Water Governance for Future Cities

Concept Note for the OECD Project

Objective of the Project

The project aims to provide evidence on the relationship between governance structures for managing water in selected cities and the performance of water policy outcomes (access, quality, tariffs, reliability of service provision, equity, sustainability, etc.) and to explore governance mechanisms that can deal with fragmentation to improve urban water management, including those favouring inter-sectoral complementarities. This implies looking at coordination failures and best practices across water management functions (drinking water supply, wastewater management, drainage, flood protection) and beyond the water chain (mainly economic development, land use, spatial planning, biodiversity, ecosystems and energy).

As such, the project will focus more specifically on the contribution of metropolitan governance, rural-urban partnerships and stakeholder engagement as governance instruments that can help address fragmentation of water-related tasks, and foster cooperation to overcome mismatches across water management functions in a given city, between cities and their surroundings, and between water functions and other policy areas. The intended objective is to support policy coherence and effective water management beyond administrative boundaries and sectoral silos.

Outputs

Findings will be published in an OECD report (Q3, 2015) which will include:

- A taxonomy of cities based on selected criteria exogenous to the water sector (see section below) and an assessment of water governance implications taking into account future urban development trends and their implications for water management today and in the future;
- A dataset across 100+ medium and large cities from developed and emerging economies, including institutional mappings of who does what across the water chain and city “profiles”;
- Evidence on the performance of governance systems in delivering water policy outcomes in selected cities from comparative and empirical data collected through a questionnaire;
- International best practices for managing interdependencies related to water (resources and services) across institutions, places and sectors; and
- A set of policy recommendations on how to mitigate fragmentation and foster integrated urban water management in cities and their hinterlands.

Rationale

“City” is used to refer generally to functional urban areas encompassing one or more small municipalities. In administrative terms, cities are defined and established by legal actions that serve administrative and governmental functions. The administrative units are frequently those for which policy is
implemented, but they are often arbitrary and reflect ancient patterns of life. ¹ Functional urban areas, by contrast, are defined by patterns of settlement and human activity (e.g., commuting) and often encompass multiple administrative cities or municipalities; they often include rural places as well – as, for example, when commuter belts around cities reach deep into low-density areas. As a result, the boundaries between cities and rural areas are often blurred, and change with falling transport costs and the growing use of telecommunications and IT, which allow people to work in cities and live in rural areas. In this context and since water cuts across administrative boundaries, looking at the mechanisms that can help address the scale issue in water governance according to a functional rather than an administrative logic is critical.

Cities are the places where most of the people live and will be living in the future and, as such, areas that will continue to face pressure in terms of water availability and demand especially in BRICs. By 2050, it is estimated that 70% of the World's population (86% for OECD countries) will be living in urban areas, with an increasing concentration in large cities of one million or more inhabitants, especially in fast-growing Asian countries.² This trend will have inevitable consequences for the way water is managed across administrative boundaries and water-related policy areas, hence there is a need for a closer look at challenges and good practices for managing water at the relevant scale, be it “rurban”, metropolitan, basin or sub-basin.

OECD (2012) Redefining urban: a new way to measure metropolitan areas has brought about a definition that better fits the dynamism of urban contexts, categorizing them in “functional” terms. Four groups of – small, medium, metropolitan, large metropolitan – functional urban areas (FUAs) are thus defined using population density to identify urban cores and travel-to-work flows, capturing the hinterlands whose labour market is highly integrated with the cores. The utility of FUAs for water policy is to map centres of urban water demand (and appraise water-related investment needs beyond traditional city boundaries) but the supply side geographies will potentially be very different, as water cuts across administrative boundaries and supply depends on watersheds, recharge zones, etc. As functional geographies depend on the function in question, in the case of water resources management, appraising the metropolitan and hydrological logics is the key to addressing linkages between urban areas (where most people live) and the surrounding environments (rural and watersheds) that sustain them.

Cities are urban areas that serve administrative and governmental functions, but institutional reforms, fiscal trajectories and new socio-economic boundaries of cities are reshaping local governance. In particular, metropolitan areas, with urban cores and suburbs, often represent a fragmented policy space, where considerable diversity persists in their legal status, composition, power, budget and staff, while the economic and social realities belong to a same “functional area”. In this complex context, financial constraints have generated pressure for territorial reforms in many OECD countries to streamline interactions across and within levels of government and achieve efficiency gains. A review of metropolitan trends in selected OECD and non OECD cities (amalgamation and mergers, multi-sectoral utilities, local public enterprises, switch from public to private or from private to public etc.) can help illuminate the governance drivers to water reform in future cities.

Cities are laboratories for policy development that can differ in terms of geographical characteristics, spatial constraints, social inclusion and capacity of local governments. Their resilience to cope with future shocks will differ according to their exposure to water challenges (quality, quantity, and environmental protection), as well as their (human and financial) resources, institutional organisation, policy agenda and relationship to innovation. A taxonomy of cities can help clarify the range of water-related challenges and governance instruments needed to address them, to build capacity, foster policy coherence and complementarity, ensure accountability, and catalyse much needed financing. The project will select case studies within each category of the taxonomy to shed light on the need for context-dependent and place-based responses.

² The Outlook to 2050 projects that urban water demand will decline slightly in OECD countries, whereas globally, demand for water for electricity (+140%), manufacturing (+400%) and domestic use (+130%) will increase significantly, driven mainly by the BRICs but also by other EMEs.
**Taxonomy of cities**

Based on the work undertaken by the OECD on urban development and territorial indicators in recent years, the project will propose a taxonomy of cities, based on variables, exogenous to water policies and arrangements and analyse related water governance challenges, keeping in mind that the criteria used in the taxonomy are non-exclusive for each category, but can be linked to drivers and help identify context-dependent and issue-specific responses.

The analysis will rely on selected case studies, and data collection from a larger number of cities included in the OECD metropolitan database. The work will also benefit from the evidence generated by previous or on-going OECD work on multi-level governance, capacity and public investment at the sub-national level, metropolitan governance, urban trends and governance as well as the specific work carried out on green cities, port cities, compact cities and ageing cities.

- **Cities by size** (small, medium, large, mega-cities)

  The size of a city has impact on water resources exploitation, in terms of resilience and sustainability; on service delivery and waste water treatment in terms of time scale (speed of urban growth and capacity to adapt to changes) and spatial scale challenges (land use, rural- urban territory, geographical scale strictly related to water). In addition, demand and negative effects on environment are a function of the whole functional urban area, in other words the size of the whole conurbation. While in megacities the need for additional water and sanitation services might affect the flexibility of infrastructure and require new business models, in small cities, the problem of economy of scale might affect the investments side, in several cases largely neglected. At different scale, big cities and small cities have to face problems of policy complementarities, as providers and/or recipients of services.

- **Cities by spatial patterns or urban forms** (compact cities, sprawl cities, etc.)

  Cities’ spatial organisation and features in terms of density, proximity and connectivity have an impact on modalities for service provision (organised around multiple connected urban cores or within the urban cluster) and consumption trends. Similarly, strategic planning for land use has an impact on infrastructure development and renewal (generally integrated with other coherent policy outcome in a compact city and insufficiently used in cities subjected urban sprawl) as well as on natural resource consumption and global environmental footprint.

- **Cities by governance structure** (metropolitan, supra-municipal, inter-municipal, etc.)

  Cities’ governance structures have an impact on natural, capital, and human resources available to manage water, as well as on the nature of the role of local authorities (regulator, facilitator, or service provider) and to the way they deal with interdependencies across institutions, places and sectors. The impact of given governance structures on water policy outcomes needs to be further examined, as they can influence especially coordination across levels of government, reducing fragmentation.

- **Cities by physical and demographic growth dynamics** (expanding cities territory-wise, v. stable or shrinking cities)

  Issues related to growth dynamics can affect the water policy agenda and challenge the capacity of local governments to manage efficiently water resources while coping with environmental degradation and economic trends. Shrinkage and expansion trends have an influence on water infrastructure needs through both changes in the demand schedule and by altering the composition of public finances as the base shrinks or expands. Expansion most often creates pressures and conflicts at the peri-urban fringe. But decrease in consumption of drinking water and related reduced flow quantity can impair proper functioning of supply networks and create stagnation zones, which might cause hygiene implications. Similarly, the environmental impact of expanding cities and the form in which we urbanize has an impact on water demand and investment needs. These urbanization trends need to be factored in when taking investment decisions in the water sector and considering suitable business models for supplying services (e.g. low-cost options v. large scale infrastructure designed for a life span of 50 and 100 years to accommodate growing population).
Analysis of water governance implications and trends

For each category of the taxonomy above-suggested, the project seeks to provide insights on the linkages between pressure trends and models of governance adopted, as well as on the relationship between governance structures and outcomes in terms of water quality, water quantity, drinking water and sanitation provision, as well as flood protection. The taxonomy, based on criteria exogenous to water arrangements and policies, will help see how cities in similar circumstances perform with different governance solutions.

The project will also identify common obstacles to public authorities’ capacity to deal with such challenges, and good practices to ensure effectiveness of policy linkages among cross-cutting sectors. Specific attention will also be devoted to city policy objectives considered as drivers for water governance reforms (e.g. reduction of negative environmental externalities in green cities; urban regeneration through new approaches of “urban entrepreneurialism” in competitive cities). The analysis will connect the taxonomy of cities with drivers for change, governance implications for water management functions, possible complementarities across water-related sectors, and governance mechanisms that can provide solutions. For example;

- **Water quantity management** is intrinsically linked to changes in population and urbanization trends, which both influence water demand and availability. This has governance implications for different categories of user (hydropower, mining, agriculture, industry, households etc.) and places (rural-urban areas) especially in terms of information, monitoring, capacity, and public participation needs at the relevant scale.

- **Water quality management** requires a closer look at opportunities to remove bottlenecks related to spatial planning (and combination with wastewater for example) to be able to embrace a long-term view.

- **Drinking water supply and sanitation** is affected by changes in spatial organisation of cities, as well as labour mobility and urban divide, especially for some categories of the urban population as the rural-to urban migrants, or populations living in slums. Ensuring sufficient and sustainable provision of urban drinking water and wastewater services can be a challenge when governance bottlenecks (fragmentation, lack of capacity, poor integrity and regulatory frameworks, low enforcement and compliance) hinder the mobilisation of funding needed to renew obsolete infrastructure for example.

- **Flood protection** requires governance instruments to prevent, manage and recover from water-related disasters. Cities at risk of coastal flooding are located in both rapidly developing countries such as India and China (e.g. Kolkata, Shanghai, Guangzhou) and in wealthier countries such as the United States (e.g. Miami, New York City), the Netherlands (e.g. Rotterdam, Amsterdam) and Japan (e.g. Tokyo, Osaka). Identifying governance obstacles to better planning and mobilising investment needs in water infrastructure retrofits is important.

Building policy complementarities at the relevant scale: a review of cities’ experiences

Because water cuts across administrative boundaries, cities on their own cannot address the magnitude of the challenges linked to the economic, social and environmental dynamics. They absolutely need their hinterlands not only because watersheds cut across administrative boundaries, but also because new forms of public-public, private-private, and public-private partnerships can help better manage water as a shared responsibility.

Implementing effective technological, financial and innovative solutions requires sound governance frameworks that address the issues at the “relevant scale”, bring local solutions to local problems, clarify who does what, and set incentives for cooperation across multiple stakeholders from public, private and not-for profit sectors, as well as between formal and informal bodies under the same functional area. Hence the need to investigate further inter-sectoral complementarities within and across urban areas to develop consistent and mutually reinforcing urban and water policies.

- **Understanding who does what**, at which level is a first step to identify potential mismatches, linkages and ways forward for better interconnectedness of water management with related policy areas. The
The project will provide for an institutional mapping of key water management functions in selected case studies and analyse identified gaps in the allocation of roles and responsibilities that may hinder the capacity to cope with water challenges.

- **Institutional incentives for lower** (across cities, regions, watersheds) and **upper** (across ministries and public agencies) **horizontal and vertical co-ordination** between different policy fields is key to implementation of integrated decisions at different levels. The project will collect and analyse good practices in selected cities in terms of tools and strategies for addressing the policy gap and fostering linkages across and beyond the water chain.

- **Stakeholder engagement**, as a governance instrument, can help secure the willingness to pay for water services, raise awareness on current and future water challenges, ensure the accountability of city managers and service providers to end users and citizens, manage conflicts on water allocation, ensure the political acceptability of different ownership models, and set convergent objectives across policy areas. The project will provide an overview, in selected cities, of tools and practices in place to foster stakeholder engagement as well as their contribution to reach intended objectives.

- **Rural-urban partnerships** are key to integrated urban water management between cities and their hinterlands, and coherent policies on water, land use, spatial planning and nature conservation. The project will provide an overview of mechanisms used across selected urban and rural areas to jointly manage the use and the preservation of water resources with a particular focus on groundwater (depletion), and ecosystems, with benefits on high-value landscape and amenities.

- **Metropolitan governance** as a mechanism to pool resources and capacity at a critical scale for effective water management will also be devoted specific attention. The project will provide insights on the contribution of metropolitan governance tools in linking the urban core of the metropolitan area with a significant part of the urban hinterland for water and related sectors, including recent trends in multi-sectoral public enterprises.

**Policy questions to be addressed by the project**

- What are the economic, spatial and environmental drivers of urban water governance?
- How can adaptive governance cope with uncertainties related to future water scenarios and projections? (e.g. climate change impact, links between groundwater and surface flows etc.)
- How does the speed and scale of urban growth affect governance solutions that are needed, keeping in mind that what may work for large OECD cities may be inadequate for fast-growing Asian mega cities?
- Do certain types of cities (e.g. by urban forms, by governance structure, by water challenge) perform better or less than others in delivering water management outcomes? Why?
- Is the current allocation of roles and responsibilities fit for the future? If yes, which institutions matter, how they operate and how they will change? If not, which mismatches across the water chain need to be addressed and how can better interconnectedness be fostered?
- Are the water policy objectives generally clear? Is compliance ability proven? And if not, how does that hinder institutional performance?
- Which spillovers or interconnection with water-related sectors need to be considered when managing water in a given city?
- How can we build policy complementarities considering administrative boundaries, functional areas and hydrological logics?
- Which tools and strategies can help overcome fragmentation; ensure policy consistency and coherence across multiple stakeholders and sectors? Where are the best practices?
- Which public finance mechanisms can help engage the variety of local partners in delivering quality service provision and managing effectively water resources in a functional area?
Methodology and Process

The project relies on a comprehensive OECD Survey across 100+ medium and large cities from developed and emerging economies to collect data that will be crossed with the OECD Metropolitan Areas Database (data on population, GDP, etc.). The questionnaire targets the municipality department managing water, regardless of the ownership of service delivery (public, private, mixed). Responses should be provided by the technical experts and not political figures. In the case of metropolitan areas, data requested should be related to the core city of the metropolitan area, but the questionnaire explores linkages between the core city and surrounding cities (be it within a metropolitan area, or not). Members of the OECD Water Governance Initiative will help catalyse responses within their respective networks of local authorities.

This evidence from the OECD Survey will help draw conclusions considering the economic, social and environmental situation of the cities under investigation and the variables related to the urban form, size, governance structure, and demographic patterns.

In addition to responses to the questionnaire, cities will be provided the opportunity to submit case studies of innovative practices in dealing with urban water governance. This qualitative information will help showcase best practices from around the Globe and shed light on the range of options to develop adaptive governance responses in the face of future shocks.

A cluster analysis will be ran in order to synthesize information on multiple dimensions, using a hierarchical clustering methods. This will allow identifying groups of cities to feed the taxonomy, and synthesizing the multiple dimensions that describe them. This method aims to identify differences between groups; different models of governance; and relationship between governance structures and water policy outcomes.

The project will be developed in an iterative and inclusive fashion. A taskforce will be set within the OECD Water Governance Initiative and all respondents to the survey will be informed and engaged throughout the project cycle. A series of webinars will be held to discuss findings at different states, and a workshop will be organised early 2015 to discuss policy recommendations and catalyse feedback from a wide range of stakeholders. The draft report will be peer-reviewed at the 5th meeting of the OECD Water Governance Initiative, and submitted for comments and declassification to relevant OECD bodies and committees.

Timeline

- **July - August 2014**: Data collection (from 100+ cities invited to respond to the OECD online Survey)
- **September – October 2014**: Collection of case studies
- **24-25 November 2014**: Discussion of the draft issues paper processing results from the Survey at the 4th meeting of the OECD Water Governance Initiative, OECD Headquarters, Paris
- **January 2015**: Discussion of the draft report in a workshop (dates and venue tbc)
- **26 May 2015**: Peer-review of the draft report at the 5th meeting of the OECD Water Governance Initiative, Edinburg, Scotland
- **Q3 2015**: Final launch of the report "Water Governance in Cities" (dates and venue tbc)

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