

# Water security for all

Water security is a global challenge, but it looks different from nearly every spot on the globe. Some of the diversity of perspectives, challenges and alternatives around the world of water have been brought together by the World Water Council and China's Ministry of Water Resources in a book by ten authors, all presenting what water security means in their city, country or region. With each contributor laying out their own local policy recipe for reaching and sustaining water security, these different experiences add up to a compelling case for approaching water security head-on and bringing all water users on board.

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## Eight actions to take for water security

- Look beyond the rain gauge. Water security is not determined by how much water is available in an area – it is determined by robust institutions, appropriate legal and regulatory frameworks, policy instruments, effective enforcement and financial resources.
- Find out if different public policies are impacting on water without coordination. There are always many different water users with their own needs, plans and rules. Work to bring them together.
- Invest in water systems. A much greater flow of investment is necessary to close the infrastructure gap all over the world, and to manage that infrastructure to bring water services to everyone.
- Believe in local approaches and dialogues. These are a necessary part of all robust solutions in a time of growing water uncertainties and disparities.
- Look for the lessons in extreme events. These often bring crises to the surface that have their source in weak water management and governance. Drought and flood disaster mitigation deserve a central space in water security strategies.
- Study the impacts of water security on energy, food and environmental security. The effects of water scarcity and variability on these other spheres can be mitigated through social, economic and political actions.
- Take time in adopting new forms of management and innovative policy solutions, and aim to build these for the long term. Avoid the cycle of rapid adoption and non-implementation, often seen in countries that depend on external financial and institutional support.
- Use water security as a path to reach the Sustainable Development Goals. Water is critical to most of the goals, and they will not be achieved without answering the questions of rising water demand, unequal access, scarcity, pollution and climate change.

## What is water security?

Water is a resource that serves all social and economic sectors, as well as the larger needs of the planet's ecosystems. Water security refers to the availability of water, in adequate quantity and quality, to sustain all of these together – without exceeding its ability to renew.

Globally, growing populations and urbanization have increased the pressure to meet the water, energy and food demands of larger populations with higher expectations. As a result, both developed and developing countries seem to be racing against the clock to respond to the needs of societies in which resource inequalities continue to grow. Water is becoming scarcer and more polluted. Its management, governance and development increasingly depend on decisions that are made in other sectors, with precious little coordination. And climate variability and change are imposing greater uncertainty than ever before.

All of these factors have led decision makers to look at water through the lenses of risk and security. Ensuring the security of water resources necessitates a departure from the status quo, to an innovative system that is able to understand and appreciate how different natural, policy and political variables interact and affect each other. Such a system must propose alternatives that consider complexity and that are adaptive to an uncertain future. The status quo has proven unable to respond to the present needs and expectations, much less to future ones – a departure is necessary.

## What does it look like?

Water security depends fundamentally on local contexts, meaning that broad prescriptions are of little use. However, policymakers can learn from one another about what has worked in similar contexts: specific formal and informal institutions, policies, legal frameworks and management strategies that have strengthened water security. It has proven more effective to integrate approaches and bring together different users around the specific needs of a geographic area, rather than to try and bring varied local situations under the umbrella of a single approach.

This is why water security – and efforts to maintain it – look different everywhere. In **Morocco**, it has meant maximizing the use of surface waters for irrigation, drinking water, industry and energy. Recently, this effort has shifted from enormous infrastructure investments that store and control surface water to the more sophisticated and difficult task of ensuring its efficient allocation to the different user groups. In **Brazil**, the impacts of severe droughts on metropolitan regions have put water governance firmly on the political agenda. Drought management plans, innovations in managing bulk water supply and interconnections between supply systems have been reinforced by a responsive population that is participating strongly in conservation programs. Meanwhile in **Central Asia**, water security for every country depends on an extensive transboundary river network, and a shared river basin management approach represents a crucial reform to improve common initiatives. **Singapore**, despite its very small size, is aiming to secure water for its future using forward-looking strategies that range from considering societal behavior to experimenting with high-grade reclaimed water and desalination. And **France** is addressing water management, flood risks and pollution through a broader approach of ecological security, placing ecosystems and biodiversity at the center of its water security.

## What do we learn from the case studies?

### Australia

On this continent of extremes, water security focuses on risk. Water risks have been prominent in the policy and political agendas for decades, but in recent years the focus has zoomed out. Policy and planning have shifted scope from managing crises to longer-term water security challenges. Many large urban water service providers have diversified their water portfolios, aiming to both improve water security and reduce long-term risks. In regional and remote areas, however, populations continue to face uncertain water quantity and quality. Most uniquely in this country, policy measures have been taken at the national and state levels to reduce water tensions between economic growth and environmental needs.

### China

In China, water resources are spread thinly and unevenly between a very large population. This fact, along with pollution, inadequate rural infrastructure, complex river systems and frequent floods and droughts, have resulted in water security becoming a national priority. The policy responses have included embracing water conservation practices, strengthening governance, and implementing simultaneous government and market mechanisms. One of the most important policies has been the “Three Red Lines”: controlling total water use, improving water use efficiency and working towards water pollution control, all guided by new management and performance evaluation systems. China is also diversifying its water portfolio with unconventional sources, and placing strong overall emphasis on the idea of water ecological civilization.

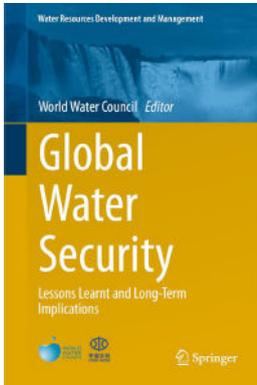
### Southern Africa

The countries of Southern Africa take different approaches to water security that reflect their particular contexts, but they share two overarching challenges. The first is building access to safe and reliable water supplies, particularly in rural areas; the second is building resilience to drought and other manifestations of climate variability. In all cases, the main barriers to overcome are economic and institutional. There are strong opportunities to mitigate drought and flood impacts at a regional scale, and political efforts are ongoing to implement cooperative approaches. Another agenda is to bring better local adaptation to the external support on which many countries depend, hopefully slowing the rapid cycle of short-lived management paradigms in favor of lasting institutions.

### California

In the US state of California, institutions are coordinated by a challenging web of regulations, water rights, contracts and incentives. The resulting institutional and physical systems have always contended with a dry and variable climate, and been stretched by long-term growth in population and shifts in the state’s economy and social objectives. However, the political decentralization of the system, coupled with political motivation, has brought steady local innovation. Larger regional and statewide innovations also take place, though often through the periodic attention and focus brought by extreme events. The result is a form of far-sighted incrementalism, driven by continuing problems and providing an unusual degree of water security for most of the state, though not all.

## Read the book



**Global Water Security: Lessons Learnt and Long-Term Implications**  
 Ministry of Water Resources of China and the World Water Council (2018)  
*Springer-Nature, Singapore*  
<https://www.springer.com/us/book/9789811079122>

**Scientific Committee:**

Jin Hai, Ministry of Water Resources of China  
 Hao Zhao, Ministry of Water Resources of China  
 Jerome Delli-Priscoli, Water Policy Journal, USA  
 Guy Fradin, Association of Water and Waste Professionals, France



### Regional and country case studies included in the book



**World Water Council**

The World Water Council is an international multi-stakeholder platform organization, the founder and co-organizer of the World Water Forum. The Council's mission is to mobilize action on critical water issues at all levels, including the highest decision-making level, by engaging people in debate and challenging conventional thinking. The World Water Council, headquartered in Marseille, France, was created in 1996. It brings together over 300 member organizations from more than 50 different countries.

[www.worldwatercouncil.org](http://www.worldwatercouncil.org)



**Ministry of Water Resources of China**

The Ministry of Water Resources of China is a government department responsible for water resources development and protection. First founded in 1949, its main functions include water policy formulation, water resources comprehensive planning, flood control and drought-relief, water and soil conservation, irrigation, drainage and rural water supply, integrated water resources management, small hydropower development, hydrological service, water projects related resettlement, river basin management, etc. The ministry is represented by seven river basin commissions across the country and performs its functions with the support of scores of affiliated research, administration and development institutes.

[www.mwr.gov.cn](http://www.mwr.gov.cn)