may make some knowledge irrelevant. This kind of contextual premise extends the thinking from previous World Water Weeks, namely that knowledge must be related to cultural and other (local) contexts.

Development perspectives that permeated in Stockholm included: water-related phenomena in the landscape, living with change, and the need for analytical tools that improve our ability to attach values to different goods and services. A crucial interface between science, interest groups and improved management/governance was repeatedly demonstrated. Science enhances the likelihood of reasonable control and monitoring of processes in society as well as in the landscape.

The overarching theme "Beyond the River – Sharing Benefits and Responsibilities" actually encompasses benefits from the river, because of the river, beyond the river, and to the river. Generally, knowledge about tangible benefits from the river and beyond it for hydropower, irrigation potential and water supply is well developed. But once humans intervene in the basin, the size, quality and types of different benefits – as well as costs – are altered.

Within the basin, some knowledge may be generated through modelling (hydrological, optimisation, forecasting, etc.). In a perfect world, models would reflect the complex reality in basins; data availability and quality prevent this. Nonetheless modelling tools can assist decision makers in addressing risk and uncertainty e.g. in agricultural water management. Hydrological models deal with the supply side, optimisation models with allocation, and crop water requirement and demand forecast models focus on the water demand side. It is relevant to link modelling to scenarios, to identify what may happen in a river or basin. Combining scenarios with models will be useful in stakeholder discussions, role plays for policy formulation and in institutional reviews. These kinds of tools may help to bypass emotional arguments and misdirected assumptions. Real time information is relevant, for example, in efforts to prevent floods and to decide on quotas for allocation during a season.

Remember, rainfall is a basic water resource for local communities as well as in transboundary contexts! More knowledge is needed about enhancing the water resource by capturing more rainfall in water-scarce areas and in basins where the flow in rivers is partially or totally committed. More must also be known about how water and land use changes in one part of the basin affect other parts in the basin.

Groundwater, though clearly a significant source of water in arid and semi-arid regions, is a big unknown. Data and information systems should reflect and analyse the connection between ground and surface water and also land. Such systems should be part of IWRM and are required to understand and monitor links between development and resource utilisation.

Subject-wise, information and analysis is lacking on the ecological goods and services accruing from the river and beyond. Data, methodology and valuation are challenging. Without reliable and precise information, proper knowledge of ecological goods and services is not possible. In addition, our understanding of the different types of value that are provided by different ecosystems needs improving. Value, however, varies; a "free flowing river" means different things to different people, including scientists. Still, scientists – in collaboration with other stakeholders – are positioned best to develop methodologies for these kinds of analyses.

New and additional knowledge concerning best practice will always be important since social systems are always changing. Use

Photo: SIWI

of economic instruments, for instance, is guided by little empirically tested knowledge. In subsistence-oriented societies, information about how to combine social services, micro-credits, insurance, etc., is lacking.

Better instruments are also required to promote desirable action by governments for positive upstream-downstream relations. Better knowledge about the potential to increase aggregate benefits and identification of strategies for how to share benefits is particularly important in transboundary contexts. In principle, the same question is valid in other contexts, e.g. between urban and rural sectors. "Sharing" must be linked to responsibilities and initiatives to generate benefits across the basin. Schemes, for instance, may compensate upstream inhabitants for land and water management practises that promote maintenance and enhancement of downstream water or ecosystem services.

Open and transparent communication to various groups is vital. Otherwise, there is a high risk of governance failure. Similarly, the development and implementation of IWRM depends on an open dialogue between stakeholders.

Special concern was devoted to food and environmental security. Food and biomass production is the major human appropriation of freshwater. Improving water resources management to reduce poverty and hunger is the most significant water challenge of our time, particularly since ecosystem degradation must be avoided. It will be necessary to identify a range of options from pure rain fed to irrigated agriculture and combinations of land use, water management and nutrient supply that promise multiple benefits: increased yields, productivity, ecosystem sustainability and livelihood improvement. Adding a little blue water to smallholder rain fed systems aids poverty reduction and production gains. Similarly, nutrient-rich human excreta should be used in production systems. Boosting knowledge about these opportunities is essential and advocacy is required to disseminate knowledge.

Consumptive water use in the production of animal products exemplifies where conventional knowledge needs to be revisited and additional insights added. Today, there is no common methodology for calculating livestock water productivity. Livestock that (partly) feed on crop residues and by-products benefit from water that is already accounted for in grain production. On the other hand, it seems as if a larger fraction of livestock will feed on grain systems i.e. food is used for feed. With increasing economic development and purchasing power, it is urgent to advance our understanding of water implications of future production systems and preferences in diet.

What about the increasing pressure on land and water resources for energy crop cultivation? Bio-fuel production will be needed which does not compromise food security and environmental sustainability. For farmers, shifting crops to bio-energy production may offer advantages. What kind of institutional arrangements are relevant in this new context to deal with new types of risk and opportunity? Poverty reduction and ecosystem protection cannot be undertaken successfully without managing risks and opportunities.

Better information systems, forecasting models and communication is needed to mitigate the adverse effects of extreme natural events. The number one priority is to avoid looming epidemics of water-related diseases in the wake of floods, typhoons and similar disasters. In emergency response efforts, however, sanitation often lags behind medical care, food and water supply, but it is just as important in protecting public health.

A crosscutting concern about a more strategic role for scientific knowledge is the plea for better data, information and communication systems. This includes data input in the analyses and the communication of results, between scientists and between scientific communities, decision makers and relevant interest groups. New knowledge must also be promoted. A plethora of questions beg for answers: the consequences of climate change, co-management for food, ecosystems and energy security and resilience, changes in consumer preferences and implications of increases in purchasing power.

So, from a scientific point of view, what can be done to deal with water-related phenomena in the landscape, live with change, and establish a reasonable amount of control in our river basins? For one, governance systems must be promulgated which are flexible and enable compatibility between different water-related needs in a river basin. Second, the scientific, expert and policy making communities must accept that their "reality" is only a partial one; they must think – or collaborate – along integrated, holistic lines. Third, as our work transcends generations, policy and other decision makers must be encouraged to think along intergenerational lines, since the planning is complicated due to long time frames (for lake recovery, groundwater rehabilitation, etc.); the degree of responsibility to our grandchildren might be a key driving force! Finally, education and communication must be emphasised, as it will link best knowledge to policy making.

Business and Industry Conclusions

Of the many sectors represented at the World Water Week in Stockholm, business and industry are critically important. The sector combines for some 20% of global water use on an annual basis, and livelihood improvement in many developing countries is tied to business and industry growth (which also increases water demand). Business and industry activities also, on the downside, if not properly operated have the ability to harm the natural resource base through pollution and over-consumption. On the other hand, business and industry are often at the forefront of technological innovation and market-based incentives that improve productivity and also protect the environment.

Thus, the challenges for business and industry in dealing with water problems are increasingly discussed in Stockholm. This year, issues of growing significance that offer enormous opportunities but also risks for businesses, particularly in relation to physical water scarcity as well as flood situations, were addressed. The prospect of water shortages, scarcities and stresses will increase in pace with a growing population, increasing urbanisation, increasing water demand coupled to social and economic development, climate change, etc.

Without water, businesses fail; where water is, investment occurs. And when industry invests – as many multinational corporations are doing increasingly in developing countries – it looks to secure water for its operations. Sometimes, securing a safe water supply for facilities also means securing it for those living around them. And sometimes securing a healthy operating environment means securing the health of the surrounding community through adequate sanitation. But industry can also be a powerful competitor for available water resources and a major source of pollution. Conflicts and competition can thus arise: with agriculture, the traditionally dominant water user in most developing countries; with fast-growing cities thirsty for water; and with activists who paint a broad picture that industry is always to blame – fairly or not – for water-related problems.

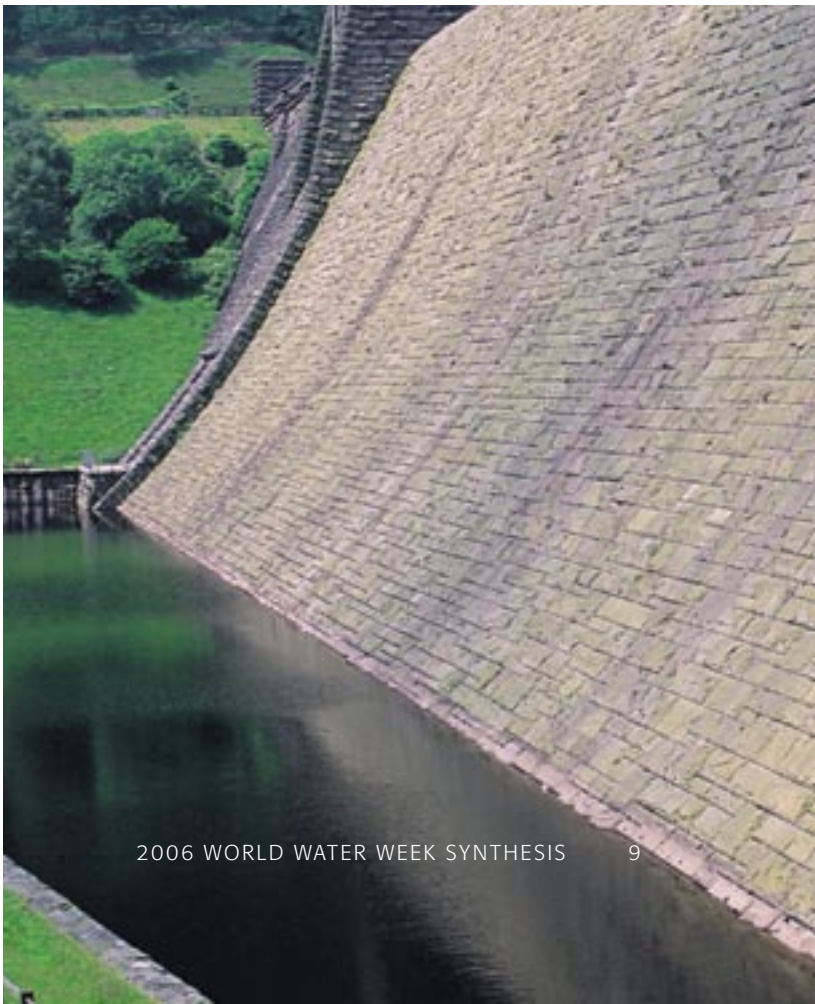
In Stockholm, it was shown that business and industry can contribute with knowledge and experience when problems related to water scarcity or flooding are addressed locally or regionally. Contribution can be direct business involvement but also in joint ventures with local authorities with the aim to find win-win solutions. New opportunities will develop for the building of infrastructure, developing and using new technologies, and developing and implementing new types of planning for urban and rural areas. The challenge of increasing efficiency in water use to minimise impacts on the local population and to ensure that they have enough water for their needs is obvious.

Many seminars and side events emphasised that multi-stakeholder partnerships should be developed and include local authorities, non governmental organisations and businesses to develop a trustful cooperation and to speed up development by making use of the knowledge and experiences of the company.

Water can drive poverty reduction and national development, and here business investment can be crucial. But to create the environment where investment in water resources management and water supply and sanitation is encouraged, institutional capacities, training needs, markets and financing mechanisms, time scales of mandate periods, and return on investments and beneficiaries need to be considered. Benchmarking and learning from other sectors is helpful in convincing policymakers that investing in water is a sound economic strategy.

One way to build investor confidence, particularly in developing countries, is to cut down on corruption. A welcome initiative was the launch of the anti-corruption Water Integrity Network. Corruption, from petty to grand, drains the water sector by siphoning off existing financial resources and

Photo: SIWI



discouraging future investments in water resources management and water supply and sanitation delivery. Ultimately, the poor and their pursuit of socio-economic empowerment suffer where corruption exists. By lending their expertise in battling corruption – through accountability, transparency and other such efforts – businesses can be leading contributors to the anti-corruption efforts in the water sector.

A high-level panel at the Founders Seminar concluded, among others, that a company's policies and actions should go beyond the basic limits of responsibility and in fact seek opportunities in supporting community water supply and sanitation. With such a strategy, trustful relations can be built up together with the local population and unnecessary conflicts regarding water resources and pollution avoided.

Economic tools to steer the use of water are still underdeveloped and incompletely used, as one World Water Week workshop concluded. One problem is that their implementation is institutionally and politically demanding. Still, approaches such as micro-financing, subsidies, water markets, quantitative quotas or rights for using water can be effective in the right environment, but only when social considerations are taken into account. South Africa's water law, which provides subsidised water to the poorest of the poor, is one example. It was pointed out that there is a difference, of course, between economic instruments for modern economic sectors and those for traditional water-related sectors such as subsistence farming.

Food trade and its influence on the water situation was also addressed. One of the conclusions was that weak and non-diversified economies in the South do not have the financial and social capacity to cope if, for example, exporting countries (usually Northern) begin to pass on the cost of the environmental degradation of their food-production for export. Nonetheless, in order to be able to feed the world's growing population and at the same time reduce water consumption, a rapid development of both general technology and biotechnology is needed. Here business and industry have a great challenge and opportunity to play a decisive role. There are also great opportunities to come for companies in developing as well as in developed countries in the growing international trade with food.

A shining example of how business can contribute locally was Sydney Water, from Australia, the 2006 Stockholm Industry Water Award winner. Through its "Every Drop Counts Business Program," Sidney Water succeeded in demonstrating the business case for water conservation in diverse sectors of activity. It developed practical methodologies, fact sheets, case studies, best practises and benchmarking data that support programme participants but are easily replicated in other water scarce regions.

In dealing with climate and water-related risks, business and industry were seen as actors who are crucial to developing strategies which reduce the risks for loss of lives and economic values. Business and industry with experience from coping with risks of different kinds have good opportunities for transferring this skill and sharing their experiences with local and regional politicians, authorities and organisations.

The 2006 World Water Week demonstrated that business and industry, with its knowledge, skill and experience, can contribute in solving problems caused by water scarcity as well as flooding. Companies should take the initiative or be invited to partnerships with local authorities, NGOs and other stakeholders and share their knowledge and experience with them in order to foster a positive cooperation. The water industry can take initiatives to improve the efficient use of water in water scarce regions, as demonstrated by Sydney Water.

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Photo: SIWI

NGO Conclusions

By Mr. Felix Dodds, Executive Director of the Stakeholder Forum for a Sustainable Future

The World Water Week in Stockholm is a wonderful opportunity for all stakeholders, governments and UN agencies to discuss what is happening, what should be happening and some of the policy options or partnerships that could make a difference in addressing why we are not achieving the targets and agreements from Rio or Johannesburg.

Only three weeks after Stockholm, President Mbeki of South Africa and the Current Chair of the Group of 77 and China exploded the myth that the global partnership between developed and developing countries is progressing in the right direction. In a very hard hitting speech to the UN General Assembly, he said:

"Precisely because of the absence of a global partnership for development, the Doha Development Round has almost collapsed. Indeed, because the rich invoked, without shouting it, the slogan of an over-confident European political party of the 1960's, and directed this uncaring declaration to the poor of today – "I'm alright Jack!" – we have not implemented the Monterrey Consensus on Financing for Development, thus making it difficult for the majority of the developing countries, especially those in Africa, to achieve the Millennium Development Goals, and have reduced the Johannesburg Plan of Implementation to an insignificant and perhaps forgotten piece of paper."

So it is with that landscape that I write this non-governmental (NGO) perspective on Stockholm.

What has started to emerge over the past five years is a new nexus of environment and security. The news hardly passes a week without an issue of energy security being reported. As we know, water security is already an issue, although right now less of a visual one. Sharing benefits in transboundary rivers is one of the flash points, although not the only one, in the water and security discourse. At present the discussion sees limited prospects for addressing the needs and concerns of all who inhabit a river basin. Usually the upriver communities or governments are reluctant to discuss better cooperation – an example would be the Mekong Commission. NGOs have been advocating transboundary stakeholder dialogue as a mechanism to reduce tensions and to work creatively at finding ways to share benefits. The other issue raised during the week by the World Business Council on Sustainable Development was that of the possibility of trading in virtual water within twenty years, as we are trading in carbon at the moment. Policy people should read this proposal and start a dialogue with stakeholders now.

The increased interest around the world in biofuels as a mechanism to address energy security is one where there needs some serious joined-up thinking. The increase in the use of water for producing fuel could have a dramatic impact on water availability for people. As there is an increase in the competition for water, this will add yet another driver to basin closure. NGOs want a proper global dialogue on this.

Photo: SIWI

Underlining all of the discussion with water must be gender mainstreaming in all policies, and the development in all countries of gender-sensitive budgeting. After all, at conferences and summits over the last twenty-five years it has been recognised that those affected most by water scarcity are women and children. Yet have the resources gone into this? One clear way to address this would be a massive focus on rainwater harvesting for schools, for rural communities and urban ones. The possibility of building such schemes run and supported by the communities themselves perhaps don't bring funds in to water companies, but they can make a significant role in providing water and in perhaps reducing the flow of people from rural to urban areas.

One of the interesting developments over the last couple of years has been the move made by governments towards the concepts of sustainable cities. China is about to embark on its first in Dontang – the financial package was just launched for funders in London. The move to address some of the critical issues of closing loops in energy and wastewater is now possible to scale up. Utilising wastewater for providing energy has a positive impact on climate change, and on the liveability of our oceans. For the first time at Stockholm there was an attempt to start to join together the whole water cycle, from hilltops to oceans. The water community tends to be a divided community between freshwater and seawater.

Companies, particularly in developing countries, need to be held accountable for their corporate social responsibility (CSR). NGOs have for a number of years now called for a Convention on CSR. The work being undertaken by the Water Integrity Network is a good voluntary initiative, but it needs to be underpinned by international law.

In conclusion, there were some positive sign posts that came out of this year's Stockholm meeting. In addition to the above, another positive sign was the anniversary of the Global Water Partnership and the review of what future role it can take. Also, there was an informal discussion on utilising Stockholm next year as the place to meet before 2008 meeting of the UN Commission on Sustainable Development (CSD-2008) to review our preparations. Related to this is the launch of a Global Public Policy Network for Water and Sanitation to prepare for CSD 2008 and CSD 2009 and input to the thematic issues of energy and agriculture. The launch of the anti-corruption Water Integrity Network was important, as was the discussion of water security through river basin multistakeholder approaches to managing water.

Still, there is not yet the political will to address the agenda of Rio or Johannesburg in a significant way, or water and sanitation in a specific way, either through adequate resources or prioritisation. As we met in Stockholm, the Venice Film Festival was underway where they were premiering Bobby, a film about Senator Robert F. Kennedy. The film received a seven-minute standing ovation, perhaps in part recognising the lack of significant leaders we have at the moment. In one of his last speeches that he made, Senator Kennedy gave that generation a warning when he said:

"A revolution is coming – a revolution which will be peaceful if we are wise enough; compassionate if we care enough; successful if we are fortunate enough–but a revolution which is coming whether we will it or not. We can affect its character; we cannot alter its inevitability."

Let us be wise, let us care, but most of all, let us now articulate the challenges and mobilise the resources and people before water and security become synonymous.

Tools for Benefit Sharing in Transboundary Settings

Convenor: Stockholm International Water Institute
Co-convenors: Bonn International Center for Conversion (BICC) and The World Bank

The workshop considered the benefit sharing concept in a transboundary and integrated river basin management and development (IWRM&D) context as a tool for promoting cooperation and development. The benefit sharing concept was validated by the seminar but it was concluded that it needs to be further explored and be more concrete to become an effective tool to support the delivery of real benefits on the ground. Water equity and water security are important concepts that will differ in each river basin.

Cooperative IWRM&D requires a political will which will depend on the perception of real benefits from cooperation. Benefits from IWRM&D should be viewed within a broader development context as exemplified by the regional economic frameworks in Southern Africa Development Community (SADC) and the European Union (EU). In both cases the economic communities provide a platform for benefit sharing from multi-sector water use that goes beyond the water resource itself into areas such as energy, agriculture and the environment. Benefit sharing goes beyond volumetric allocations of water.

In short, the workshop concluded:

- Expanded analytical work is needed in areas related to good governance, common values and multi-sector policy harmonisation. Deepened analysis in the use of externalities and optimisation models will provide good tools for demonstrating benefits from cooperation.
- Institutional frameworks are important. Appropriate forums for multi-track dialogue, protection of rights, benefits sharing and settlements of disputes need continued analysis in parallel with greater efforts on communication, awareness and education.
- In the practical area of realising real benefits, tools such as cooperative investment plans, joint feasibility studies of projects, financing development and implementation needs greater attention.

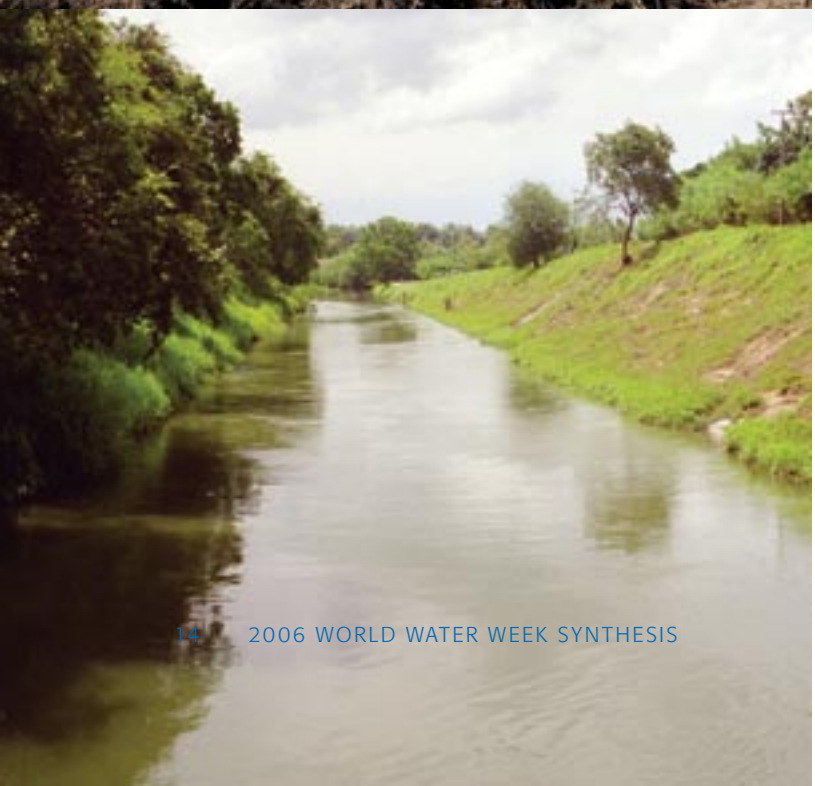
Photo: Mats Lannerstad

WORKSHOP 2

Water and Trade: Matching International Water Availability and Local Needs

Convenor: Stockholm International Water Institute
Co-convenors: Swiss Federal Institute of Aquatic Science and Technology, The University of Tokyo and World Water Council

The role played by international trade in water intensive food commodities was confirmed as an essential and extremely effective, if also an under-recognised, strategic solution to regional water scarcity hotspots. The presentations – and especially the discussion – focused on the problems associated with existing patterns of food trade and of trade reform initiatives.



Photos: Michael Moore, SIWI, EU Audiovisual Library

In short, the workshop concluded:

- Trade reform is just one of a number of transitions which the global system is experiencing. Others include the changing terms of trade (substantially a South vs. North issue in terms of power asymmetry); the "super-market" effect (S vs. N as well); changes in the sourcing of energy; and socio-economic development (a Southern problem). The trade reform transition is extremely slow and incremental and power related. The South versus North power asymmetry is very significant.
- Individual societies, economies and environments are seriously impacted by international trade reform. Weak and non-diversified economies in the South do not have the financial and social capacity to compensate their losers.
- The transition of changing how energy is sourced will impact the cropping patterns and food crop trade. We are entering the second water/crop/energy revolution. The first – 1930s to 1950s in the North temperate regions – released water and rain fed land for food production as draught animals were replaced by hydrocarbon driven machines. The second, from 2000–2020, will REVERSE the first revolution. Rain fed tracts in BOTH the temperate and tropical regions will shift to producing crops for bio-energy production from producing food for human consumption. Food commodity prices will probably rise. Such price changes will have good and bad impacts on non-diverse and weak economies.
- There are environmental impacts of exporting food on the exporting economies – for example those of the United States and the European Union. The food importing countries have in recent decades benefited from the alleviation of their strategic water shortages with highly subsidised imported food. The environmental impacts of the food production – that is soil and water degradation as a consequence of the heavy use of fertilisers and pesticides – have mainly been borne by temperate high-income economies. If these high-income food-exporting countries give greater consideration to their environments and the environmental services of water, they might first reduce crop production and productivity to protect the environment. Secondly, they might decide to internalise the environmental costs, which would result in significant increases in the price of commodities such as grain, which have been falling for 50 years.

Photos: Michael Moore, SIWI, Aquapol, SIWI

Economic Instruments

Convenor: Stockholm International Water Institute (SIWI)
Co-convenors: Third World Centre for Water Management, International Water Resources Association (IWRA) and the Water and Sanitation Programme-South Asia (WSP-SA)

Encouragement of service providers and water users to develop water supply and manage consumption in an effective way is the main motivation of applying economic instruments (charges, subsidies, taxes, quotas, ownership rights, water use rights and trading options). Subsidies are the most widely used economic instrument in the water sector. Whereas subsidies have brought various social benefits, side effects such as inefficient water use, depletion of the resource and the environment have become major concerns. The lowering of subsidies and adoption of other types of economic instruments may clarify responsibilities, increase water use efficiency and allow increased cost recovery for the operation and maintenance of household water supply, irrigation and other related infrastructure.

The bottlenecks are typically related to institutional and political issues such as regulation, monitoring, social and political acceptance, community involvement, etc. Potential efficiency gains for applying economic instruments are conditional on correct pricing and robust institutional control and concern of negative redistributional effects for weak segments in society.

Agriculture is the world's largest water user. The water use efficiency in irrigated agriculture remains low globally; therefore, the development of economic and financial incentives to increase on-farm water use efficiency is crucial. Unfortunately, the implementation of economic instruments is more challenging in agriculture than in water supply or in industry. Direct water pricing has been institutionally, politically and technically cumbersome. Approaches such as water markets, quantitative quotas or rights for using water tend to be more acceptable and efficient in many cases.

An important but largely neglected distinction in the economic instruments discourse is between the modern economic sector and the traditional societies which include subsistence farmers, fishermen/women, and marginalised people (landless and urban slum dwellers). Introducing financial and economic instruments to the basic functions of traditional livelihoods which dominantly consider water as a common resource is a delicate process and should be done with the simultaneous introduction of financial systems such as micro-financing or insurance systems.

The emergence of new types of economic instruments is closely linked to the development of a number of academic tools and approaches for analysis of effects of economic policies, such as multi-stakeholder cost-benefit analysis, hydro-economic models and more.

The field of economic instruments is in rapid evolution and it is expected to undergo plenty of progress with trials, errors and successes in coming years.

In short, the workshop concluded:

- Encouragement to increase efficiency is the core of applying economic instruments in water management.
- Social challenges deserve special concern, particularly in the case of traditional and poverty-driven livelihoods.
- Implementation of economic instruments is institutionally and politically highly demanding—in many cases excessively.

WORKSHOP 4

Benefits and Responsibilities of Decentralised and Centralised Approaches for Management of Water and Wastewater

Convenor: Stockholm International Water Institute
Co-convenors: International Water Association and Water and Sanitation Programme

There are difficulties in defining decentralisation. Devolving responsibility from national to local government may not result in greater transparency, community involvement or ownership. Examples presented at the workshop included devolved powers on both hydrological and administrative boundaries, with varying degrees of community participation.

Finance and affordability can be a driver for, and a constraint on, decentralisation. In developing countries, as demonstrated by the example of Orangi Town in Karachi, the per capita cost of a conventional approach to the provision of water supply networks and sewerage was too high for the economically poor community. In the absence of city leadership and a focused subsidy, the solution was for the people to carry out construction and maintenance themselves. In examples presented from rural areas, the cost of wells and their maintenance was affordable by the community, and decentralisation gave the community empowerment and ownership to achieve sustainable water services. However in urban areas, even in the Orangi case, it is necessary to have less decentralised management of water resources. So this is a dilemma, how to achieve the benefits of decentralised delivery and management whilst achieving Integrated Water Resources Management.

One critical point in a South African example was the lack of suitably trained staff to assume management and technical responsibilities. The need for competent staff is of absolute importance for successful local management and realisation of planned solutions. The cost of capacity building is often underestimated.

Overall, the discussion focused on four different perspectives on decentralisation. The optimists see success where centralisation has failed, with involvement of local stakeholders resulting in affordable and sustainable decentralised systems. The more cautious see problems lack of integration, high cost of stakeholder involvement, and the need for operational units of a viable size for competent management and economies of scale.

In short, the workshop concluded:

- There is a trend towards decentralisation, with examples of good progress worldwide.
- A major obstacle to success in decentralisation is when financial aspects have not been included.
- Successful decentralisation requires transparency and accountability, providing benefits of ownership, empowerment, integration and affordability.

Photo: Mats Lannerstad

Photo: WSSCC

Decision Support Systems and IWRM

Convenor: Stockholm International Water Institute
Co-convenors: Global Water Partnership and Stakeholder Forum for a Sustainable Future

Development and implementation of Integrated Water Resources Management (IWRM) in practice is an effective way to achieve access to water, abate pollution and safeguard good ecological balance. Underling IWRM is the need for good practical tools and Decision Support Systems (DSS). Many DSS have been developed around the world, and the workshop looked at some examples.

In the areas of governance and the role of policy, regulations and the role of local institutions, the workshop concluded that enforcement of legislation at all governmental levels is crucial in using DSS to support the implementation of IWRM. But there must also be political will to ensure effective measures and adequate financial support.

For stakeholders and societal negotiation processes, it was concluded that water issues can not only be managed effectively by water professionals alone. It is critical that DSS be based on stakeholder involvement supported by capacity building, principles of information transparency, and the collection of relevant and measurable data on a harmonised basis if informed decisions are to be made. DSS must be supported by data and information from both the hydrological and the socio-economic aspects.

In short, the workshop concluded:

- To make it work in practice, DSS should be made user friendly for national, regional and local policymakers as well as for all stakeholders. Partnership between stakeholders and experts (ecological, economic, etc.) is essential.
- DSS should result in an action plan specifying the goals to be reached as well as terms and schedules of implementing. Understandable indicators should be in place to follow the implementation.
- During the elaboration it is of utmost importance to get stakeholder and public participation at all levels – local, subnational, national and regional.

WORKSHOP 6

Changing Diets and Their Implications for Water, Land and Livelihoods

Photo: SIWI

Convenor: Stockholm International Water Institute (SIWI)
Co-convenors: International Water Management Institute (IWMI), International Livestock Research Institute (ILRI) and Stockholm Environment Institute (SEI)

Food production is the major human appropriation of freshwater. Population size, calorie level per person, diet composition and choice of production system decide the magnitude.

The crucial challenge is to feed today's 850 million undernourished and the expected population increase of 3 billion. Estimates of consumptive water use required to produce animal products are generally much higher than for vegetables and grains. The dietary trend towards consuming more animal products (meat, fish, milk, eggs) in many countries will thus increase the amount of water resources required to produce food for each person. Large crop/food losses exist along the chain from production to actual food intake, and food supply is accordingly not the same as nutritional requirements. The global upward trend of obesity shows that agricultural production also has to satisfy consumption patterns with a higher intake than necessary.

Even though water use for animal calorie production is a key for understanding water resource use in agriculture, no common methodology exists for calculating livestock water productivity. Livestock in Sub-Saharan Africa (SSA) feed partly on crop residues and crop by-products, and thus benefit of a water use often already accounted for in grain production. On the other hand, mounting pig and poultry production is mainly produced in large-scale feed grain systems requiring large amounts of water.

In short, the workshop concluded:

- Untapped potential in livestock water productivity can give poor farmers in SSA multiple benefits, as food, cash income, manure and animal power, and play a role in feeding the growing urban areas, while easing stress on water resources.
- Global trade effectively facilitates intensive meat and aquaculture production, but impacts on ecosystems, livelihoods and water resources in basins and countries exporting feed and other inputs are often unseen and unaccounted.
- Participants agreed that it is urgent to advance our understanding of water resource implications of future diet requirements to be able to give guidance for investments for water use in agriculture.

Sharing the Benefits of Ecosystem Services and the Costs of Ecosystem Degradation

Convenor: Stockholm International Water Institute (SIWI)
Co-convenors: CGIAR Challenge Program on Water and Food (CPWF) and Ramsar Convention on Wetlands

Human populations depend on a wide range of ecosystem services (supporting, provisioning, regulating and cultural, following the classification of the Millennium Assessment) for their well-being. However, human activities affect the global life support system in ways that often compromise the continued provision of these services. Furthermore, it is increasingly clear that society's poor often bear the highest costs of ecosystem degradation. There is an urgent need thus to identify important services provided by different ecosystems and to provide valuation for these.

Methods for economic valuation of ecosystem services already exist, and several workshop presentations emphasised the need to start applying them, even if information is incomplete. Three presentations offered mutually compatible stepwise practical processes that participants considered widely applicable. To map and evaluate ecosystem services on a broader scale, it is also crucial to focus on the development of simple and rapid research techniques. The importance of thinking of valuation in a broad sense, as revealing preferences, rather than strictly in economic terms was highlighted, but how to include other aspects of value is still a problematic issue.

Compensation to upstream inhabitants for land management that promotes maintenance and enhancement of downstream ecosystem services is one way forward. It is clear, however, that focus on long-term and short-term incentives or compensation is needed. Also, compensation should be used more proactively and should not only be used for restoration of degraded ecosystems but also for conservation of existing ones. The nature of compensation can be quite varied, for example, through payments, soft credits, certification, etc. Furthermore, the potential for using compensation for ecosystem services as a platform for negotiating a range of human and environmental rights (e.g. to water) is considerable. The issue of distribution of compensation benefits and the issue of recognising and evaluating otherwise unrecognised services is highly challenging.

Finally, crucial to mapping and evaluation, as well as to developing and strengthening processes for negotiating and sharing benefits of ecosystem services is stakeholder participation, and iterative approaches are often necessary for successful outcomes.

In short, the workshop concluded:

- Valuation of ecosystem services should be employed more frequently in a proactive way as well as being used in a problem solving capacity, and methodologies are available for a wide range of ecosystem services.
- Valuation of ecosystem services can help resolve conflicts between e.g. carbon sequestration and water use.
- Part of the valuation process must include communication of results (in a participatory way) to stakeholders with appropriate feedback.

Photos: Mats Lannerstad

Large Lakes as Drivers for Regional Development

Convenor: Stockholm International Water Institute (SIWI)
Co-Convenors: East African Community (EAC), International Lake Environment Committee (ILEC) and The International Joint Commission (IJC)

Large lakes, as illustrated by the very geography of economic activities typical for lake regions, are strategic to regional development. They are integral to a variety of dynamic processes where water resource and water-related risk factors interact with other components in societal development. Lakes, for instance, constrain the expansion of physical infrastructure while serving urban planning with valuable coastal zones. Globally, pressure on lake resources and surrounding lands can be seen. This affects the water quality of the lakes and thereby also the socio-economic conditions and environmental status of the region. Visionary planning is needed to integrate experience and knowledge into collaborative and sustainable lake management.

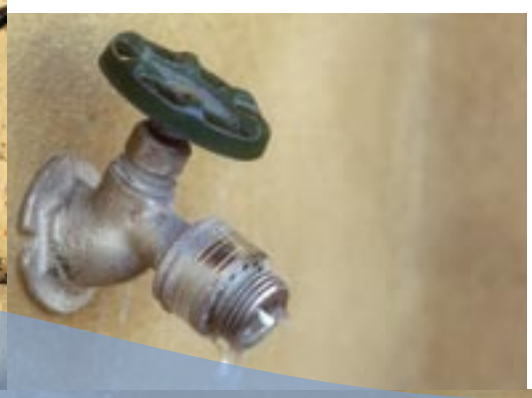
In Stockholm, the workshop addressed a wide array of case studies and gave participants a sense of the urgency for implementing Integrated Lake Basin Management (ILBM). The cases addressed sustainable resource and risk management of lake basins; integrated, multi-objective water regulation systems; and the particular case of transboundary lakes, such as Lake Victoria.

Lake Victoria has experienced intensified population pressures – swelling from 9 million to 47 million inhabitants over the last 40 years – and the effects on the lake are apparent. Through a partnership between the Union of Baltic Cities and the Lake Victoria Regional Local Authorities Co-operation, there has been a flow of innovative solutions going both ways.

In short, the workshop concluded:

- Integrated Lake Basin Management (ILBM) is more than integrated water resources management; it requires an ecosystem/landscape approach and it integrates the environmental socio-economic and cultural issues of the entire Basin.
- Lake partnerships that include local governments are essential pillars of ILBM.
- Responsible lake governance and stakeholder participation is an essential requirement for lake management.

Photo: Stephanie Blenckner, SIWI



Photos: SIWI, Michael Moore, SIWI

Safe Water Storage and Regulation During Floods and Droughts

Convenor: Stockholm International Water Institute
Co-Convenors: International Association of Hydraulic Engineering and Research, International Association of Hydrological Sciences, International Hydropower Association, International Water Resources Association and Third World Centre for Water Management

The workshop focused on the importance of infrastructure to ensure water security; the need for good planning to decide on appropriate structural and non-structural options; and the presence and implementation of river basin management plans in the context of multiple water uses. Furthermore, the need for transparent and balanced regulations as well as the appropriateness of storage infrastructure was highlighted. A crosscutting theme focused on the significance of good communication processes for data retrieval as well as for the promotion of understanding across disciplines and between sectoral interests.

Rational water management was identified as key issue for improvement. It was noted that a strong governmental interest and will is needed to overcome what often becomes highly ideological discussion caused by poor policy decisions, and also to transparently guide the political process in a most sensitive context for development. Multi-dimensional and harmonised cooperation for efficient management of water resources was identified as one essential solution to significantly reduce the impacts of flood and droughts.

Information was considered crucial for strategic planning and improved management. Often, reliable data and precise information on assessment of resources and hazards are missing. Even when they exist, access to that information is often restricted because of their sensitive and strategic context. Furthermore, the different perspectives of data analyses, the multitude of its interpretations and underlying parameters hinder effective planning. The lack of real time information and extensive dissemination data were identified as further bottlenecks for proper storage and regulation.

The need for structured communication exchange of experience was highlighted. Stakeholder dialogues are one option to improve communication within a country as well as between countries for specific water bodies. Information technology-based systems could be helpful processed carefully to ensure generation of knowledge. Knowledge and experience transfer are likely to be more effective at regional or national levels since countries in a region often have similar concerns and conditions. Such meetings may be accompanied by a balanced exchange between developing and developed regions. It was highlighted that sharing should not mean copying. Based on this conclusion, it was agreed that sharing experiences will create high benefits and prevent reinvention of the wheel.

In short, the workshop concluded:

- Assessment of resources and hazards are necessary to provide reliable data and information as a basis for strategic planning.
- Multi-dimensional and harmonised cooperation for efficient management of water resources is required to reduce impacts of floods and droughts.
- A high need of effective experience sharing exists to carefully process information, providing links to stakeholders in an appropriate manner.

WORKSHOP 10

Extreme Events and Sustainable Water and Sanitation Services

Convenor: Stockholm International Water Institute (SIWI)
Co-convenors: International Water Association (IWA), United Nations Children's Fund (UNICEF) and Water Environment Federation (WEF)

The aim of the workshop was to identify what measures are required, and can be implemented, to ensure that the adverse effects of extreme events are minimised or mitigated. What kind of disaster plans are feasible and can be put in place? How can satisfactory services be resumed, especially during search, rescue and rehabilitation work? With numerous hazards that have occurred recently, cases illustrated the failures that should be avoided in future and provided successful examples that should be followed.

The workshop benefited from papers and experience drawn from different geographic locations and from a diverse range of extreme events (cyclones, floods, Tsunami, sea surge). The main highlights from the workshop were summarised as follows.

Photos: Mats Kullberg, Mats Lannerstad

Regarding the frequency and magnitude of extreme events, the common perception has tended towards the notion of an increase in the frequency and amplitude of extreme events; yet the evidence to support this is mixed. Also, frequency and magnitude is linked to human intervention or presence, through urbanisation processes or canalization of rivers. Finally, poor, vulnerable communities living on marginal land are disproportionately impacted by extreme events.

In addressing risk management strategies, workshop participants noted that previous approaches linked risk management to levels of economic and financial damage. More recently, a shift from one dimensional to multi-dimensional approaches is occuring. Integrated risk management now considers strategies that emphasise risk assessment, increasing resilience, reduction of potential losses and raising preparedness. Also, risk management strategies no longer focus exclusively on structural issues, but consider non-structural approaches such as resettling vulnerable populations, or buying land to establish environmental "buffer" zones.

For extreme event recovery and rehabilitation, experience from the case studies pointed towards some consensus issues. First, emergency compacts, protocols and plans were found to be inadequate without opportunity to reflect and revise on the basis of experience gained during extreme events. Also, strong management leadership and committed personnel were found to be key variables in recovery of critical utility infrastructure. Expertise from outside the affected location was more readily accepted when there was a shared background, trust or common understanding of practice from volunteers to those professional working in the affected location. Finally, during emergency responses, the need for effective planning, coordination of stakeholders and cultural sensitivity in basic service provision (e.g., female hygiene issues) was highlighted.

In short, the workshop concluded:

- Forecasting is essential – it helps to raise preparedness and mitigate impacts. The challenge is to translate forecasts into feasible public awareness campaigns.
- Multi-dimensional concepts/approaches are also needed and should consider structural and non-structural issues, entire basins, and the whole cycle of risk management.
- Utilities require improved training, capacity development and best practice awareness raising on emergency preparedness.

High-Level Panel on Benefit Sharing on Transboundary Waters

Moderator: *Mr. Nik Gowing,* BBC World
Panel Members:

- *Dr. Marwa Daoudy,* Graduate Institute for International Studies, Université de Genève, Switzerland
- *Mr. Vahid Alavian,* Senior Water Advisor, Africa Region, The World Bank
- *H.E. LB Hendricks,* Minister of Water Affairs and Forestry, Department of Water Affairs and Forestry, South Africa
- *Dr. Andras. Szollosi-Nagy,* Deputy Assistant Director General, Director of the Division of Water Sciences, UNESCO
- *Mr. Syed Mohammad Zobaer,* Secretary, Ministry of Water Resources, Bangladesh

The world's 263 international river basins cover almost half of the surface of the earth. Some 145 countries are classified as riparians to these transboundary basins, and about 45% of the world's population live in internationally shared river basins. Over 50% of the available surface water is located in transboundary basins. Consequently, the arrangements to deal with transboundary basins are a key development imperative. The purpose of the high-level panel was to shed light on whether benefit sharing as a concept is useful as a tool for increasing cooperation and development in shared river basins. In particular the practical aspects of benefit sharing were analysed, drawing predominantly on cases from Southern Africa, the Jordan River and the Ganges-Brahamaputra River.

Proponents of the approach argued that a package of broader benefits (such as increased environmental protection, deepened regional integration, increased trade, etc.) could be reaped from the use of the water resources in the basin and that those can contribute to peace building and stability – which in turn are necessary factors for sustainable development and poverty reduction in a region. Others argued that the concept of benefit sharing is too "soft" at this stage. First, they questioned why it would be easier to share the benefits stemming from a complex framework rather than sharing the water resource itself. Second, why would states agree on sharing benefits that are not fully quantified? Usually, states jealously guard their different identified "rights," be it to water or something else.

In the debate it was highlighted that in many basins security issues dominate the discussions and leave little room for discussions on benefit sharing. However, in river basins where the states enjoy some degree of good relations, benefits are more easily traded, and in this case reference was made to the Lesotho Highlands Project in Southern Africa.

In short, the high-level panel concluded:

- Benefit sharing approaches shall not be considered a panacea in river basin. Each basin is unique.
- In river basins dominated by security concerns the prospects for benefit sharing is limited.
- There is need for more systematic on-the-ground understanding of how benefit sharing can be promoted.

Photo: SIWI

Photo: SIWI

Coping with Water Scarcity

Convenor: UN-Water

With the continuous increase in the world's population, new dietary habits and economic development, the pressure on water resources is steadily growing. Water scarcity affects all social and economic sectors and threatens the natural resources base. Addressing water scarcity calls for an approach ensuring the coordinated development and management of water and related resources in order to maximise economic and social welfare in an equitable manner, without compromising the sustainability of vital ecosystems. This includes increasing the productivity of water use in all sectors of the economy, reversing the trend of rivers and aquifer degradation, ensuring equitable access to water, in particular to the most vulnerable people, and developing conflict resolution mechanisms.

UN-Water was created in 2003 with the mandate to increase coherence, consistency and effectiveness of the actions of the 24 UN agencies operating in the field of water. The UN-Decade "Water for Life" 2005–2015, the Millennium Development Goals and the Johannesburg Plan of Implementation provide the overall framework for UN-Water action. Since its creation, UN-Water has attracted increasing attention among donors and partners.

UN–Water has identified Coping with Water Scarcity as part of the strategic issues and priorities requiring joint action and as the theme of the 2007 World Water Day (22 March). The seminar was an opportunity to introduce UN-Water's thematic initiative on water scarcity, to discuss the strategic role of UN-Water and to investigate ways to enhance its effectiveness and impact. Discussions highlighted the fact that actions are needed at all levels (local, national and transboundary) and the necessity for countries to make effective trade-offs between water management options. Current efforts by UN Agencies to coordinate their support to countries through UN-Water were acknowledged and encouraged. In particular, participants stressed the role of UN-Water as a vehicle for communication on water-related challenges and achievements.

National IWRM Planning Processes – Examples from the Ground

Convenors: Global Water Partnership (GWP) and Stockholm International Water Institute (SIWI)

Traditionally, governments and citizens are used to working in sectoral and hierarchical systems. Integrated Water Resources Management (IWRM) strategy and plan preparation may come as something new since the process encompasses broad stakeholder participation and integration. Moreover, water people traditionally talk to water people, thus limiting the influence sustainable water management can have in a broader development context. For the IWRM plan to be relevant and translated into actions, it needs to be embedded in the national development strategies and make the case of how water can contribute to improve the living conditions of the citizens.

This seminar provided the framework for three countries (Indonesia, Zambia and Kazakhstan) to share their approach, experiences and lessons learned in planning for IWRM. Some common elements were identified during the country presentations: inconsistencies between national and provincial/district regulations; lack of policy harmonisation (agriculture, sanitation, hydropower) weak law enforcement, weak stakeholder participation and sectoral interests.

GWP adds value to the planning process by bringing together actors with different interests and view points – including governments – and providing a platform for discussion that has been proven useful to reach agreements and compromises. GWP assists and aids governments in preparing the IWRM plan, upon government request.

The presentation from Zambia highlighted that the responsibility for the planning process inevitably rests with the Ministry of Finance and National Planning. The IWRM/Water Efficiency (WE) plan gives great significance to the National Development Programme, whose focus is on pro-poor oriented sectors. The planning process has taken into account the development options within the water sector and other scenarios for development and relations between other sectors that may have an impact on the water resources. Likewise, the consequences of water management decisions in other economic sectors such as tourism, industry, agriculture and energy are an integral part of the analyses made during the planning process.

In short, the seminar concluded:

- For the IWRM plan to be relevant and translated into actions, it needs to be embedded in the national development strategies.
- Common elements identified during the country presentations: inconsistencies between national and provincial/district regulations; lack of policy harmonisation (agriculture, sanitation, hydropower) weak law enforcement, weak stakeholder participation and sectoral interests.
- In Zambia the IWRM planning process has already taken into account the development options within the water sector and other scenarios for development and relations between other sectors that may have an impact on the water resources, and also the other way around.

Photo: SIWI

Environmental Conflicts and the Role of Media

Convenors: International Federation of Environmental Journalists (IFEJ) and Swedish Association for Environmental Journalists (MÖF) with support from the Swedish Water House (SWH)

Is the Journalist an objective observer or an agent of change? Some 60 practicing journalists, together with 30 representatives from politics, science, business and civil society, engaged in a lively discussion on the subject in Stockholm. In developed countries, it was said, the former is truer; elsewhere, the latter was not uncommon. Necessity and working conditions are the determinants.

Presentations by journalists from Nigeria, the Philippines, India and Ghana highlighted the different roles that members of the media actually have during environmental conflicts such as forced migration due to dam-building or poisoning of local populations through air and water pollution discharges. Whether working as a free-lance investigative journalist, or being employed by a country's largest television station, the speakers found it often hard to contain their sadness in the face of the human suffering they covered, their disbelief when confronted by bureaucratic backpedaling or their anger in the light of environmental and social injustices. How much or little they involved themselves in the issue they covered was very much a decision based on personal safety and individual journalistic ethics.

Particularly for journalists in developing countries, support for environmental reporting does not come on a silver platter; it can, in fact, be deadly: some 52 journalists have been murdered in the Philippines since 1986 alone.

In short, the seminar concluded:

- Environmental issues are "hard to sell." Public media today seems to care more about beauty contests, sex and terrorism in order to sell more copies. The modern media culture is a problem, for environmental journalism and for journalism in general.
- Time limitation also limits the understanding of complicated connections like the relationship between mining activities of multinational companies and the increase of malaria in Ghana, for example.
- Scientific culture differs a lot from media culture. And since environmental issues are very complex and therefore complicated to communicate, environmental issues have difficulties to reach the public at large. In scientific culture there are very seldom any final and definitive answers, but that is exactly what media wants.

Environmental Flows: Creating Benefits for Ecosystems and People?

An Open Discussion to Explore the Development of a Global Environmental Flows Network of Local and National Practitioners and Experts

Convenors: Stockholm International Water Institute (SIWI), The World Conservation Union (IUCN), International Water Management Institute (IWMI), Delft Hydraulics, DHI Water and Environment, The Nature Conservancy, Centre for Ecology and Hydrology and the Swedish Water House

Environmental flows refer to water provided within a river, wetland or coastal zone to maintain ecosystems and the benefits they provide for people. The aim of the Environmental Flows Network seminar was to share ideas on how a network can address key concepts surrounding environmental flows. Discussion groups first examined the demand for such a network as well as the urgency needed to communicate environmental flows beyond the technical community. The second part of the discussion focused on tangible deliverables that the network could provide, as well as how to disseminate information and who should be involved in the network.

Discussions revealed that there is a demand for a central reference point where knowledge on environmental flows can be shared and accessed. The network can act as such a point where experts, practitioners, policy makers, civil society and other interested parties could find reliable and relevant information on environmental flows. The network can be a support tool to those responsible for watershed management and water allocation. Furthermore, the network can promote the value of ecosystem benefits from environmental flows.

The Environmental Flows Network will evolve with the changing needs and demands of users. It will integrate information on education, case studies, economic valuation, policy and legislation, community participation and technical advice. Members of the network will be able to link with organisations and individuals with similar interests.

In short, the seminar concluded:

- The Environmental Flows Network will start as the central reference point and clearinghouse of information on environmental flows.
- A website will be developed for the network as soon as possible.
- The aim is to have an official launch of the Environmental Flows Network at the International Environmental Flows Conference in Brisbane, September 2007.

The Stockholm Water Prize Laureates Seminar:
Challenges and Opportunities within the Water Sector

Convenor: Stockholm Water Foundation

In the Laureates Seminar, six earlier Stockholm Water Prize Laureates presented their views on the current trends and possibilities for achievements and development. The rate of change in the last 20 years has been enormous and will continue to accelerate. This change is characterised by three manifestations. First, natural habitats and thus biodiversity are disappearing globally at an alarming rate. Second, climate change has set in and is now preventing the rejuvenation of the habitats destroyed by humans and directly causing further rapid habit changes. Third, humans are increasingly relying on technological fixes for all their problems, from climate change to human spiritual, mental and physical health.

The discussion among the participants underlined that solving large-scale water resource problems requires more than just engineering and technological solutions; it requires inter- and trans-disciplinary efforts. With the rapid change already in motion, solutions require concerted action and participatory approaches of engineers, scientists, end-users, investors, journalists and regulators. The problems are very complex and therefore management based on extensive knowledge about ecosystems and ecological balances is required for a sustainable water use. We can learn a lot from ecosystems, which are to a high extent sustainable, flexible and adaptable.

Access to safe water and decent sanitation is a basic human right, but customers must understand that water services are not free. If consumers are not willing to pay, investors remain reluctant. Wastewater systems have been passively constructed and result in terrible wastewater cocktails during flooding. Much stronger demands must be placed on the wastewater we want to handle, and wastewater must be treated to the level needed for its potential further use. Active wastewater construction can turn the tide.

In developing countries, we must listen to local voices and develop local capacity. Participation, partnership and alignment around government-owned plans will show the way to sustainable outcomes. Bottom-up planning via empowered citizens and a women-led process are factors calling for good governance. Governments should ensure water and sanitation for all via country owned and monitored plans and local governments provide accessible and affordable solutions.

In short, the seminar concluded:

- We should learn from the behaviour of ecosystems.
- The solution to the water and sanitation problems is not more technology. We have the knowledge needed.
- Communication should be developed to improve the decision makers' understanding of water and environmental problems.

Challenges in Governance of Water

Convenors: Global Water Partnership (GWP)–Eastern Africa and GWP–Western Africa

Since 2005, GWP-Eastern Africa has worked with government, civil society and donors to identify constraints to water management caused by prevailing governance conditions, and developed a scorecard used in assessing key issues on water management for both eastern and western Africa.

With funding from the EU Water Initiative, GWP-Eastern Africa identified opportunities in Uganda, Tanzania and Kenya to enhance sustainable, economically efficient and equitable access in development and conservation projects attuned to the local context. Perhaps more critically, specific obstacles which negate impacts of local level decision-making were identified.

The seminar concurred that coalitions at international, regional and country levels help mitigate destruction of sensitive catchments and are a precondition to social and economic development in pursuit of the Millennium Development Goals.

Local empowerment often overcomes bureaucratic stumbling blocks and catalyses regulatory reforms. The case study from Sudan's Gash Barka demonstrated how centuries-old customs that discriminate against women can be overcome by providing access to land and entitling individuals for fixed periods of time.

The Nile Basin Initiative's evolution from a simple water quantity monitoring activity to present attempts towards a benefit-sharing framework clearly demonstrated that transboundary cooperation needs long-term teamwork with small, mutually beneficial gains building trust in handling issues where the stakes are higher.

In short, the seminar concluded:

- Democratisation and decentralisation support development more responsive to people's needs on the ground.
- Laws and regulations are often useless in confrontations between different water users that need immediate resolution; mediation and arbitration by respected intermediaries, preferably with some measure of authority, provide better outcomes than litigation.
- Communication is crucial to creating public awareness and political support. Better communication modes and dissemination channels are needed, and water practitioners must partner with (and educate) journalists to enhance society's capacity to cope with adverse climate effects.

Photo: SIWI

Drought, Risk and Management for Agricultural Water Use

Convenor: The Comprehensive Assessment of Water Management in Agriculture (CA) and the CGIAR Challenge Program on Water and Food (CPWF)

Water resource management problems are typically characterised by a level of uncertainty regarding water availability, inflows and demand. This is more important with changing climate and demographics. Inaccurate assessment of these variables could invalidate existing water resource development and management plans. Access to freshwater and the protection against extreme events such as floods and droughts are crucial for sustainable development.

For this purpose, there is a need to build an improved knowledge base, and shared opinions, and increased awareness and involvement of policy makers, civil society and the public in recognising that sustainable development, including poverty reduction and environmental protection, cannot be undertaken successfully without managing these risks in irrigated and rain fed agriculture.

The seminar's broad objective was to discuss different approaches for the analysis of risk and uncertainty in the management of water resources in irrigated and rain fed agriculture. The deliberations focused on: (1) role of risk and uncertainty in water allocation and agricultural water management; (2) development of methodology/models for risk analysis; (3) decision making under risk and uncertainty and dynamic decision making under alternative systems of water entitlements; and (4) strategies for mitigating risk, including drought insurance, and water marketing.

In short, the seminar concluded:

- Risk and uncertainty in agricultural water management are related to both rain fed and irrigated agriculture. While in rain fed agriculture, reductions in rainfall, such as drought, and changes in the timing and frequency of precipitation are important, irrigated agriculture can contribute to risks in the area of food safety and irrigation structures themselves can increase the risk of water availability for other users and uses and can thus magnify droughts and flow variability, particularly at the basin level.
- There are many types of modelling tools that can assist decision makers to address risk and uncertainty in agricultural water management. Hydrological models deal with the supply side, optimisation models with allocation, and crop water requirement and demand forecast models focus on the water demand side. Discussants agree that advances in modelling tools enhance the possibility to manage water-related risks in agriculture, and thus improve risk resilience.
- There are many instruments that can be applied to mitigate risks. They include payments for environmental services, warehouse receipts and weather insurance. However, their successful implementation requires transparency, profitability for all parties involved, and suitable institutions to manage these instruments.

Capturing the Big Picture of Gender in Water Power Relations in Policy and Practise: How to Utilise Existing Knowledge?

Convenors: Gender and Water Alliance (GWA), Stockholm International Water Institute (SIWI) and Swedish International Development Cooperation Agency (Sida)
Co-convenors: United Nations – Department of Economic and Social Affairs (UNDESA) and the UN Task Force for Gender and Water – Division for the Advancement of Women

Despite the growing body of evidence of the benefits of mainstreaming gender as well as the increasing number of international commitments, improvements are not happening fast enough on the ground and on a large scale. What is the reason for this?

At the international level there is a clear mandate to ensure a gender perspective and promote women's equitable participation in development of water policies and programmes. The Commission Report for the World Water Vision stated the "women's voices must be heard in all water-related schemes." It goes on to state that the Dublin Conference recognised the importance of positive policies to address women's specific needs and empower them to participate at all levels in water resources programmes. The General Assembly resolution proclaiming 2005–15 the International Water for Life Decade calls on governments to ensure the full involvement and participation of women in water-related development efforts. It is time to accept and systematically implement that principle.

What is needed are clearly measurable performance indicators with respect to gender sensitivity of water projects. Only then governments, organisations and companies can be held accountable for (not) delivering on gender issues. For gender-mainstreaming to be effective we have to think out of the box, we have to look at other factors of inequality and take other sectors than the water sector into account.

In short, the seminar concluded:

- Use performance indicators.
- Hold governments, organisations and institutions accountable for gender mainstreaming.
- Use gender sensitive budgeting.
- Think out of the box.
- Educate and involve the youth.
- Mentor young women water professionals to enable them to work in the water sector.
- Make partnership effective in achieving the goal of gender mainstreaming.

The IWRM 2005 Target – Indicators of Implementation

Convenors: UNEP Collaborating Centre on Water and Environment in cooperation with the Ministry of Foreign Affairs, Danida, Denmark

A survey in 2005 of 95 countries undertaken by the Global Water Partnership (GWP) showed that Integrated Water Resources Management (IWRM) plans are in place or under preparation in many countries. While the IWRM planning process is important, it is the actual implementation of the plans that counts: new policies and laws, reforming the institutions at the central and decentralised level, building the human capacities and taking action at the local level. In 2008 all countries will be requested by the United Nations to report on IWRM planning as well as implementation at the 16th session of the UN Commission on Sustainable Development (CSD-16).

The meeting presented a monitoring hierarchy to monitor the progress on reforms on i) policies and legislation ii) institutional reforms iii) impacts on the ground, including links to the Millennium Development Goals and iv) sustainability of the reform process. Examples from West Africa, Central Asia and monitoring of institutional reform processes in 23 countries illustrated the use of this monitoring approach and how the results have supported decision making. To support the development of the report on IWRM planning and implementation to CSD-16, UN-Water will develop a limited number of indicators and will engage key players on IWRM in this process.

The discussion highlighted the need to monitor progress on water management reforms and plans at the global, national and local level and that each level needed its own monitoring and indicators for its specific purpose. At the global level some standardisation of indicators is needed, while the national and local level may develop indicators according to specific needs.

In short, the seminar concluded:

- At the global level, simple and reliable indicators should be the aim.
- Build on the progress and experiences already gained and the work initiated by UN-Water to develop the first set of IWRM indicators to be used to report to CSD-16 in 2008.

Closing the Sanitation Loop:
Innovative Approaches and Operational Strategies for a Systems Approach to Sustainable Sanitation

Convenors: Stockholm Environment Institute (SEI), Stockholm International Water Institute (SIWI), Linköping University and Stockholm Water Company

The seminar addressed management, policy and institutional dimensions of the sanitation, food and water nexus.

Sanitation is about how food and consumer goods are used and disposed of in safe and resource-saving ways. Closing the sanitation loop means that nutrients, water and other matter are re-circulated to new products. Now when every second person lives in urban areas, we need to plan for recirculation.

A strategy to promote source-separation of excreta and other risk products will facilitate treatment and reuse. Households play a crucial role and user satisfaction is required. The seminar stressed that a single technical solution is not appropriate for all circumstances. For example, in flood-prone, high groundwater table, rocky and sharply undulating areas, sewerage and pit latrines are inappropriate, calling for other solutions. Furthermore, sanitation problems cannot be solved by one sector only, but require close coordination of several, including agriculture, health, water and town planning.

Today, large areas on the urban fringes are irrigated with sewage water, and the production helps lots of poor farmers out of poverty since the economic return from wastewater use in horticulture is one USD per cubic meter compared to a cent for cereal production. If urine and faeces are not added to the wastewater, but used directly in food production, health risks are reduced. Risk assessment indicates no such thing as zero risk, but control measures can protect farmers and consumers. The World Health Organisation's new guidelines for reuse of greywater, urine and faecal matter in agriculture will assist authorities to strike a balance between health risks and reuse of nutrients and water.

In short, the seminar concluded:

- Long-term commitments and broad-based policy reforms are needed to integrate sustainable practices into sanitation and make them mainstream.
- Policy should be built on functional requirements, e.g. reuse, low health risk, affordable, and not based solely on technical design, and should aim at high-quality sanitation installations.
- Interventions are sought through cross-sectoral, e.g. agriculture, housing, public health, environmental protection and cross-stakeholder approaches to achieve optimal results.

The Middle East Seminar:
Cooperation Prospects in the Euphrates-Tigris Region

Convenors: Euphrates-Tigris Initiative for Cooperation/ Kent State University (ETIC), Global Water Partnership Medi-terranean (GWP-MED), Swedish International Development Cooperation Agency (Sida), Stockholm International Water Institute (SIWI) and UNESCO

The history of water management in the Euprates-Tigris basin is probably the longest recorded in the world. The water problems, which are both quantity- and quality-related, seemed to start after an increase in dam building and irrigation in the 1960s. Armed conflict in the region has added to the problems, though draining of the Iraqi marshlands led to a worldwide reaction.

The major contention is the volumetric amounts in the river. Currently, bilateral agreements between Turkey-Syria and Syria-Iraq govern the flow of water in the Euphrates, whereas there is no formal agreement for the Tigris.

Since the 1960s there were attempts to foster dialogue and information exchange in the region through a series of technical negotiations, formally including a joint technical committee by Iraq, Turkey and Syria that started in 1980 and was suspended in 1993.

Now attempts are made to re-establish tri-lateral dialogue. The Euphrates-Tigris Initiative for Cooperation, ETIC, is the first comprehensive attempt for a "Track II" dialogue. It involves scientists and established non-governmental organisations, but also government officials. A crucial conceptual aspect of this initiative is that it looks for broadening the agenda beyond water, thus hoping to increase the chances of breaking through the mentioned deadlocks. ETIC's activities aim at organising dialogues, capacity building, dissemination of information and starting joint projects.

In short, the seminar concluded:

- While Track I efforts should continue and be strengthened, there is a need and role for Track II initiatives.
- Track II efforts could be on capacity building, dialogues and dissemination of information.
- Regional initiatives, like ETIC, are an opportunity for enhanced cooperation and synergetic effects within and between civil society, public sector, research community etc. Coordinated financial support from inside and outside the region is decisive on the effect of this initiative.

Turning Assessment Findings into Action:
Results of The Comprehensive Assessment On Water Management In Agriculture (CA)

Convenor: The Comprehensive Assessment on Water Management in Agriculture (CA) and the CGIAR Challenge Program on Water and Food (CPWF)

Developing and managing water resources to help end poverty and hunger, feed an additional 2 billion people, while reversing trends of ecosystem degradation presents the most significant water challenge of our time. Despite great gains in food production, the use of water for food security and poverty reduction remains unfinished business for millions of rural poor. The dilemma is that more people will require more water for agriculture, yet the way in which people use water in agriculture is the most important driver of ecosystem degradation. Taking up this challenge will lead us toward attaining the Millennium Development Goals (MDGs) on poverty, hunger and environment. Sharply diverging views exist on the water-food-ecosystem choices. These are exacerbated by differences in language and approaches. There is a need to build a common ground.

The Comprehensive Assessment in Water Management in Agriculture (CA) was conducted to provide policy relevant recommendations on the way forward over the next 50 years. It finds that there is enough land, water and human capacity to produce sufficient food for a growing population but reveals a management crisis with growing competition, and inequity. To resolve this crisis, we need to shift our thinking and actions.

Today's water management challenges differ greatly from those of 50 years ago. To deal with its complexity, the future requires a combination of options. Each strategy will have inherent risks and trade-offs. The CA explores options for addressing these growing problems. It discusses solutions for increasing water productivity, getting food and water to poor people, investing in and reinventing both rain fed and irrigated agriculture in a continuum of intermediate systems, and reengineering the policies and institutions as key change drivers.

In short, the seminar concluded:

- Consider a range of options from pure rain fed to irrigated agriculture. The middle ground between the two, adding a little blue water to small holder rain fed systems, can go a long way in poverty reduction and production gains.
- Support agricultural ecosystem services (e.g. rice fields). Management practices need to acknowledge these multiple services.
- Shift thinking on how to manage water and learn how to do it collectively. It implies making difficult choices, striking trade-offs when needed, and multiplying the "bright spots" of local successes.

Photo: SIWI

Fighting Corruption to Reduce Poverty:
Linking Global and Local Strategies

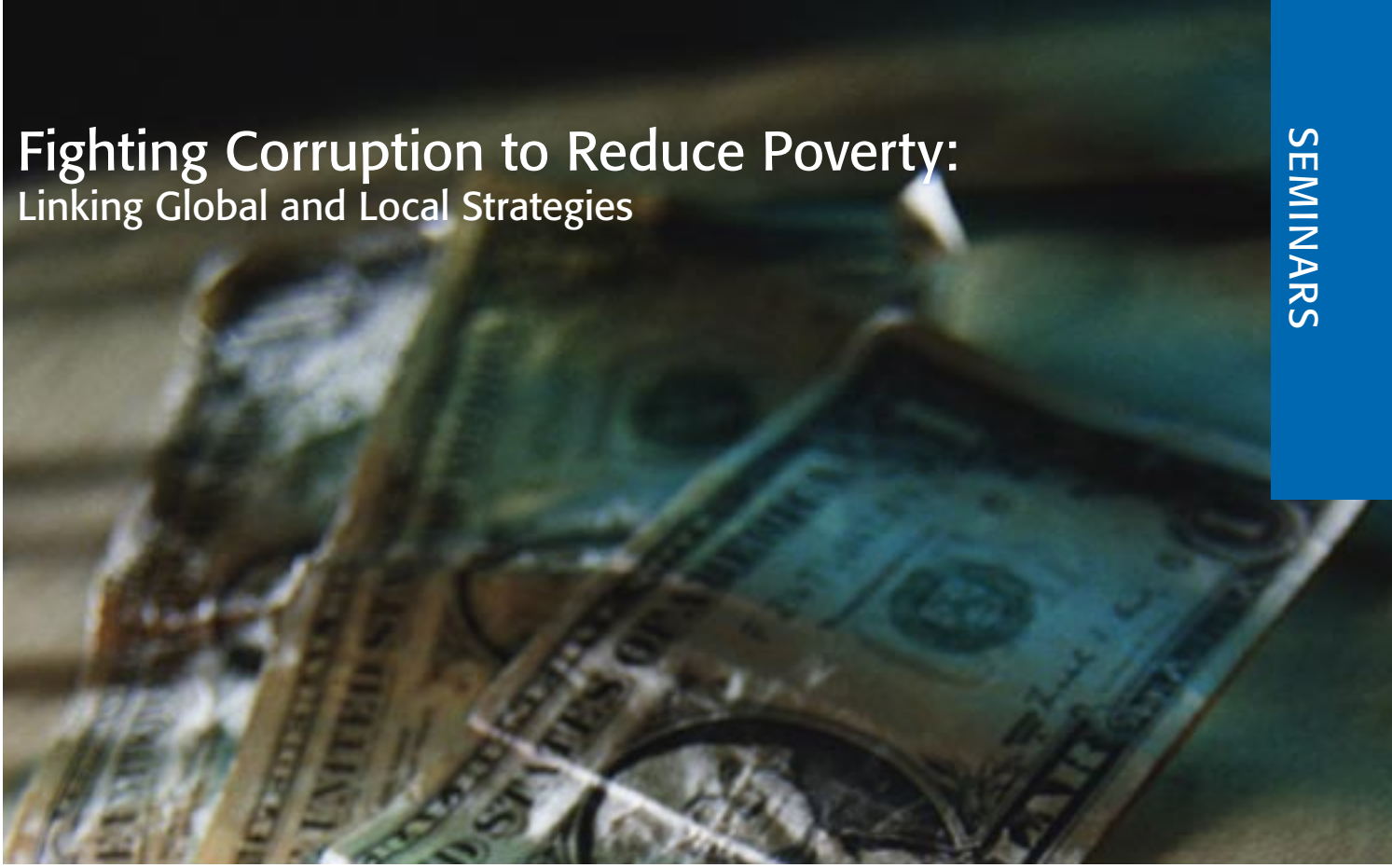


Photo: Q

Convenors: Swedish International Development Cooperation Agency (Sida) and the Water Integrity Network (WIN) [IRC International Water and Sanitation Centre, Stockholm International Water Institute (SIWI), Swedish Water House (SWH), Transparency International (TI) and Water and Sanitation Programme (WSP)]

Corruption influences the governance of water by affecting who gets what water when, where and how. It also determines how costs are distributed among individuals, society and the environment. Corruption thus worsens the world water crisis and the costs are disproportionately borne by the poor and by the environment. In spite of this, policy makers and analysts have only recently identified corruption as an impediment towards the Millennium Development Goals.

Corruption reduces water access levels, discourages investments and economic growth, undermines democratic principles and increases the strain on ecosystems. Poor people are particularly affected as corruption undermines their livelihood and diverts investments that would otherwise benefit them.

Many states, civil society organisations and development partners have initiated anti-corruption measures, although there are differences in terms of scope and the amount of political backing of official rhetoric and policies. Much work is ad-hoc and initiated without diagnostics directing priorities and linking anti-corruption measures to the goal of poverty alleviation. An evidence-based strategy for fight corruption in the sector is needed.

Anti-corruption efforts within the water sector face the challenge of (i) scaling up best practice within the sector; (ii) transforming existing lessons from other sectors to the specific conditions of the water sector; (iii) adjusting anti-corruption tools and measures to variations in national and local governance structures; and (iv) linking anti-corruption measures to the goal of poverty reduction.

Corruption in the water sector occurs in public to public, public to private, and public to consumer interactions. Vital building blocks to effectively fight water sector corruption include political leadership, accountability, capacity, transparency, implementation and voice mechanism.

The water supply and sanitation sector has taken a leading role by developing a value chain analysis linking particular instances of corruption to early warning indicators and particular anti-corruption measures. The Water Integrity Network (WIN) aims to fight corruption in the water sector worldwide. WIN is an open and inclusive global network that promotes anti-corruption activities and coalition-building at local, regional and global levels between actors from civil society, private and public sectors, media and governments.

In short, the seminar concluded:

- Enhance diagnostics to develop empirically based, sector wide anti-corruption strategies with an explicit focus on the needs of the marginalised poor.
- Import and adjust lessons from other sectors to the specificities of the water sector and link the sector to national governance reforms.
- Build political commitment and broad-based stakeholder engagement.
- Be preventive rather than reactive. Once corruption is established it tends to become part of entrenched social and economic systems.

EU Water Initiative Partners Meeting

Convenor: European Commission supported by the Swedish Water House

The EU Water Initiative (EUWI) was launched at the 2002 World Summit on Sustainable Development as a contribution to achievement of the Millennium Development Goals for drinking water and sanitation, within the context of an integrated approach to water resources management. It is intended as a catalyst and a foundation for action, facilitating progress and coordinating the efforts of all actors. The EUWI is a multi-stakeholder process mobilising partners from governments, international financial institutions (IFIs) and donors, civil society organisations, water users and the water industry, both in Europe and in partner countries. As in previous years, the EUWI Annual Meeting was held in the context of the World Water Week, to further mobilise EUWI partners, to attract new ones and to develop synergies with other international processes.

The meeting consisted of four sessions.

- "Infrastructure and Water and Sanitation Services for the Poor" focused around the EU Strategy for Africa and the EU-Africa Partnership on Infrastructure, which brings a new focus on regional economic infrastructure. The meeting started a process through the activities of the EUWI for the development of a water component of the new EU-Africa Partnership on Infrastructure covering regional water management as the basis for sustainable development of regional water resources – sharing benefits and responsibilities.
- "Practical Implementation of IWRM in Africa" (a joint EUWI-Challenge Programme on Water and Food seminar) to address capacity building barriers to adaptive, knowledge-based approaches to Integrated Water Resources Management (IWRM) implementation.
- "Moving the EUWI Forward - Monitoring, Alignment and Harmonisation" to review the development of a monitoring system for the EUWI and how this needs to be linked to the achievement of objectives on aid effectiveness.
- "EU Water Initiative Multi-stakeholder Forum," the annual review of progress made by the EUWI during the previous year and of plans for the coming years.

The outcome of the meetings was positive, confirming the relevance of the EUWI and identifying where it needs improvements. The role of local government as a key stakeholder for the delivery of services was emphasised, as was the role of research in demonstrating pathways to sustainable water resources management and contributing to a knowledge-based capacity building. An increasing focus on regional water resources management and water services development needs to be redressed to re-emphasise that the EUWI is focused on the water and sanitation MDG targets and the World Summit on Sustainable Development (WSSD) target on IWRM.

Managing Freshwater Ecosystems to Reach the MDGs

Convenors: Swedish Society for Nature Conservation (SSNC) and World Wide Fund for Nature (WWF) Sweden

Freshwater ecosystems are known to have one of the greatest biodiversity per unit area of habitat of the Earth's biomes. According to research by IUCN, goods and services derived from inland waters (such as food and drinking water), water filtration and flood control have an estimated global value of several trillion US dollars. At the same time, the Millennium Ecosystem Assessment has identified inland waters as suffering from the greatest loss of biodiversity due to large water infrastructure projects and other impacts.

In the world's poorest regions freshwater ecosystems are crucial for people's well-being and livelihoods. For example 70% of the dietary animal protein in Malawi is derived from freshwater fish; Lake Victoria's fisheries provide protein for over 8 million people. The yield from freshwater fishing in the Mekong feeds 80 million people in the region's low income countries – Laos and Cambodia, for example – with high quality protein and help guarantee basic health needs of the population.

The economic value of ecosystems must be mainstreamed into development planning – like Poverty Reduction Strategy Papers (PSRPs) – and in a language understood by bilateral and multilateral agencies. There is a great potential for increasing the yield from rainfed agriculture, which would ease the pressure on freshwater ecosystems for irrigation. Rivers not, or very little, affected by human interference possess a greater resilience towards global warming impacts like excessive evaporation and flooding, which means that they are able to provide ecosystem services even during a climate change.

In short, the seminar concluded:

- Large-scale implementation of small-scale water infrastructure is a prerequisite to meeting the Millennium Development Goals.
- We must recognise RAINFALL as a basic water resource.
- We must secure resilience against change to avoid ecosystem flip/collapse and secure livelihoods of riverine communities.

Flowing Upstream and Downstream: Collaboration for Better Management

Convenors: Okavango River Basin Water Commission (OKACOM), The World Conservation Union (IUCN), Okavango Delta Management Plan (ODMP) and Every River has its People Project (ERP)

True commitment, involvement and collaboration among the highest levels of government, technical experts and the communities living along the river are essential for the responsive, adaptive and equitable management of river basin resources. This seminar on the Okavango River, opened by the respective Ministers of Water, was convened by three governments together with civil society representatives, community representatives and donor agencies to highlight the extent of ongoing collaboration in the basin. The Okavango River Basin Commission is a demonstration of political will at the highest level, and can be used as a political tool for benefit sharing. It is a call and an opportunity for all other levels of society to fulfil their commitment in managing this shared resource.

One speaker stressed that a coordinated "three countries-one basin" approach to management of a river cannot be achieved overnight. Instead, the building of relationships, trust and collaboration is essential in acknowledging that the process is as important as the result.

The seminar highlighted examples of such collaborative processes. The presented project activities demonstrated that starting with discrete and workable collaborative activities can go far in developing the prerequisite trust and relationships. Such projects can exploit the comparative advantage of each stakeholder to develop initiatives that promote the sharing of knowledge and experiences while providing tangible benefits to participants. Presentations showed how the three countries collaborate on hydrological monitoring; transfer of lessons upstream from the process of developing a management plan for the Okavango Delta in downstream Botswana; and mechanisms for basin wide grassroots participation from the expanse of the river in management decisions.

In short, the seminar concluded:

- Political will and trust are key elements in the creation of an enabling environment for the development of OKACOM and its joint activities, and for a sustained process the key is to secure finance.
- The Okavango Basin has a wealth of data but problems of accessibility and political issues exist around this data. A meta database is needed, as are strategies and priorities on what data needs to be collected, and why. It needs to be known what data has already been collected and what institutions control it, and each country's comparative advantage needs to be used.
- In the Okavango Basin, there is a critical role for relationship building and trust among stakeholders. Key to this is the strengthening of existing institutional structures, a meaningful stakeholder participation and ownership, including clarified responsibilities on all levels.

Photo: SIWI

Future Wastewater Treatment

In Focus: Regions Around the Baltic Sea and Other Closed Seas

Convenors: Stockholm International Water Institute (SIWI) and VARIM

The seminar aim was to describe different aspects of present and future modern wastewater treatment and management to meet existing and emerging water quality problems. The seminar had a broad concept ranging from water quality in closed seas, what treatment technology can do, implementation and management from consultants, industries and municipalities, and financing aspects. The seminar was attended by leading experts from different fields contributing to both specific and general issues during the seminar.

In short, the seminar concluded:

- Closed seas in large river basins like the Baltic Sea, the Black Sea, the Mediterranean Sea, Lake Victoria and others have much in common. Specific information was given on the use of the MARE-model as a decision making tool for nutrient effects on the Baltic Sea. Still, there is a need for better understanding of the relative role of phosphorus and nitrogen discharges on algal growth and type of algae in different parts of a sea. An integrated approach on river basins should be used in accordance with the EU Water Framework Directive and similar directives.
- Wastewater treatment has a long history with successive changes of main focus. Much improvement has occurred both in small-scale and large-scale solutions, including recent interest in membrane technology. Increased attention today is given to removal of pharmaceuticals, effects of antibiotics on resistance of bacteria and other problems related to human health and recipient ecosystems. Control and automation can significantly increase treatment efficiency and at the same time reduce costs.
- The consultants, industries and municipalities must follow up on the rapid developments in the water industry. Different examples were given how the Swedish industry faces future challenges both nationally and internationally.
- Financing is a key issue for improvement of wastewater treatment. Examples were given by the Nordic Investment Bank (NIB) on financing of wastewater treatment and different ways of help in financing is necessary in countries around the Baltic Sea still lacking adequate facilities for efficient treatment. In countries with already existing wastewater treatment facilities, a way to increase treatment efficiency is to use discharge fees, as for instance in Denmark.

The Founders Seminar:

Business on the Ground – When Solving Local Community Water Issues Becomes Part of Doing Business

Convenors: Stockholm Water Foundation and World Business Council for Sustainable Development (WBCSD), presented in honour of the Stockholm Water Prize Laureate and the Stockholm Industry Water Award Winner

Conclusions from the new report "Business in the World of Water" from the World Business Council for Sustainable Development were presented as an introduction to the panel discussion for this seminar. The report contained the following recommendations: clarify and enhance understanding by business of the key issues and drivers of change related to water; promote mutual understanding between the business community and non-business stakeholders on water management issues; and support effective business action as part of the solution to sustainable water management.

Actions taken by different businesses and industries were presented as examples of possible contributions for development. Examples of such actions are: ensuring efficient use of water to minimise impacts on the local population; ensuring the local populations have enough water for their use; delivering clean drinking water at affordable cost to the local community; and segregation of "wastewater" sources for treatment.

It was stated that strengthening of the public sector and development of local private enterprise in developing countries should go hand by hand. The private sector can contribute in capacity building and education and should be invited to participate in that type of activities.

The participants agreed that there are really few limits to what a company can or should do to help to provide safe water and sanitation, but also that those that regulate private enterprise do so with a recognition of the boundaries of sound business and the respective firms' abilities.

In short, the seminar concluded:

- A company's policies and actions should go beyond the limits of responsibility and seek opportunities to support community water supply and sanitation.
- Larger, more established companies locating themselves in a region should open a dialogue with smaller existing companies and transfer knowledge to them.
- The private sector can make a positive contribution and needs to be invited to participate in stakeholder processes.

Promoting IWRM Beyond Borders:
Transboundary Waters and Human Development

Convenors: UNDP Human Development Report Office and Stockholm International Water Institute (SIWI)

Although river and lake basins span national boundaries, Integrated Water Resources Management (IWRM) continues to be largely restricted to national legislation and policies. This high-level seminar asked three questions: why do transboundary waters matter for human development; how serious is the threat of water wars; and how can IWRM be promoted beyond borders?

Hydrological interdependence binds not only countries together but also people and their livelihoods. With two in five people living in transboundary water basins, managing interdependence on this scale is a challenge for the international community. Failure to cooperate – and the mismanagement that results – has adverse implications for human development: lost livelihoods, declining health standards, and environmental collapse. The importance of "green water" and better management of rain fed agriculture to feed millions of people in the future further underlined the need for improved management of river basins and their ecosystems.

The seminar urged that rather than focus on the threat of water wars, it was more urgent to pay attention to the daily threats to human security that affected people in transboundary water basins. The world's governments need to stop thinking about water as a "national" resource in the narrow sense and start thinking about managing shared water at the basin level.

The theme of the World Water Week – "Beyond the River" – is relevant. The problem is that countries compete with each other on water allocations. Instead, cooperative ventures can yield rich dividends in areas including hydropower, flood and sediment control to navigation, commerce and broader regional integration. What is missing, often, is the political leadership to promote initiatives that tend to generate benefits over the long run.

Also missing are the institutions to ably manage water resources at the basin level. The seminar examined several models of river basin cooperation of increasing institutional depth, from the Indus Waters Treaty to the Senegal River Development Organisation and the Southern African Development Community experience.

In short, the seminar concluded:

- Focus on human development needs assessments, through expanded data gathering activities and direct community involvement.
- Strengthen river basin institutions to ensure they have broad mandates, autonomy in operation and enforcement, and sufficient technical and financial capacity to implement basinwide programmes.
- Create the political incentives for cooperation by expanding the basket of benefits and supporting negotiations over a long period.

Sanitation Partnerships:
Harnessing Their Potential for Urban On-site Sanitation

Convenors: Building Partnerships for Development in Water and Sanitation (BPD)

Partnerships seem clearly warranted for sanitation. Yet evidence of effective partnerships remains scarce.

In 2006, for the first time, more than half of the world's population will be urban. Many will reside in mushrooming informal settlements, where the chances of connecting them to sewerage networks are slim. "On-site sanitation" is their only recourse, which for many poor households means pit latrines or worse.

Calls for partnerships to help those without proper access to sanitation are growing. But while we increasingly understand the circumstances in which partnerships to provide urban solid waste collection or drinking water can flourish, much less is known about how to foster large-scale partnerships for sanitation.

BPD recently worked with sanitation partnerships in five African cities – Dar es Salaam, Durban, Maputo, Maseru and Nairobi. The aim was to see where partnerships fit into efforts to improve on-site sanitation and understand better what makes them succeed or fail.

The Stockholm seminar built on this, discussing three possible roles for partnerships in on-site sanitation. The first role, highlighted by a case study from Madagascar, is to improve existing "sanitation transactions." The second, as practiced in Durban, South Africa, finds ways to harness these transactions towards public health goals. The last role, which generated heated discussion amongst participants, is to overcome the institutional fragmentation that bedevils sanitation delivery.

In short, the seminar concluded:

- Organisations need to think proactively about how to broaden the "sanitation ladder" in poor urban communities.
- Urban sanitation needs to be seen as part of a system where removal and treatment of waste are as important as providing access to a facility.
- It is crucial to understand how land tenure and landlord/tenant relationships frame attitudes to sanitation investments.

Hydro-Hegemony

Convenors: King's College London, London Water Research Group, Stockholm International Water Institute (SIWI) and the Swedish International Development Cooperation Agency (Sida)

"Beyond the river" there is POWER, towards which water flows uphill. The Hydro-Hegemony seminar explored and exposed how international transboundary water interactions are determined by power relations. By allowing that "the absence of war does not mean the absence of conflict," the approach widens the scope of transboundary water analysis to a more critical perspective of the nature of conflict and cooperation. Those of us concerned about transboundary Integrated Water Resources Management (IWRM) and benefit-sharing would do well to take note.

The session revealed how the outcome of transboundary water interactions is determined by the interplay of power between the competitors. The disproportionate power enjoyed by the more powerful riparian (the "hydro-hegemon") allows it to set the agenda and sanction the discourse in its own self-interest – whether or not this if for unilateral or collective good.

For example, the "hegemonic leadership" role that South Africa plays along the Orange River has provided benefits for its weaker riparian neighbours. The Jordan River panel showed that extreme asymmetries in power have enabled an Israeli-Jordanian bi-lateral agreement that effectively precludes equitable sharing with Lebanon, Syria and Palestine. Effective cooperation being obstructed by a treaty was found also to exist along the Ganges-Brahmaputra-Meghna. The Southern Asia panel exposed the effects of Indian hydro-hegemony felt by upstream Nepal in terms of missed opportunities and by downstream Bangladesh in terms of disastrous cycles of flood and drought.

In deconstructing power relations, progress towards more sustainable and equitable transboundary regimes was identified. Hydro-hegemons of a more oppressive character appear opposed to the application of the principles of international water law, for example. Donor funding is geared towards the discourse sanctioned by the more powerful. The nature of the hegemony and asymmetry may be addressed through a variety of means. It was noted that the "power of the weak" means that the less powerful riparians may have more options available to them than typically perceived.

In short, the seminar concluded:

- Power relations determine the outcome of international transboundary water interaction – in terms of sharing, access and management options.
- The most powerful riparian (the "hydro-hegemon") can shape the nature of the interaction – for unilateral or collective good.
- Hydro-hegemony may be used to guide all riparians towards a common goal. It may also be resisted or altered by the soft power of the weaker riparians.

Photo: Mats Lannerstad

Financing Integrated Water Resources Management in the North – Strategies and Experiences

Convenor: NoWNET (Australia Water Partnership, Danish Water Forum, Global Water Partnership, Japan Water Forum, Korea Water Forum, Netherlands Water Partnership, Swedish Water House and World Water Council)

The structure of financing mechanisms for water requires a combination of "Success Factors" to be chosen based upon the social, economic, cultural, and physical conditions of each country. Some of these include:

- Active public participation and stakeholder ownership of the process,
- Strong, pragmatic and flexible legislation (e.g.: earmarked pollution taxes, user fees/taxes),
- Decentralised management and different levels of political autonomy, and
- Consideration of country-specific water issues (e.g.: flood control in Japan and the Netherlands, the importance of municipal-level authority in France).

The European Water Framework Directive (EU WFD) is pushing countries toward cost recovery (where users pay for services). In Sweden and Denmark, agriculture remains the sector where the greatest investments will be needed, mainly because of the pollution it produces. There are also growing external environmental costs required to meet new standards for domestic supplies.

National water partnerships are perceived as useful mechanisms for bringing together stakeholders from different sectors (government, knowledge institutions, NGOs and the private sector) and for mobilising activities at the national and international scales. The experience of the Japan Water Forum shows that international networking promotes domestic networking.

In the South, national water partnerships have been developing more rapidly than in the North. It is believed the Northern Water Network (NoWNET) can and should do more to promote and facilitate the creation of such partnerships.

Like the financing mechanisms, there is no clear blueprint for creating a successful national water partnership. NoWNET members offer a variety of different structures, from the "cluster group" approach of the Swedish Water House to the "facilitator" approach of the Netherlands Water Partnership. Different models are emerging as new partnerships are created in France, Korean and Australia.

Partnership for Capacity Development on WASH: Building Commitment for Action

Convenors: Cap-Net, Streams of Knowledge and IRC International Water and Sanitation Centre

One of the most important challenges of the Millennium Development Goals (MDGs) is to ensure that the water and sanitation targets will be reached and result in sustainable access, especially for the poor. Lack of human and institutional capacity is a major constraint to achieving the MDGs. The seminar intended to build commitment and cooperation to address capacity building needs, and increase understanding, opportunities and priorities for action.

It is widely acknowledged that capacity development, especially at the intermediate and local levels, is key in achieving the MDGs in water, sanitation and hygiene (WASH) and that more needs to be done to scale up and maximise the impact of capacity building activities. The workshop therefore addressed the following questions:

- what capacities are needed to achieve the MDGs in WASH,
- are we reaching the right people,
- are we managing the knowledge base, and
- how can we build cooperation for increased impact of capacity building action?

Partnerships of key players in capacity building in WASH can help scaling up the impacts of action. To develop the right tools and methods, needs and impacts have to be assessed and monitored. Capacity building should be at the centre of attention and locally delivered to ensure relevance to address issues of marginalised groups. Information centres for knowledge management and sharing are essential to get the required knowledge to the lowest levels.

In short, the seminar concluded:

- Greater attention should be given to the assessment of needs, and delivery of capacity building to improve the sustainability of water, sanitation and hygiene services.
- To maximise effectiveness and impact, capacity building activities will have to be carefully targeted to reach the right people at the right levels including the decentralised local level.
- Improved access to existing knowledge through effective partnerships and better knowledge management will greatly assist capacity building in WASH.
- Better measurement of impacts of capacity building is needed to justify investments in capacity building activities alongside the new investments being made in infrastructure.

Partnerships in Action

Convenor: Water Supply and Sanitation Collaborative Council (WSSCC) and Water and Sanitation Programme (WSP)

Today, 2.6 billion people still lack access to adequate sanitation and every year, diarrhoeal diseases triggered by inadequate sanitation facilities and unsafe hygiene behaviour kill millions of people, most of them children. Improved sanitation and hygiene will help speed up the achievement of all eight Millennium Development Goals. Despite this, sanitation and hygiene have been called the "orphan child" of the water and sanitation sector with the responsibilities often divided within national government ministries, bi-lateral donor departments, United Nations organisations, national and international non-governmental organisation, sometimes without any collaboration. With this reality, partnerships in sanitation and hygiene interventions are more important than in any sector.

The seminar featured a number of presentations on successful partnerships such as the Public Private Partnership for Handwashing, the WASH movement in Ethiopia, partnerships with youth in Bulgaria and the Diorano-WASH Coalition in Madagascar. The seminar was focused around three main issues: 1) success factors, 2) replication possibilities and 3) scaling up.

Discussions in-between and after the presentations highlighted other examples of sanitation and hygiene partnerships and raised specific questions on the experiences presented.

In short, the seminar concluded:

Success factors

- A limited number of partners in the beginning, who form a core group of "founding" partners and bring in additional partners when there are concrete needs.
- A thorough mapping and research of potential partners before they are invited to the table.
- The acceptance that all partners have different agendas, as long as this is clear from the beginning.
- An equal vote for all partners.
- Creation of a separate partnership logo, so that there is no need for all organisations to have their own stamp (logo) on partnership materials and outputs.
- Room for the partnerships to evolve.

Replication

- A global framework can facilitate the replication in other countries if it is flexible enough to give room for national/regional adaptation.

Scaling Up

- Going to scale through partnerships requires a balance between structure and flexibility.
- Does increased channelling of funds to successful partnerships mean scaling up, or will it destroy the partnerships through shifts in the power balance and the framework of collaboration?
- Scaling up does not necessarily mean that partnerships increase their own activities, but the partnership can serve as a channel for resources to individual partners and therewith strengthen their respective scaling up efforts.

Photo: WSSCC

Saudi Water Day

Convenor: Prince Sultan Bin Abdulaziz International Prize for Water, Prince Sultan Research Center for Environment, Water and Desert, King Saud University, Riyadh, Saudi Arabia

The Kingdom of Saudi Arabia is located under extremely arid conditions with very limited water resources. Immense efforts on local and international levels have been exerted to solve this serious challenge. Through the Prince Sultan Bin Abdulaziz International Prize for Water, the Kingdom has since 2002 rewarded efforts by innovative scholars and scientists to advance research on problems associated water resources, particularly in arid regions.

The Kingdom's rapid development coupled with population growth and improvements in living standards have increased national water demand from under 6 billion cubic meters per year in 1974 to about 20 billion cubic meters per year in 2005. The Saline Water Conversion Corporation (SWCC) has utilised, with cost effective approaches, the sea water and groundwater desalination processes to produce about 1150 million cubic meters per year for drinking purposes by several large coastal and inland cities. The national research centres in different universities have also participated in solutions-oriented research for the water challenges.

Examples were presented from King Saud University, King Fahd University of Petroleum and Minerals, King Abdulaziz University and King Faisal University. Presented technologies included King Fahad's Rainwater and Runoff Harvesting project, the use of advanced numerical approaches in groundwater flow simulation to protect the coastal aquifers and groundwater in major cities along the Eastern Coast, the development of new techniques to control shallow water table rise problems in large cities, and the successful use of polymers in agricultural water conservation.

Another brief was about the Ministry of Water and Electricity vision to achieve world class utilities by transforming the water sector by targeting key areas such as water demand management, organisational restructuring and progress towards privatisation of services. The financial support through the Saudi Fund for drinking water facilities land irrigation, water treatment, sea water desalination and dams' construction in developing countries in Africa and Asia was a true example of the Saudi efforts for solving the water problems on the international level.

In short, the seminar concluded:

- The Prince Sultan Bin Abdulaziz International Prize for Water is a serious and noble initiative to reward innovative scholars and scientists worldwide.
- Efforts in the Kingdom can serve as models nationally and internationally for achieving the Millennium Development Goals and for securing safe water and sanitation for all by 2025.

Hard or Soft Landing in Closing Basins?
Coping with Quantity and Quality Challenges

Convenors: The Comprehensive Assessment of Water Management in Agriculture (CA), the CGIAR Challenge Program on Water and Food (CPWF) and Stockholm International Water Institute (SIWI)

As growing amounts of water are diverted and consumed in a river basin, stream flow is increasingly depleted, reducing downstream availability, dilution capacity and the ability to meet environmental flow requirements. As the river shrinks, the basin is said to be closing; when all flows have been allocated, the basin is closed. The seminar addressed the closing process.

The main driver of the closing process is agriculture, although several other drivers may contribute to overallocation: redressing inequities, incomplete hydrological understanding and political pressures. As stream flow decreases, sector interconnectedness increases – but so do upstream/downstream conflicts of interest, and the need for integrated management approaches. Closing may proceed in stages: from user perception to overallocation and finally to hydrological closing. Temporary relief through groundwater or inter-basin transfers may postpone the process.

The issue of hard or soft landing refers to the risk for either collapse or adaptation. Typical responses in closing basins are demand management to buy time, institutional adjustments and value-based allocation renegotiations. It was noted though that the lower value associated to agricultural production is not sustainable in the long term. When consumptive use has reduced the remaining environmental flow reserve, it may be difficult to reallocate water for that purpose. The surge for bioenergy and its potential to raise local income imply that consumptive water use may grow significantly in coming years.

In short, the seminar concluded:

- River basin closing has developed into a sizeable challenge of extreme importance in developing countries dependent on agriculture, and necessitates increased focus on the depletive component of water use.
- Bioenergy production is a growing sector of high value biomass production, which may increasingly compete with low value food production, increase the competition for water, and add another driver to basin closure.
- Future management of closing river basins calls for a systems analysis, seeing the basin as a complex socio-cultural-natural resource system, understanding how a change in water and land use in one part of the basin impacts others in the basin, and involving diverse groups of users in informed decision making processes.

What's Water Worth?
The Economic Case for Water in Poverty Reduction and National Development

Convenors: Stockholm Environment Institute (SEI), Stockholm International Water Institute (SIWI), United Nations Development Programme (UNDP) and World Health Organization (WHO)

The prominence of water management in international discussions on poverty reduction and sustainable development has led to a high level of political support for water as an issue, but this has rarely translated into effective action or, in particular, increased investment flows. Too often investments in water have been seen as incapable of producing direct returns to economic growth and development; as a result, the limited resources available are prioritised for other sectors perceived to be more productive. The evidence available, however, suggests the contrary: investments in different aspects of water management do offer good rates of return. The problem is that this evidence is incomplete, largely segmented by sub-sector and rarely compiled at the national level.

This session discussed the need to develop a methodology to measure water's contribution to Gross Domestic Product (GDP) and poverty reduction at the national level. A group of partner organisations (UNDP, SEI, WHO, SIWI, IUCN and IWMI) presented a new initiative designed to develop such a methodology and pilot it in an Asian and an African country. The group emphasised that the expected end result would be action-oriented: to generate higher levels of investment in and support for the water sector.

In short, the seminar concluded:

- The concept of economic analyses of water is relevant and of high priority, and more work is needed to make the case "context specific" and to address the equity aspects.
- The political economy of water resources management and water supply and sanitation investments needs to be taken into consideration, with a broader outlook that includes such issues as institutional capacities, training needs, markets and financing mechanisms, time scales of mandate periods and return on investments, and beneficiary groups.
- Benchmarking and learning from other sectors could be helpful in convincing policymakers that investing in water is a sound economic strategy.

SIWI Seminar for Young Water Professionals:
Co-management of Water for Livelihoods and Ecosystems

Convenor: Stockholm International Water Institute (SIWI)

That local communities are facing massive challenges in making balanced decisions on water resources management with regard to using water resources for sustaining livelihoods while at the same time maintaining ecosystem functions and services was very clear from all the presentations given in the seminar. It was noted that many ecosystems around the world have been degraded and will require daring and innovative approaches to restore their functionality and resilient capacity while keeping in mind the complex interactions of water systems, food production and ecosystems.

There has been a growing consensus that the best approach to address this issue is by minimising tradeoffs between food production and ecosystem functions and services through adoption and adaptation of innovative technologies. Some of the most promising technologies deal with increasing food production under rain fed agricultural systems.

Targeting these areas can have long-term benefits of restoring land and water quality while preserving and maintaining ecosystems. Nevertheless, trade-offs between different uses often take place. It is thus essential to promote dialogue and negotiations between upstream and downstream while taking into account ecosystem functions and services. Although co-management has been increasingly promoted, the cases discussed illustrated some of the most pressing problems that need to be overcome: empowering local stakeholders; embracing local-level initiatives; focusing on negotiation-based approaches; and sharing a sense of ownership in research, development and extension services. The role of shared visions was also emphasised.

In short, the seminar concluded:

- There is a need for feasible technologies which incorporate local knowledge and are easily embraced by other stakeholders at different scales, and that are able to serve multiple ecosystem functions.
- It is important to integrate scientific research with policy making through implementation of sound collaborative platforms, with special efforts dedicated to empower local communities in decision making.
- Dialogue and negotiations between upstream and downstream water users and other stakeholders at different scales need to be promoted and encouraged while nurturing the concept of agro-ecology for implementation at all scales.

Photo: Mats Lannerstad

Under Cover? Transboundary Aquifers – The Hidden Asset for Riparian Cooperation in Africa

Convenors: Federal Institute for Geosciences and Natural Resources (BGR) Germany, International Association for Hydrogeologists (IAH), Stockholm International Water Institute (SIWI), UNEP Division of the Global Environment Facility (UNEP DGEF), UNESCO International Hydrological Programme (UNESCO-IHP)

Groundwater is a significant source of water in arid and semi-arid regions of Africa. It is largely independent of seasonal fluctuations and less dependent on climatic change. It serves a majority of households in rural areas with reliable drinking water and provides a highly cost effective basis for food production. Hence it is a key to achieving the Millennium Development Goals.

Riparian cooperation on transboundary aquifers linked to existing cooperation on surface waters can provide social and economic benefits. The African Minister's Council on Water (AMCOW) together with the convenors and participants promoted the "Stockholm Message on Transboundary Groundwater for Africa." This aims at raising the awareness of decision makers and relevant stakeholders to the value of this hidden resource, and seeks to intensify their support for enhanced transboundary cooperation. The Stockholm Message calls for an explicit integration of groundwater into water resource management for social and economic development and environmental sustainability.

Such integration depends upon raising awareness and capacity among stakeholders of the groundwater potential. Also, strengthening of the hydrological-hydrogeological knowledge base for a judicious utilisation of this resource is needed. The existing 24 African agreements for river/lake basins offer a sound foundation for fully integrating groundwater in transboundary cooperation; international financing for this is needed.

The seminar participants stressed these central points of the Stockholm Message during the discussion. Cooperation over transboundary aquifers is highly encouraged and promoted through the establishment of adequate joint mechanisms, following rules of international law. Transboundary groundwater management should be fully integrated into the scope of the responsibility of existing and appropriate basin organisations. Sound science-based knowledge will reinforce IWRM, as it must build on informed decisions. Such a knowledge base requires considerable investments in e.g. monitoring systems and exploration, which is significantly underfinanced when compared with surface waters.

In short, the seminar concluded:

- A proclamation was made for better integration of groundwater into the scope of work of existing river/lake basin organisations or the establishment of new institutions where the geographical scope of surface and groundwater does not fit together.
- Participants' and convenors' call for enhanced funding for monitoring networks especially by international financing agencies as the establishment of a sound knowledge base is a fundamental element of groundwater management being part of IWRM.
- AMCOW's and convenors' interest in establishing a follow-up process including a regular review of progress aiming at put into practice the "Stockholm Message on Transboundary Groundwater for Africa" and the above mentioned seminar outcomes.

Photo: Mats Lannerstad

Water and Wastewater in the Sustainable City

How Could the Swedish Concept Contribute to Sustainable Solutions in Urban and Peri-urban Areas?

Convenors: Stockholm International Water Institute and the Swedish Water and Wastewater Association (VARIM)

The world's rapidly increasing urbanisation is taking place mostly in small- and medium-size towns in developing countries. Sustainable, integrated city planning in these small towns is vitally important to improve the life quality, health, comfort and safety of humans and nature.

At the seminar, the Swedish concept of "the Sustainable City," a holistic and integrated approach where different sector fields like water and wastewater, energy, traffic and urban planning work together, was presented. Necessary tools to make this possible are institutional arrangements and policies where stakeholders plan the future together. Hammarby Sjöstad, a new eco-friendly residential area in Stockholm, and the strategic urban planning model used in the city of Gothenburg, the "Urban Water Toolbox," were presented. Small and large-scale examples from China, Bangladesh, India and Honduras as well as the EcoSan system were also presented.

The complexity of the situation was further highlighted by presentations of the UN-HABITAT Lake Victoria Project, which is directed to the poorest of the poor, involving governments and users in Uganda, Tanzania and Kenya.

To make cities in developing countries sustainable, local involvement and community mobilisation are key issues. Solutions must be socially and culturally acceptable. Building human resources capacity is very important. Education is needed for people to understand that improving sanitation brings benefits to other parts of their life and is therefore worth financing. Financial and technical assistance is required to support the institutionalisation of the stakeholders' engagement process, but the project must be a village's or town's and not considered the consultant's project.

Discussions highlighted the prohibitive cost of the Swedish model. Financing is an enormous task as not enough money is coming into the water and waste sectors. In many countries cost recovery is difficult. We must build financing models that are attractive also to local investors, encourage small, local domestic investment, public-private partnerships and help develop a subsidies structure that is sustainable, can be targeted and is linked to outputs.

The UN-HABITAT view: Local ownership + accountability for programme outcomes = programme sustainability.

In short, the seminar concluded:

- Swedish industry can export experience, technical assistance and technical solutions suitable to local conditions.
- It is important to find solutions for the small and medium towns – integrating water supply, sanitation, waste handling, etc., with urban planning.
- It is important to build local human resources capacity leading to local involvement, interaction and cooperation in strategic planning, governance, financing, ownership and operation.

Side Events

Donor Country Approaches to Water-Related Development Cooperation

Focus Area: Water Resources Infrastructure

Convenors: Stockholm International Water Institute (SIWI) in cooperation with the Netherlands Ministry of Foreign Affairs, Department for International Development, United Kingdom, Ministry of Foreign Affairs of Denmark, U.S. Department of State and The Federal Ministry for Economic Cooperation and Development, Germany

Do we have to go for the "big push" and invest heavily again in the water sector in order to achieve the Millennium Development Goals (MDGs) and forget about all this talk of improving institutions, governance, etc.? This was the provocative question asked by the convenor to the members of a panel in the side event, in part in response to comments from the 2005 World Water Week, statements by luminaries such as Prof. Jeffrey Sachs and the recently launched EU Water Initiative. The panellists, who represented all continents, did not fall into the trap of sticking to one or the other extreme, despite the moderator's and convenor's best efforts. Donor countries, it was clear, are diversifying their activities and spreading them over the whole range of hard and soft approaches. However, recipient country and NGO representatives criticised the top-down approach in which many donor projects are still implemented. The main outcome was that investments are needed, but they have to be accompanied by a high degree of user participation and provisions for improving managerial and governance skills at the administrative and management levels of the partner governments.

Photo: SIWI

From Poster to PowerPoint to Pod Cast:

Reaching the Public with Meaningful Visual Information about Water, Drainage Basins and the Hydrologic Cycle

Convenor: Watershed Media Project

The side event presented for discussion a number of short (1–5 minute) films about water, intended to be disseminated primarily over the internet to an international audience. The many uses of these films was discussed, including how they can be made useful for the water community in the dissemination of essential knowledge about water to stakeholders and the general public. This well-attended side event was a successful proof of concept for the production of short educational films about water, deliverable on-line and via video I-pod. The audience strongly supported the need for more short films about water that can be universally understood.

New Aid Modalities in the Water Sector

Convenor: Ministry of Foreign Affairs of Denmark (Danida)
Co-convenors: Ministry of Foreign Affairs of the Netherlands (DGIS) and Overseas Development Institute (ODI), UK

The side event focused on key challenges and actual lessons learned with harmonisation and alignment of donor assistance in the water sector. It was concluded that strong, visionary country leadership is a prerequisite for effective harmonisation and alignment of development efforts, and that genuine government commitment to change and reforms is necessary. Also, harmonisation takes place at country level, and that is where it should start. Donors who want to harmonise and be partners in national programmes should be represented at the country level and be willing to change ways of doing things in order to explore new opportunities for multi-partner arrangements. A decentralised mandate and accountability among donors in decision making is important to advance the preparation and implementation of country-led national programmes. Finally, the individual sector context is important – there are no blueprints to harmonisation and alignment, and donors should take a step-by-step approach to allow for flexibility and adaptability.

Side Events

Water Scenarios to 2025:
Business in the World of Water

Convenor: World Business Council for Sustainable Development (WBCSD)

The WBCSD Water Scenarios focus on efficiency, security and interconnectivity. They are a tool for business to evaluate the strategic relevance of water, their exposure along the life cycles, and to identify where stakeholder approaches are needed (see www.wbcsd.org/web/H2Oscenarios.htm). At the side event, it was shown how the scenarios are a framework for looking "beyond the river" as they create a common language and a shared context so that we can begin conversation on the future of water. The discussions gave some insights into how one would succeed in moving "beyond the river." These include the need of: a change in mindset with regards to water reuse and recycling; different water tables with different stakeholders at each table; and a governance structure for a more holistic water management, which can only happen if it is isolated from the politics of the day.

Photo: Mats Lannerstad

"Water and Film": From Mexico City to Istanbul via Stockholm

Convenors: French Water Academy, International Secretariat for Water and Comision Nacional del Agua (CONAGUA, Mexico)

The 1st International "Water and Film" took place in Mexico City during the 4th World Water Forum in March 2006. In Stockholm, the film catalogue, as well as some trailers of the spots and films awarded, was presented. In addition, an account of the roundtable on "Water, Film and Cultural Diversity," which was held in the Citizen's House, was given. The side event recommended the integration, in World Water Weeks 2007 and 2008, of a "Water and Film" platform as steps towards the International "Water and Film" Event in Istanbul for the 5th World Water Forum in 2009.

The Second Edition of "Sir Richard Jolly Lecture Series"

Convenor: Water Supply and Sanitation Collaborative Council (WSSCC)

Ms. Hilde F. Johnson, co-convener of the WSSCC initiative "Women Leaders for WASH" and the former Minister of International Development of Norway, linked improvements in water supply, sanitation and hygiene (WASH) to the achievement of the Millennium Development Goals, with a particular focus on the situation and role of women. The lack of access to safe water and adequate sanitation facilities affects all members of a household but women and girls in developing countries are the ones carrying the heaviest burden and paying the highest price. The vital role of women in WASH interventions is undeniable and there is clear evidence that women's influence and involvement in community projects make them more likely to succeed in the long run. Even so, women are often disregarded in the decision process and their special needs not taken into consideration, leading to well-intended new facilities falling into disuse. Ms. Johnson concluded her lecture by stressing that commitment from decision makers, empowerment of women, increased investment and efforts in breaking the taboos are needed to reach the MDGs, not just for water and sanitation but all eight of them.

Donor Country Approaches to Water-Related Development Co-operation

Focus Area: Public-Private Partnerships in Water Supply and Sanitation

Convenor: Stockholm International Water Institute (SIWI) in cooperation with the Netherlands Ministry of Foreign Affairs, Department for International Development, United Kingdom, Ministry of Foreign Affairs of Denmark, State Department, USA and The Federal Ministry for Economic Cooperation and Development, Germany

For the first time, SIWI together with other donors organised a side event where approaches on Private Sector Participation (PSP) in water supply and sanitation projects were discussed. It aimed to analyse the past 15 years, a time which has seen both strong advocacy for private sector involvement as well as passionate and, at times, violent opposition. The panel members came from donor and recipient country governments, as well as from NGOs. The main impression from participants is that the former impassioned debate seems to have subsided and been replaced with a substantive debate about how to interpret the role of the private sector with regard to MDG-driven challenges. Joint efforts which include the private sector are needed, it was said. In addition, Public-Private Partnerships scored highly because they can help the blunt criticism of those who advocate that water supply must remain a "public good."

Small Multi-Purpose Reservoir Planning

Convenor: Stockholm Environment Institute (SEI)

Well-designed small reservoirs have the potential to improve the lives of people who grow irrigated crops and fish, water livestock and use water in their households. With better information, people in small communities will enjoy sustainable production systems that improve their livelihoods without compromising the quality of the environment. The side event showed how science-based planning and management of small multi-purpose reservoirs supports sustainable water allocation and the healthy, productive use of community reservoirs for the improvement of livelihoods.

The Difference a Tree Can Make:

Water, Tree and Soil Interactions in Tropical Watersheds

Convenor: World Agroforestry Centre (ICRAF)

The side event provided insight into the ways trees can be best managed to advance watershed management objectives and the implications for watershed management policy and programme design. The findings presented at the side event were dawn from more than 20 years research, by ICRAF and its partners, which shows the nuanced roles of trees in watersheds. Deciduous trees reduce dry-season water use, riparian vegetation reduces sedimentation, and trees that anchor and bind reduce landslide risk. A series of information briefs were launched during the side event, which was instrumental in networking these findings into policy debates in Kenya, Tanzania and Sudan, as well as laying the foundation for productive partnerships in Southeast Asia and Latin America.

Green-Blue Initiative:

Integrated Green-Blue Land and Water Resource Management for Poverty Alleviation and Ecosystem Sustainability

Convenors: Stockholm International Water Institute (SIWI) and Stockholm Environment Institute (SEI)

By solely focusing on the blue water, water crisis analyses have been distorted. The Green-Blue Initiative is an effort to address the policy angle of green water – the main water resource of poor small-holder farmers. The goal is coherent approaches to blue and green water resources in water governance and policy interventions. A green and blue water paradigm opens new opportunities for investments in water management for livelihood improvements. Field activities will be carried out in pilot river basins where strong partnerships will be established with both river basin and community based organisations. Studies will focus on governance approaches integrating green and blue water management. The Green-Blue Initiative (GBI) is a joint programme of SIWI, SEI, International Water Management Institute, International Food Policy Research Institute, The World Conservation Union and the Association for Strengthening Agricultural Research in Eastern and Central Africa.

The Stockholm Water Prize

Photo: SIWI

The Stockholm Water Prize was presented by H.R.H. Crown Princess Victoria to Professor Asit K. Biswas during a ceremony at the Stockholm City Hall on Thursday, August 24.

Participants from more than 140 countries attended the 2006 World Water Week, but those coming from Australia, Canada, China and Sweden couldn't be blamed if they felt an added touch of pride during the week. That's because the winners of the Stockholm Water Prize, Stockholm Junior Water Prize, Stockholm Industry Water Award, Swedish Baltic Sea Water Award and World Water Week Best Poster Award came from those countries.
Stockholm was the venue for more than 100 seminars, workshops, side events and closed meetings. Still, perhaps the most memorable events for many participants will be the different celebrations honouring excellence in the water field.

Of the many events participated in by Prof. Asit K. Biswas – the Opening Session, the SJWP ceremony, the Founders Seminar, media interviews, and more – none was more momentous than that on the evening of August 24.

A fine summer evening greeted Prof. Biswas – as did hundreds of assembled family, friends and guests – to see him accept the 16th Stockholm Water Prize from the hands of H.R.H. Crown Princess Victoria of Sweden. The tireless water proponent, noted for constantly challenging the "status quo," is an Indian-born Cana-

dian citizen and president of the Mexico City-based Third World Centre for Water Management.

At the ceremony in the Stockholm City Hall, Dr. Akissa Bahri of the independent international Nominating Committee noted that Professor Biswas has made "outstanding and multi-faceted contributions to global water resource issues, including research, education and awareness, water management, human and international relations in both developed and developing countries."

Among the many qualified water experts in different disciplines, Prof. Biswas was heralded for sharing his broad knowledge across many fields internationally, thereby adding new dimensions to the wise use and management of the global water resources.

The Stockholm Water Prize, a global award founded in 1990 and presented annually to an individual, organisation or institution for outstanding water-related activities, is worth USD 150,000. Following the ceremony, the Royal Banquet in the City Hall offered guests the opportunity to hear of Professor Biswas' "dreams" during his acceptance speech. "I have a final dream that every one of the world's citizens will live in a water secure world within my lifetime," he said. "This is not an impossible dream but an achievable dream. If we fail, as Shakespeare has said in Julius Caesar 'The fault, dear Brutus, is not in our stars, but in ourselves that we are underlings.'"

Among the many distinguished guests to hear his wise words were those of the Founders of the Stockholm Water Prize. They include:
Anglian Water, Bacardi, DuPont, Europeiska Insurance, Fujitsu Siemens Computers, General Motors, Grundfos Management, Hewlett Packard, Hilton and Scandic, ITT Flygt, Kaupthing Bank Sverige, Kemira Kemwater, KPMG Sweden, P&G, Ragn-Sells, Scandinavian Airlines (SAS), Siemens AG, Snecma, Stockholm Water Festival, Swedish Railways (SJ), Uponor, and the Water Environment Federation, in collaboration with The City of Stockholm.

Photo: SIWI

The Stockholm Junior Water Prize

The Stockholm Junior Water Prize, presented August 22, was the first to be handed out during the week. In front of 700 guests in the Stockholm City Conference Centre, a Chinese trio – Ms. Wang Hao, Mr. Xiao Yi and Mr. Weng Jie – were awarded the prestigious youth prize.

The Stockholm Junior Water Prize is presented each year to high-school age students for an outstanding water-related project focusing on topics of environmental, scientific, social or technological importance.

In taking top place among 26 participating countries, the team from Shanghai Nanyang Model High School was recognised for a project which "displayed originality, ingenuity and tenacity in its use of low-cost, ecologically friendly technology to restore a polluted urban river channel," according to the international nominating committee. They received the Prize from the hands of H.R.H. Crown Princess Victoria plus a USD 5,000 scholarship and a crystal sculpture.

The winning project consisted of the students damming small sections of the highly polluted Caoxi river channel and removing the contaminated mud which was exposed. Second, oxygen-starved stretches of the river were revitalised through the use of floating aerators. Third, bushes and other bank-side plants were carefully fertilised with organic waste, irrigated and used as biological barriers to block polluted runoff from the land. Finally, through a water quality monitoring program, illicit sewage discharges were discovered, exposed and eliminated.

The committee called the project a "tried-and-true method for river channel restoration which gives great hope for similar successes with other streams in the 19-million person Shanghai metropolitan area".

Diplomas of Excellence were also given to Japan and Sri Lanka. Ms. Satomi Kosho, Ms. Naomi Sugimoto and Ms. Sae Nishino from Japan, who developed a portable nursery which adapted the principles of the well-known Wardian Case for transporting plants, created an innovative approach which both reduced the amount of water needed to grow rice seedlings and improved their quality. The Sri Lankans Ms. Mihirani Kethumalika, Ms. Uthpala Rathnayake and Ms. Chathurika Rathnayake challenged the wasteful water practices often found in paddy rice cultivation.

The international competition, which is sponsored globally by ITT Corporation, included a number of events in addition to the award competition. Site visits, seminars and social events provided the 60 young people, many of whom were making their first international trip, with an experience to remember.

H.R.H Crown Princess Victoria of Sweden presented the award to (from left) to Ms. Wang Hao, Mr. Xiao Yi and Mr. Weng Jie during the ceremony at the Stockholm City Conference Centre.

Photo: SIWI

The Stockholm Industry Water Award

Mrs. Gabrielle Kibble travelled some 21,700 kilometres from Sydney to Stockholm. For the Chair of Sydney Water, the municipal water and wastewater supplier in the Australian metropolis, it was worth it. Every day is not like August 23, 2006, when your company is honoured with the Stockholm Industry Water Award. It isn't every municipal water and wastewater supplier that has helped the businesses and industries within its confines save 20 million litres of water daily.

Sydney Water was recognised in Stockholm for its "Every Drop Counts (EDC) Business Program". The innovative programme demonstrates how the utility is working in partnership with business, industry and government to help ensure the long-term sustainability of Sydney's water supply.

Sydney Water is the largest water utility in Australia, the driest inhabited continent in the world, and supplies water to 4.2 million people and many businesses and industries. As part of its operating license requirement, Sydney Water is required to reduce per capita consumption by 35% during the period from 1991 to 2011. The EDC Business Program is a water conservation programme for the business, industry and government sector, which represents around 30% of the total water use in the Sydney region. The EDC Business Program addresses these challenges by promoting water management as a business issue rather than a technical issue.

In Stockholm, Ms. Kibble also had the opportunity to talk about EDC during the business-oriented Founders Seminar. The seminar theme, "Business on the Ground: When Solving Local Community Water Issues Becomes Part of Doing Business," provided an opportunity to speak about how more than 310 organisations have joined the programme. The direct benefits in terms of water conservation, Ms. Kibble said, are significant in and of themselves, even more so because they are enhanced by the indirect benefits of energy savings and reduced wastewater flows.

The Stockholm Industry Water Award is presented by the Stockholm Water Foundation. It honours innovative corporate development of water and wastewater process technologies, contributions to environmental improvement through improved performance in production processes, new products and other significant contributions by businesses and industries that help improve the world water situation.

From left: Mrs. Gabrielle Kibble, AO, Chair, Sydney Water, Mr. Mohan Seneviratne, Program Manager - Business, Water Conservation & Recycling, Sydney Water and Mr. Stig Larsson, Chair, Stockholm Water Foundation, at the Stockholm Industry Water Award Ceremony.

Photo: SIWI

The Swedish Baltic Sea Water Award

During the Closing Session of the World Water Week on August 25, 2006, attendees witnessed the honouring of an exceptional example of personal philanthropy.

The 2006 Swedish Baltic Sea Water Award was presented to Mr. Björn Carlson, a Swedish financier, for his 2005 personal donation of SEK 500 million (USD 62.6 million) for interdisciplinary projects and creative initiatives that support direct and practical efforts which contribute to improved water quality in the Baltic Sea. The funds are administered by the Björn Carlson Foundation for the Baltic Sea.

Through this large donation, he wishes to encourage politicians, authorities, companies, fishing societies and other sectors around the entire Baltic Sea to dare to try new methods and to take unconventional measures in the work to improve the sea's marine environment.

The Swedish Baltic Sea Water Award is a regional award for water stewardship. The award is given by Sweden's Ministry for Foreign Affairs in appreciation for what individuals, corporations, non-governmental organisations and municipalities have done to help improve the Baltic Sea's water environment.

"Mr. Carlson's donation is a truly outstanding example of individual philanthropy in pursuit of a worthy cause," said Dr. Ulla-Britta Fallenius, chair of the Award Committee. "Like all of us living around the Baltic Sea, he is disturbed and concerned by the increasingly threatened health of this common natural resource; unlike all of us, through such a generous donation he has the ability to stimulate efforts to make concrete improvements to the sea which benefit us all living in the region."

From left: Mr. Anders Berntell, Executive Director at SIWI, Mr. Björn Carlson, recipient of the 2006 Swedish Baltic Sea Water Award, and Ms. Cecilia Björner, Ministry for Foreign Affairs, Sweden.

Photo: SIWI

Collaborating Organisations

- Andhra Pradesh Farmer Managed Groundwater Systems Project http://www.apfamgs.org/
- Baltic 21 http://www.baltic21.org
- Bangladesh Unnayan Parishad http://www.bup-bd.org/
- Bonn International Centre for Conversion (BICC) http://www.bicc.de/
- Business Partnerships for Development in Water and Sanitation (BPDWS) http://www.bpd-waterandsanitation.org/
- Cap-Net http://www.cap-net.org/
- Centre for Transdisciplinary Environmental Research (CTM, Stocholm University) http://www.ctm.su.se/
- CGIAR Challenge Program on Water and Food (CPWF) http://www.waterforfood.org/impact/
- CGIAR Comprehensive Assessment and Challenge Programme http://www.iwmi.cgiar.org/assessment/
- Comision Nacional del Agua (CONAGUA) http://www.cna.gob.mx/eCNA/Espaniol/Directorio/Default.aspx
- Delft Hydraulics http://www.wldelft.nl/
- DHI Water & Environment http://www.wldelft.nl/
- East African Community (EAC) http://www.eac.int/
- The Educational Activity of the Sobriety Movement http://www.nbv.se
- Euphrates-Tigris Initiative for Cooperation/KENT State University (ETIC) http://www.eticorg.net/
- European Commission (EC) http://ec.europa.eu/index_en.htm
- European Union Water Initiative (EUWI) http://www.euwi.net/
- Every River has its People Project (ERP) http://www.euwi.net/
- Expert Group on Development Issues (EGDI), Ministry for Foreign Affairs, Sweden http://www.egdi.gov.se/
- Federal Institute for Geosciences and Natural Resources (BGR), Germany http://www.bgr.bund.de/cln_029/DE/Home/homepage__node.html__nnn=true
- Food and Agricultural Organization (FAO), Rome, Italy http://www.fao.org/
- French Water Academy, International Secretariat for Water http://www.academie-eau.org/
- Gender and Water Alliance (GWA) http://www.genderandwater.org/
- Global Water Partnership (GWP) http://www.gwpforum.org/
- Global Water Partnership (GWP) – Eastern and Western Africa http://www.gwpforum.org/
- International Association for Hydrogeologists (IAH) http://www.iah.org/
- International Association of Hydraulic Engineering and Research (IAHR)
- International Association of Hydrological Sciences (IAHS) http://www.iahr.net/site/index.html
- International Federation of Environmental Journalists (IFEJ) http://www.ifej.org/
- International Hydropower Association (IHA) http://www.hydropower.org/
- International Lake Environment Committee (ILEC) http://www.ilec.or.jp/eg/index.html
- International Livestock Research Institute (ILRI) http://www.ilri.cgiar.org/
- International Water and Sanitation Centre (IRC) http://www.irc.nl/
- International Water Association (IWA) http://www.iwahq.org.uk/templates/ld_templates/layout_641866.aspx?ObjectId=642253
- International Water Management Institute (IWMI) http://www.iwmi.cgiar.org/
- International Water Resources Association (IWRA) http://www.iwra.siu.edu/
- Japan Water Forum (JWF) http://www.waterforum.jp/eng/
- King's College London http://www.iucn.org/
- Linköping University http://www.liu.se/
- London Water Research Group
- Ministry of Foreign Affairs, Danida, Denmark http://www.um.dk/en/
- MunichRe Foundation http://www.munichre-foundation.org/StiftungsWebsite/
- Netherlands Ministry of Foreign Affairs http://www.minbuza.nl/
- NoWNET (Australia Water Partnership, Danish Water Forum, Global Water Partnership, Japan Water Forum, Korea Water Forum, Netherlands Water Partnership, Swedish Water House and World Water Council) http://www.northernwater.net/
- Okavango Delta Management Plan (ODMP) http://www.ramsar.org/mtg/mtg_okavango_donors1.htm
- Okavango River Basin Water Commission (OKACOM) http://www.irbm.co.bw/
- Overseas Development Institute (ODI) UK http://www.odi.org.uk/
- Pakistan Water Partnership (PWP) http://www.gwpsouthasia.org/
- Pan African Vision for the Environment (PAVE)
- Prince Sultan Bin Abdulaziz International Prize for Water, Prince Sultan Research Center for Environment, Water and Desert, King Saud University, Riyadh, Saudi Arabia http://www.psipw.org/index.htm
- Prince Sultan Research Center for Environment, Water and Desert, King Saud University http://www.psipw.org/index.htm
- Ramboll Natura http://www.rambollnatura.se/homepage/index.shtml
- Ramsar Convention on Wetlands http://www.ramsar.org/index.html
- Stakeholder Forum for a Sustainable Future http://www.stakeholderforum.org/1index.php
- Stockholm Environment Institute (SEI) http://www.sei.se/
- Stockholm Environment Institute (SEI) – Asia http://www.sei.se/asia/index.html
- Stockholm International Water Institute (SIWI) http://www.siwi.org/
- Stockholm Water Company http://www.stockholmvatten.se/indexie.htm
- Stockholm Water Foundation http://www.siwi.org/
- Streams of Knowledge
- Swedish Association for Environmental Journalists (MOF) http://www.ifejstockholm2006.com/
- Swedish International Development Cooperation Agency (Sida) http://www.sida.se/
- Swedish Society for Nature Conservation (SSNC) http://www.snf.se/
- Swedish Water House (SWH) http://www.swedishwaterhouse.se/
- Swiss Federal Institute of Aquatic Science and Technology (EAWAG) http://www.eawag.ch/index_EN
- The Comprehensive Assessment for Water Management (CA) in Agriculture http://www.iwmi.cgiar.org/Assessment/index.htm
- The Federal Ministry for Economic Cooperation and Development, Germany http://www.bmz.de/en/
- The International Joint Commission (IJC) http://www.ijc.org/
- The Nature Conservancy (TNC) http://www.nature.org/
- The University of Tokyo http://www.u-tokyo.ac.jp/index_e.html
- The World Bank http://www.worldbank.org/
- The World Conservation Union – IUCN http://www.iucn.org/
- The World Life Sciences Forum (BioVision) http://www.biovision.org/
- Third World Centre for Water Management http://www.thirdworldcentre.org/
- UN Habitat http://www.unhabitat.org/
- UN Task Force for Gender and Water – Division for the Advancement of Women http://www.un.org/womenwatch/daw/
- UNDP Human Development Report Office
- UNEP Collaborating Centre on Water and Environment http://www.ucc-water.org/
- UNEP Division of the Global Environmental Facility (UNEP DGEF) http://dgef.unep.org/
- UNEP Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) http://www.gpa.unep.org/bin/php/home/index.php
- UNESCO International Hydrological Programme (UNESCO-IHP) http://www.unesco-ihe.org/vmp/articles/contentsHomePage.html
- United Nations – Department of Economic and Social Affairs (UNDESA) http://www.un.org/esa/desa/
- United Nations Children's Fund (UNICEF) http://www.unicef.org/
- United Nations Development Programme (UNDP) http://www.undp.org/
- UN-Water http://www.unwater.org/flashindex.html
- VARIM http://www.varim.org/varim/default.php
- WASTE Advisers on Urban Environment and Development http://www.waste.nl/
- Water and Sanitation Programme (WSP) http://www.wsp.org/
- Water and Sanitation Programme (WSP) – South Asia
- Water Environment Federation (WEF) http://www.wef.org/Home
- Water Integrity Network (WIN) [International Water and Sanitation Centre, Stockholm International Water Institute, Swedish Water House, Transparency International and Water and Sanitation Programme] http://www.waterintegritynetwork.net/
- Water Supply and Sanitation Collaborative Council (WSSCC) http://www.wsscc.org/
- Watershed Media Project http://www.watershedmedia.org/
- Wetlands International http://www.wetlands.org/
- World Agroforestry Centre (ICRAF) http://www.worldagroforestry.org/
- World Business Council for Sustainable Development (WBCSD) http://www.wbcsd.ch/
- World Health Organization (WHO) http://www.who.int/en/
- World Water Council (WWC) http://www.worldwatercouncil.org/
- World Water Institute http://www.worldwaterinstitute.org/
- World Wide Fund for Nature (WWF), Sweden http://www.wwf.se/

WORLD WATER WEEK

in Stockholm
August 20–26, 2006

Stockholm International Water Institute

Independent and Leading-Edge Water Competence for Future-Oriented Action

The Stockholm International Water Institute (SIWI) is a policy institute that contributes to international efforts to find solutions to the world's escalating water crisis. SIWI advocates future-oriented, knowledge-integrated water views in decision making, nationally and internationally, that lead to sustainable use of the world's water resources and sustainable development of societies.

www.siwi.org

World Water Week in Stockholm

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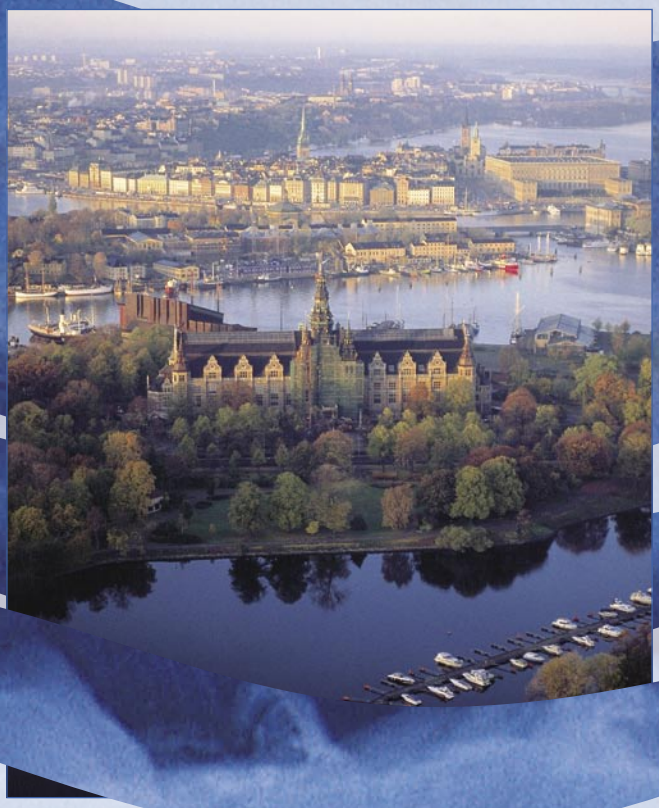
www.worldwaterweek.org



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