Workshop 8 (synthesis): urban dynamics, livable cities and water

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Abstract A major wave of urbanisation is taking place in small- and medium-sized cities in developing countries. Water governance and integrated approaches are key factors in providing adequate services and maintaining the water resource. Intermediate technologies and practices need to be applied on a much wider scale.

Keywords Integrated approaches; new technology; urbanisation; water efficiency; water governance systems

Introduction
A significant development feature in the South is the demographic change in the form of overall population growth and rapid urbanisation. Urban dynamics and increasing complexities present several economic, social and environmental opportunities as well as obstacles to provide adequate water-related services and protect the water resource, and thus make cities more livable and sustainable. People move to cities for survival and fulfilment. Integrated approaches are required to meet these aspects of a livable city.

The governance of dynamic urban systems is one of the key elements towards providing cities with adequate basic water-related amenities, especially since cities around the world are facing changes based on complexification, globalisation, interdependence/conflict, uncertainty, vulnerability and turbulence. Water governance systems (manifested in policies and formal and informal rules and regulations) and various management instruments, and innovative water supply and sanitation technologies and practices are critical for creating livable and sustainable cities.

Urban dynamics for securing water
Many urban centres are already facing water crises, which are ultimately manifested in poverty and environmental destruction. Worsening urban living conditions is related to engineering challenges. It is not possible for urban centres to only “engineer” themselves out of water and sanitation problems. Many times appropriate technological solutions are available but there is a failure of transferring and/or applying them. Various urban socio-economic activities have impacts on the urban environment as well as the urban hinterland. The environmental crisis impacts most severely on poor people living in unregulated areas and/or informal settlements and whose coping capacity is low. Water governance systems in many countries are characterised as being in a state of disorder. Some examples include fragmented institutional structures leading to conflicting decision-making and uncertainties of how to exercise upstream/downstream riparian rights or any water rights. It is also common that public resources are diverted for personal gain and the use of law can many times be unpredictable. The vast number of regulations and licensing practices impedes markets and voluntary action and tend to encourage corruption and other forms of
rent-seeking behaviour. The urban water crises also present challenges related to public awareness, participation and empowerment. In general, there is a wealth of information on various urban conditions but poor knowledge on urban complexities and dynamics. It is important to address underlying causes not the symptoms.

People migrating to urban centres often end up living in informal settlements and/or unregulated areas where inadequate provisions of water-related and other services are endemic. The urban water stress is increasing and water service coverage and quality are deteriorating due to inadequate water governance systems and increasing populations. The competition for water and related services is increasing both within the urban centre itself and between urban and rural water uses. The competition can trigger off tensions and conflicts between various stakeholders but also inspire cooperation. Some of the fundamental conflicts are related to: cognitive conflicts (whose facts should we use?); stakeholder conflicts; and ideological conflicts. The interdependency between water uses and urban dynamics is an important insight that is gaining ground, especially as an incentive for increased cooperation.

Sound and effective urban water governance systems and management instruments are critical to provide adequate services. Some important attributes for improved governance and management include:

• increasing participation in decision-making (it is especially important to include disadvantaged groups);
• improving accountability towards water consumers;
• applying water demand management;
• increasing water awareness; and
• enhancing decentralisation and local initiatives.

Regional governance and management experiences
The deterioration and low level of water services is reflected in *inter alia* intermittent water supply, which causes wastage and losses of water. Studies from both Asia and Africa show that intermittent water service affects poor people most. All consumers incur costs to cope with an inadequate service they need. For those who can afford the expense, the coping costs include storage tanks, alternative water supplies, etc. It is much more difficult for poor people to “buy” their way out of the problem and often they have to pay in the form of time spent in queuing up to get water from public taps or through private water vendors. Strikingly, consumers coping costs tend to be higher than payment to the water utility and both consumers and the utility are paying higher costs than necessary. The coping costs can also be used as a proxy to willingness to pay for more effective water services.

In the case of Australia (Sydney and New South Wales) it has been shown that the use of integrated approaches in combination with investments in water efficiency allows for major reductions in urban water demand as well as reducing costs to society of water and sanitation provision and improved environmental conditions. In applying this it is important to “pick the low hanging fruits first” (sequencing). In this particular case it turned out that investment in reuse options was the most worthwhile priority followed by investment in effluent reuse. The proper sequence of actions can differ from country to country and context to context. An important lesson was also that the ownership as such of utilities is not the main problem – it is the rules that matter.

The over-use of water for irrigation is a problem in many parts of Asia. Appropriate pricing mechanisms may be an option in allocating agricultural water for urban uses. In such circumstances it is crucial to estimate the cost and benefit of alternative water uses. Alternative uses should be weighed against losses of agricultural production and employment.
Some technology options

The financial resources and water are not available to solve the urban water crises and therefore it is important to look at new technologies and practices. Local intermediate water and sanitation technologies and practices, such as ecosanitation and rainwater harvesting techniques, are generally being under-utilised, especially in the peri-urban areas. For example, in the sanitation area, there is a fairly well established knowledge base about VIPs and water closets, but far less is known about the technology options in between. It is important to develop strategies and incentives for dissemination and scaling-up, as well as identifying and removing barriers for applying intermediate technologies.

Studies from Pakistan show that poor people living in unregulated areas are those being most severely hit by floods and lack of water-related services. In both regulated and unregulated areas there is a growing need to protect and restore water quantity and quality, such as re-establishing ground water recharge zones for flood water harvesting and implementing integrated strategies for efficient and equitable water allocation and enforcement of pollution regulations.

The applicability of intermediate technologies as well as more conventional or innovative technologies depends generally on the hydrological regime, the social and economic conditions and the population density and rate of population growth. Different technologies can also display specific requirements that should be met. For example, the relevance of ecosanitation also depends on the urban perimeter’s capacity to receive nutrients (urban agriculture).

Does size matter?

The increased size, density and heterogeneity of urban centres put new demands on governance, management, planning, financing and conflict resolution mechanisms (or incentives for cooperation) for adequate service provision and maintaining the water resource.

There is a strong tendency to focus on urban problems in mega-cities mainly because these are the hubs around which the political, economic and cultural powers revolve. An encouraging trend is that more and more studies focus on small- and medium-sized cities. For example, various studies have been carried out in relation to: the importance of small water reservoirs in cities of Belarus; integrated water resources management in medium-sized cities in Argentina; and the experimentation of alternative technologies and practices in the Chinese ecosanitation town project.

There is a need to put more focus on small- and medium-sized urban areas. Their relative population growth rate is generally higher than for mega-cities, and their service levels tend to be lower. Such a focus presents opportunities to apply innovative water technologies and practices more widely and to avoid past mistakes made in mega-cities.

Some policy opportunities

- Water governance – how society organises itself around water resources and its uses – and integrated approaches are keys for providing adequate services and maintaining the water resource.
- The major wave of urbanisation is taking place in small- and medium-sized cities in developing countries and there is thus a need to increase our knowledge and human and institutional capacities to provide livable and sustainable conditions.
- Intermediate technologies and practices need to be applied on a much bigger scale.
- In carrying out effective water reforms and management measures it is important to “pick the low hanging fruits first” (sequencing).