

PART III
Chapter 8

Cities and regions – Connected by water in mutual dependency

by
Peter C.G. Glas,
Chairman, OECD Water Governance Initiative,
Chairman, Water Board De Dommel (Netherlands)

This chapter argues that cities and regions have a crucial role to play in facing existing and future challenges of managing water – whether too much, too little or too polluted. While no blue-print exists on how water challenges are to be met, inaction is certainly not an option. On the contrary, there is momentum to move from vision to action towards the implementation of the global agenda to 2030, which aims, amongst other things, to “ensure availability and sustainable management of water and sanitation to all”. The chapter argues that there is room for better efficiency and inclusiveness when connecting between territorial scales and water boundaries, and across water-related policies. The OECD Principles on Water Governance provide a framework to set and implement water policies across levels of government that contribute to better lives.

This chapter should not be reported as representing the official views of the OECD or of its member countries. The opinions expressed and arguments employed are those of the author(s).

Introduction

Anyone who has a look at thematic maps on food production, demographics and urbanisation sees at a glance that these issues are interconnected. Combine this picture with maps on water issues (too much, too little, too polluted) and we cannot escape the conclusion that water is a key factor of many – if not all – global challenges facing both current and future generations. If we look closer it also becomes clear that all of these issues may be connected globally, but that the day-to-day practice of water management, by definition, is a local and regional one. Cities and regions share rivers and aquifers, and it is at this scale that the challenges have to be met. The water crisis is global, but the solutions have to be found closer to home. It is therefore appropriate that the 2016 Policy Forum is about “Regions and cities implementing global agendas”.

The OECD’s contribution to the international discourse on water governance has been widely recognised, and solving the global water crisis cannot happen without broadening and deepening this discussion, and promoting the implementation of good governance principles into practice. Since its creation in 2013, the OECD Water Governance Initiative (WGI) has provided a platform for such discussions, through exchanging concrete practices and discussing policy developments with stakeholders and organisations involved in policy making and practical water management all over the world.

The WGI has proved instrumental to catalyse knowledge from different countries, especially during recent peer reviews of the national policy dialogues of Brazil, Jordan, Netherlands and Tunisia, but also from the ten-plus countries that shared national reforms during the WGI plenary meetings taking place twice a year. The common challenge to these different country reform processes lies in fostering good governance. Issues connected to this are: the focus on multi-level governance; decentralisation; capacity at subnational level; rural, urban and public, territorial indicators; investment; etc. These issues are all on the table of the Regional Development and Policy Committee (RDPC) of the OECD. RDPC’s support therefore has been, and will continue to be, key to the promotion of good water governance globally.

Three decades of evolution in water management

The Netherlands, my country, struggles with water and is an example for what is happening in many places. The Low Countries (i.e. the Netherlands) have gone through early urbanisation and global connectedness for more than 500 years. Its geography at the confluence of four major European rivers was a crucial condition for this. The Netherlands is a delta, where 60% of the GDP is being produced behind dikes. If it were not for the dikes, the land would flood more than once every year. Therefore, the Dutch know more than a little about water management and have succeeded, in recent decades, in keeping their feet dry!

It was not always this way though. For centuries the Low Countries were flooded frequently. The last devastating storm-surge flood from the North Sea was in 1953. It took more than 2 000 lives in the Netherlands, Belgium and the United Kingdom. It was also a

tremendous economic setback, just years after the Second World War. It prompted a Dutch Delta programme of flood protection which took 30 years to complete. By that time the general feeling was that the Dutch had “engineered their way to flood safety” and that the Netherlands’ physical lay-out was basically “finished”. In the early 1980s, water management in the Netherlands was the exclusive domain of specialists and technocrats, and there was almost optimism about the future.

However, gradually disturbing negative consequences of this industrial and technological phase became clear. Pollution had peaked in the 1960s and 1970s, and social and economic functions such as drinking water production and agro-food production became stressed. After the wake-up call of the Club of Rome (Meadows et al., 1972), an increasing awareness that there were indeed limits to growth and to the exploitation of the natural resources of our planet was noteworthy.

This growing awareness translated into a new phase in the 1980s: of optimising and rationalising water management, curbing pollution, building chemical, and later biological, waste-water treatment plants and a growing awareness for aquatic ecology: the phase of integrated water management. The domain of irrigation and drainage, flood protection, sanitation and wastewater treatment was still predominantly in the capable hands of specialists with backgrounds in science and engineering.

In the 1990s and the first decade of this century, integrated water resource management and integrated river basin and groundwater management were the fashionable terms. In the Netherlands a new water awareness was dawning, after a couple of narrow escapes from floods due to extreme river discharges and torrential local rainfalls in 1993, 1995 and 1998, it became clear that water management should be taken to a regional and catchment area level. Physical planning in a densely populated urban and sub-urban continent has regional and supra-regional consequences for water safety, water availability, water quality, ecology, agriculture and industrial development. However, water-related risks also hold implications for land use and spatial planning at local and regional levels. In the Netherlands, this prompted a new phase of multi-disciplinary and even trans-disciplinary approaches to water management. The mottos “room for the river” and “room for water” were coined and in the designing disciplines the principle of “building with nature” was introduced.

More recently, in 2012, a Delta Programme towards 2050 was established in the Netherlands, together with a Delta Act, a Delta Fund and a dedicated Delta Commissioner. This development recognises the importance of multi-level stakeholder engagement, of a process geared to achieving broad consensus across administrative levels and sectors, and of a sound legal and financial basis. Good water governance then becomes essential to plan ahead rather than wait for the next flood, drought or toxic spill – not only in the Netherlands, and not only just in 2012. Much earlier, in 2002, HRH the Prince of Orange, in his contribution to the Panel of the UN Secretary-General, in preparation for the Johannesburg Summit, stated that “the world water crisis is a crisis of governance – not one of scarcity” (HRH Prince of Orange, 2002).

Meanwhile, there has been a gradual but global growth in the awareness that the planet’s climate is changing and that extreme weather events are becoming more frequent. Emissions of greenhouse gasses have grown exponentially and there is little doubt that these phenomena are interlinked. The exact causalities may still be the object of study, but the potentially irreversible effects on ecosystems and human habitats and livelihoods are

so huge that inaction is not an option. However, even with climate change out of the equation, action is required because the world's population is growing fast, societies are becoming intrinsically physically and economically vulnerable, agricultural and industrial production capacities are higher than in the past, and much remains to be done in many countries, to ensure access to basic services (water, energy and transportation). This awareness has been translated in international political and industrial willingness to act.

First the Millennium Development Goals (MDGs) were adopted by the UN in 2000, followed in 2015 by the Sustainable Development Goals (SDGs). Water is prominently included and connected with most SDGs, and SDG 6 sets out to “ensure availability and sustainable management of water and sanitation to all”.

In 2015, more international developments pertaining to climate and water led to agreements at the highest level. The UN Climate Change Conference COP21 was held in Paris and produced a consensus on the reduction of climate change to 2°C, and zero net anthropogenic greenhouse gas emissions to be reached by the second half of the 21st century. This political breakthrough is encouraging, but still has to be translated into practice by governments, by industries and, in the end, into a behavioural change by all of us. From the point of view of water a critical remark should also be made. Where the core of the political commitment in the Paris Agreement lies with the mitigation of climate change, also many references (47 in total) are made to the importance of adaptation to the effects of climate change (UNFCCC Conference of Parties, 2015). In that context, it is therefore totally incomprehensible that the words “water”, “flood” or “drought” are to be found nowhere in the text.

In view of this omission it is however most promising that already 300 organisations worldwide, also including many cities and regions, have signed the “Paris Pact on Water and Adaptation to Climate Change in the Basins of Rivers, Lakes and Aquifers” (International Network of Basin Organizations, 2016). The drafting took place outside of the formal COP process. The Pact aims at supporting and implementing water and adaptation to climate change in an Action Agenda, and: i) reinforce capacity development and knowledge; ii) adapt basin management planning to climate change; iii) reinforce governance; and iv) ensure adequate financing.

Among the broad basis of organisations that have signed the Paris Pact, many already have to deal with the current and future effects of climate change. It underlines the necessity to act now in order to protect our societies against disruptive shortages of water supply, sanitation, flood protection and ecological degradation. Many hope that COP22, to be held in Marrakech in November 2016, will explicitly acknowledge at a political level the necessity to promote adaptation in water management along these lines.

On water governance

The need to look beyond the technical scope of water management has been recognised widely. To date many publications have been devoted to the importance of water governance. A comprehensive overview can be found in the recent publication of Havekes et al. (2016).

The Water Governance Initiative¹ produced in 2015 the *OECD Principles on Water Governance*², a first version of which was discussed at the 7th World Water Forum in South Korea (April, 2015). This overarching guidance, produced in a bottom-up fashion under the umbrella of the OECD's Regional Development Policy Committee (RDPC), is a direct

response to the governance challenges common to many countries. The Water Governance Initiative (WGI) was created as an international multi-stakeholder network in March 2013 out of the OECD's commitment to assist in closing the water governance gaps identified during the 6th World Water Forum (Marseille, 2012). It has the following objectives:

- Provide a multi-stakeholder technical platform to share knowledge, experience and best practices on water governance across levels of government.
- Advise governments in taking the needed steps for effective water reforms through peer-to-peer dialogue and stakeholder engagement across public, private and non-profit sectors.
- Provide a consultation mechanism to raise the profile of governance in the Global Water Agenda (SDGs, COP, Habitat III, etc.).
- Support the implementation of the *OECD Principles on Water Governance* by scaling up best practices and contributing to the development of water governance indicators.
- Foster continuity on governance discussions between two World Water Forums (every three years), in particular by supporting the Governance Implementation Roadmap of the 7th World Water Forum (Korea, 2015) up to the 8th World Water Forum (Brazil, 2018).

The WGI has met six times in plenary meetings since its creation (twice a year) and its working groups have been meeting in between these meetings. It currently counts 100+ members and is still growing. The *OECD Principles on Water Governance* are the main tangible outcome of the first two years of activities and their endorsement at the OECD Ministerial Conference on 4 June 2015 gave them a strong political impetus. The Principles have been translated in 15 languages and are available on line, which greatly promotes the dissemination and usage in discussions with stakeholders. The 12 principles in their entirety are also expected to be part of the OECD Council Recommendation on Water which is currently under preparation.

On regions and cities

Though the water crisis is a global one, the scale of resolving the imminent consequences are closer to home. This is why regions and cities are so important for water management, and to a certain extent will dictate the global agendas, rather than the other way round. The scale of stakeholder engagement also requires that some issues be managed internationally and others very locally. The importance of scale is also reflected in the EU water and urban agendas and the agenda of the upcoming UN-Habitat III conference. These agendas, and their follow-up, provide a unique opportunity to better connect territorial scales and water considerations.

The figures on the growth of the planet's human population and urbanisation are indeed daunting: from 34% of a global population of 2.5 billion people in 1960 to 70% of 9-10 billion in 2050 (UN-DESA, 2015). Within one century this implies a growth of the urban population by a factor of almost ten. It goes without saying that the next generations will draw upon natural resources at a level and with turn-over rates which have no precedent.

Recently, the former Dutch banker Prof. Dr. Herman Wijffels, who now teaches sustainability and social change, held a speech in which he presented two trends that will set the stage for the present century. Since the industrial revolution, natural resources on a global scale were virtually unlimited. The access to these resources was however limited by the monopoly of information. By the end of this century, some of the most essential

resources (e.g. phosphorus) will be depleted, but access to information will be virtually ubiquitous and instantaneous. So there will be a monopoly on scarce resources and unlimited information. Both trends have started already and the combination of these opposite developments, according to Wijffels, is potentially disruptive on a global scale. These trends, combined with climate, food and health risks and demography, led the World Economic Forum (2015) to rank water crises amongst the highest risk-impact factors for the coming decades.

Besides the economic dimension, there is also a geopolitical dimension to these trends. Secretary-General Lamberto Zannier of the Organization for Security and Co-operation in Europe (OSCE) regards co-operative water governance as a catalyst for sustainable development and comprehensive security. “Good water governance requires the accountable, transparent and equitable management of water resources. It contributes to confidence building and is essential for preventing water-related conflicts at all levels, including at the level of local communities,” said Zannier on World Water Day 2015 (OSCE, 2015).

At the 7th World Water Forum (Korea, April 2015) OECD Secretary-General Angel Gurría also underlined that water issues are connected to other pressing developments regarding food, security and energy (OECD, 2015a). He highlighted three imminent issues which can be inspiring when defining priorities: i) the need for policy coherence; ii) the role of finance; and iii) improving institutional architecture.

Now how to move from policy to practice? From vision to action? These are trillion-dollar questions of course. And against which backgrounds of social, economic, ecological and technological scenarios? There is no foreseeable U-turn from the trend of global urbanisation. More and more people will live in mega-cities. The recent OECD report *Water Governance in Cities* (2016) sends a wake-up call to local decision makers and the crucial role they play given that water is mostly managed at the local level. It builds on a survey of 48 cities across OECD and non-OECD countries and proposes a “3Ps” co-ordination framework to better articulate policies, people and places. It showcases best practices to promote a strategic vision across sectors, to engage with stakeholders and to foster integrated urban water management in cities and their hinterland, through rural-urban partnerships and metropolitan governance.

On the OECD website the water governance profiles of the 48 cities surveyed are presented³. It shows how diverse cities are, and underlines the fact that no blue-print exists for how water challenges are to be met. In advancing the practice of water management and water governance, it is all the more important that the debate starts off with an exchange on values and principles, rather than the question of how these should be achieved. The *OECD Principles on Water Governance* provide an excellent basis for such a discussion.

Cities of the future will have no other option than to co-operate with their hinterland, with the regions and territories with which they are connected by rivers and aquifers, but also by flows of food, energy, transportation and information. As a biologist I draw from some ecological principles that describe the relationships between organisms. When an organism parasitises on another organism, be it plant or animal, eventually the unwilling host is killed. Likewise, if a city parasitises on the resources of its hinterland, it may benefit from it for an unpredictable period of time, but when the resources in the region are depleted, the city’s metabolism will eventually fail. Ideally, the city and the region should

both benefit from a relationship which is described in ecological terms as mutualism. Examples from nature are the co-habitation of flowering plants and pollinating insects, of plants and fungi, and at an evolutionary level, even the co-habitation of humans and domesticated animals can be considered as mutualism. The examples are numerous and they all are characterised by the intrinsic web of interconnectedness of flows of food, energy and information between the partner species and partner populations. These connections have evolved through eons, and the interdependencies in most cases are unique and irreplaceable.

When the metaphor of mutualism is applied to the relationship between cities and their hinterland it must be clear that the governance dimensions of water management cannot be disconnected from those of the other policy and management domains. Effectiveness, efficiency and trust & engagement – the three dimensions of the OECD *Principles on Water Governance*, must be discussed among different stakeholders and at all scales of the ecosystem of the city, the region and the catchment area.

Finally, one may engage in a speculative futurism regarding the city of tomorrow. The signals of carbon and mineral circularity, of energy self-sufficiency, of a closing of the hydrological cycle of rainwater, drinking water and waste water, of incorporating principles of biomimicry in the design of buildings, houses and factories, are already noteworthy. Buildings can absorb water, sunlight and interact with their inhabitants in all kinds of ways. The future may see home 3D printing of animal protein from stem cells, and home grown production of plants and herbs, all in your own kitchen. The nutritional needs of individual people can be tailor-produced with minimal waste of water and minerals. Even personalised and home produced supplements and medicines are within reach inside two decades. These evolutions may become available beyond developed economies. The experiences with recent innovations in ICTs, transportation and other domains have however shown that the dissemination across economies and territories will take place in years rather than decades.

The mutualism and metabolism of cities and regions will therefore, by necessity, be dynamic, flexible and constantly evolving in an environment that will be unpredictable and even disruptive at times. The region should benefit as much as the city to prevent people from being forced into urban life, leaving the hinterland to waste. Fluidity of structures, social interactions and physical connections will be at the basis of the 21st century governance of water and all other essential resources. In the end, it is therefore simply a case of being part of it, or not.

Notes

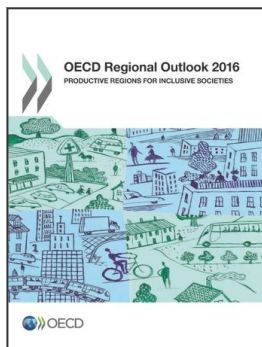
1. See www.oecd.org/env/watergovernanceprogramme.htm.
2. See www.oecd.org/governance/oecd-principles-on-water-governance.htm.
3. See www.oecd.org/gov/regional-policy/water-governance-in-cities-city-profiles.htm.

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From:
OECD Regional Outlook 2016
Productive Regions for Inclusive Societies

Access the complete publication at:
<https://doi.org/10.1787/9789264260245-en>

Please cite this chapter as:

Glas, Peter C. G. (2016), "Cities and regions – Connected by water in mutual dependency", in OECD, *OECD Regional Outlook 2016: Productive Regions for Inclusive Societies*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264260245-11-en>

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