

PARIS-2007 STATEMENT

The UNESCO International Symposium on New Directions in Urban Water Management,

held in Paris on 12-14 September 2007 with 200 participants from over 50 countries,

Having deliberated on the challenges of urban water management and the need to adopt new paradigms for addressing growing demands on urban waters in an innovative and sustainable way, and building upon the findings of previous international conferences, including the Dublin Statement on Water and Sustainable Development (International Conference on Water and the Environment, 1992), Agenda 21 and the Rio Declaration on Environment and Development (United Nations Conference on Environment and Development, 1992), the Beijing Declaration and Platform for Action (UN Fourth World Conference on Women, 1995), the Paris Statement 1997 (Symposium on Water, City and Urban Planning, 1997), the United Nations Millennium Declaration (2000), the Marseille Statement (UNESCO Symposium on Frontiers in Urban Water Management: Deadlock or Hope?, 2001), the Johannesburg Plan of Implementation (World Summit on Sustainable Development, 2002), UN CSD-13 policy recommendations on practical measures and options to expedite implementation of commitments in water, sanitation and human settlements (13th session of the United Nations Commission on Sustainable Development, 2005) and the spirit of the World Water Forums (held in 1997, 2000, 2003 and 2006),

Urges countries, the international community, research institutions and universities, local groups, non-governmental organizations and citizens to adopt the guidelines and recommendations found below.

Whereas:

- **Rapid population growth and urbanization, with over half of the world population living in cities, are placing increasing stress on water resources.** Urbanization is occurring at an unprecedented rate, particularly in developing countries, with high migration of population from rural to urban areas and a growing number of megacities. Future growth of the world's population will occur mainly in urban areas in developing countries. As a consequence of urbanization and associated environmental impacts, the issue of providing water services to the growing urban population (such as water supply, sanitation, drainage and flood protection, and enhancing the environmental sustainability of urban water resources) is becoming critical.
- **Water related problems in cities touch upon all elements of the water cycle, and through interactions between the cycle components directly impact on human health, well-being and safety.** In addition to established health impacts, new pollutants such as endocrine disrupting substances (EDSs), and pharmaceuticals and personal care products (PPCPs) are emerging. These new substances are proven to impact on aquatic life and studies of their potential impacts on human health are under way. Risks connected with these new substances are best managed by source controls rather than by expensive end-of-pipe wastewater treatment.
- **The stress on urban water services and aquatic habitats is further exacerbated by climate change and variability,** which impact on every aspect of the urban water cycle, including: air temperatures; precipitation depths, forms and patterns; flow regimes of streams and rivers; the occurrence of floods and droughts; groundwater regimes, aquifer recharge and sustainable yields; water quality conditions and sediment regimes of surface waters; water levels in lakes, seas and oceans; and others. These changes add another layer of uncertainty which decision makers, water managers and environmental planners need to consider in their challenging work.
- **The nature, extent and dynamics of urban water problems differ between developing and developed parts of the world.** For instance, many cities in developed countries face ageing systems, requiring urgent renovation and investments. Developing countries are struggling to

provide and/or extend safe drinking water and sanitation services to the entire population of urban and peri-urban areas, as well as to growing informal settlement areas.

- **There is a widespread crisis of urban water governance, particularly in developing countries.** Fragmented institutions (geographically and across different aspects of the water cycle), weak regulatory and institutional frameworks, excessive centralization, an unclear division of responsibilities between the central and local governments, inefficient and outdated management practices, and misguided decision-making due to short-term political or commercial interests lead to inadequate capacity to address urban water challenges. This is often exacerbated by limited user participation, leading to inequality among the urban population served by water services and an increasing number of urban water conflicts.
- **The lack of appropriately trained and qualified staff at all levels,** capable of acting as champions to implement the emerging solutions and paradigms, limits advances in urban water management, in particular progress towards meeting the Millennium Development Goals.
- **The overall state of urban water services remains unsatisfactory at the global scale,** despite continuing advances in the development of knowledge, tools and technology for urban water management. This slow progress limits our ability to deal with the growing global challenges, particularly to meet the Millennium Development Goals. Thus, urban water issues need to be kept at the forefront of the development agenda and wider water management efforts.

Recognizing the urgent need to adopt new approaches, including:

- **Sharing the wealth of knowledge assembled in the field of urban water management** with a wide circle of stakeholders in learning alliances. Under the sixth phase of the International Hydrological Programme (IHP-VI), UNESCO has completed nine projects addressing urban water management issues: (1) data requirements for integrated urban water management, (2) processes and interactions in the urban water cycle, (3) sustainable urban groundwater management, (4) urban water system interactions, (5) integrated urban water modelling and management under specific climates, (6) urban water security, human health and disaster prevention, (7) urban aquatic habitats, (8) socio-economic and institutional aspects in urban water management, and (9) urban water education, training and technology transfer platform and tools. A new tool for the analysis of groundwater in complex urban areas has also been developed. The output of these UNESCO projects on urban water management could provide a useful platform for future educational and training needs.
- **Collecting, storing, managing and sharing appropriate data and essential information on urban water and aquatic habitat management** to support effective management of the urban water cycle. This process requires integration of many sources of data and information, including indigenous and traditional knowledge, remotely sensed data, historical data from earlier efforts, and newly collected data using automated sensors and communication technologies. Despite recent advances in cost-effective data collection technologies, data acquisition programs remain relatively expensive and should be more targeted towards agreed objectives. Specific attention needs to be paid to monitoring the interactions between urban water cycle components.
- **Using the urban water cycle, with all its components and their interactions, as a unifying framework for effective management.** Such an approach is instrumental in searching for more sustainable solutions, which are increasingly characterized by local approaches with reduced environmental flows, which avoid large imports of water, energy and materials, exports of pollution and minimise ecological disruption. Examples include rainwater harvesting, wastewater reclamation and reuse, which reduce both the need for importation of high-quality water and the discharge of pollution into receiving waters, and can reduce infrastructure costs.
- **Managing the interactions between the components of the urban water cycle,** as water cycle components interact and mutually affect each other's operation. Particular attention should be given to the interaction between engineered infrastructure and the natural environment with its

diverse aquatic habitats. Studying such interactions by means of new advances in modelling at appropriate spatial and temporal scales, and adopting ecosensitive designs can ensure improved protection of the habitat and improved operation of the infrastructure, demonstrated in many successful case-studies.

- **Practising the protection and sustainable management of groundwater resources** because a large part of the world's population relies on groundwater as a source of drinking water. This is particularly challenging in urban areas, where there are numerous intentional and unintentional discharges into groundwater aquifers, including infiltration of liquids from storage tanks and lagoons, sewage reuse for irrigation and landfill leaching.
- **Reducing water-related health impacts to the urban population** arising from ingestion of untreated or insufficiently treated drinking water, exposure to contaminated surface waters, and to pathogens in food from crops irrigated by insufficiently treated wastewater. This is a particular issue when closing the water cycle. This can be achieved by careful risk identification and management such as controlling pathogen sources and improving techniques for microbial source tracking.
- **Acknowledging that urban waters fulfil important aquatic habitat functions, which are affected by their state.** Newly promoted approaches offering great promise, such as ecohydrology, focus on the use of ecosystem properties as a new management tool for flood protection, pollution control and improvement of the quality of life.
- **Moving away from water-supply management alone to water-demand management.** By limiting demand, resources are conserved and environmental impacts reduced. The concept of managing water demand has been further extended in the 'soft path for water' approach, in which water is considered as a service rather than an end in itself. In this concept, ecological sustainability is a fundamental criterion, the quality of water supplied is matched to the needs of users, and the planning proceeds from the future back to the present.
- **Understanding and accounting for the complex socio-economic issues associated with urban water management.** Concepts such as social inclusion, affordability, user participation, preferences and acceptability are increasingly being acknowledged as keys to successful implementation and essential elements to be incorporated into urban water management.
- **Draw the distinction between water as a service and water as a resource,** especially with respect to understanding conflicts and their resolution. As the lack of such a distinction is at the root of urban water conflicts, it is crucial to consider water rights and allocation issues in integrated urban water management strategies and policies.
- **Engage with a wide circle of stakeholders** from users (customers) to professionals (planners, builders) through learning alliances where appropriate, as a useful model. Stakeholder engagement is a key to integrated and participatory approach to urban water management.
- **Close the gap between academic research and practice** by identifying the specific research needs, promoting demand-driven research, making research findings accessible and usable, translating research findings into practical guidelines for immediate application and supporting capacity building activities in developing countries.

The Symposium recommends that:

- **Sustainable urban water management should be based on several key concepts,** including: enhancing resilience of urban water systems to global change pressures, making interventions over the entire urban water cycle, applying demand management and the reconsideration of the way water is used (and reused), making more prudent use of existing infrastructure, making more frequent use of local and natural systems, improving governance and financial management structures and promoting more active stakeholder participation.

- **Sustainable policies, strategies and practices are needed in response to global change pressure on urban waters**, in order to safeguard quantity and quality of water resources and its aquatic habitats. Urban water systems that can adapt to global changes are therefore key, and urban water managers are urged to implement the design of adaptive, flexible, robust, cost-effective systems capable of responding to these changes rather than locking into standard, rigid solutions.
- **The concept of sustainability needs to be operationalized** to include the aspirations and preference of local communities. The adopted sustainability framework must be adaptable enough to reflect local conditions and priorities, should not hinder other objectives related to poverty alleviation and development, and should ensure appropriate stakeholder participation.
- **Higher priority must be given to the protection and holistic management of groundwater**, considering its value both as a water resource, and a contributor to aquatic ecosystems.
- **Greater consideration must be paid to the protection of aquatic ecosystems and habitats**, both for their intrinsic value, and for the ecosystem goods, amenities and services that they provide. Urban water managers should have ecological sustainability as a central goal in their management decisions and promote 'ecosensitive' approaches in the design and operation of urban water infrastructure.
- **Decisions related to urban water management must address uncertainty and variability associated with global changes**. A risk-based, adaptive management approach should be adopted to account for these uncertainties, based on the precautionary principle, underpinned by appropriate data on urban water cycle components and their interactions. This will aid decision makers to implement urban water management systems that are robust, adaptable and sustainable under these future change pressures.
- **Technological innovations should be adopted where appropriate**. Development and transfer of new technologies and techniques such as advanced water and wastewater treatment processes, greywater reuse and eco-sanitation are essential for optimizing and enhancing the design, performance and efficiency urban water systems.
- **In addition to the role of developing and promoting new technologies, innovation based upon the involvement of users should be increasingly adopted**. The involvement of stakeholders will help overcome key technological, institutional, and economic barriers to sustainable water management. The sustainability paradigm implies the need for transdisciplinary action, ensuring the widest possible engagement of key stakeholders in the decision-making process.
- **Knowledge and understanding developed internationally in the area of urban water management must be translated into practice by developing capacity** amongst people and institutions to adopt and implement these solutions. This can be achieved by expanding international partnerships with universities, government bodies and industry reflecting the complementary strengths of each partner. In this way, it is possible to catalyze and coordinate collaborative and integrated scientific planning and delivery across the globe.
- **A global network of urban water champions and expertise should be established**, facilitated by UNESCO and the network of water-related centres under its auspices, to spearhead a concerted effort to serve the capacity development needs underpinning the international urban water agenda. This global network should work in close collaboration with key regional partners worldwide, to strengthen existing institutions and structures responsible for training water professionals in the area of urban water management. Working in this way will ensure that the activities are tailored to include country or region specific elements.
- **An urban water global platform should be established for policy dialogues and debates** on the most pressing problems and challenges faced by developing countries and countries in transition, engaging a wide spectrum of expert groups, professional, international and multilateral organizations.

And finally,

the 2007 Paris Symposium concludes that urban water management will undergo significant changes over the next decade. Impacts of global climate change, increasing urbanisation and changing demographics, all pose significant challenges for urban water managers. Yet advances have been made in such diverse areas as data management, understanding and management of the components of the urban water cycle and their interdependencies, technological innovations at local scale, risk reduction strategies, water demand management, adaptive capacity, better understanding of ecosystem health and habitat protection. Furthermore, new insights leading to more sustainable approaches have emerged into the role of institutions and other key stakeholders, into the governance and financial aspects of urban water management and to the importance of individual users and their communities. By honestly sharing experiences, there are good opportunities to learn from each other both past successes and mistakes. There is no doubt that **new directions** will be pursued in urban water management and the challenge is to ensure that these will maximise the benefits to all peoples and the one planet we share.