Building Water Resilience in Brazil

Ten Years of OECD & ANA Work on Water Governance, Finance and Regulation 2012-2022

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Contents

Brazil's water wealth and water challenge

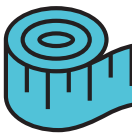
Did you know...?

- Brazil holds 12% of the world's freshwater resources
- 70% of Brazil's freshwater is in the Amazon basin
- In 2020, 1.1 million Brazilians were affected by floods and 15.8 million by droughts
- 95.2 million Brazilians lack access to safe sanitation
- 2.3 million Brazilians use unsafe water sources for consumption and for personal and domestic hygiene

Because water crises are often first and foremost governance crises, a decade of work by the National Water and Sanitation Agency (ANA) and OECD has focused on 'who does what, why, how and who pays' to improve water resources management and offer innovative solutions to future challenges, drawing on established OECD principles and lessons from best practices around the world.

Brazil is water-rich, but this wealth is unevenly distributed. The Amazon, Paraná and São Francisco rivers are some of the world's largest water basins. But there is a mismatch between water sources and water use, with the Amazon rainforest in the sparsely populated North and Centre-West regions, while the developed coast includes the agricultural but semi-arid Northeast and the industrialised population centres of the South and Southeast (map, pp. 8-9).

This diversity poses water management challenges. With resources serving multiple needs and communities, competition among agriculture, energy, transportation, industry and households requires managing trade-offs. For example, hydropower can be seriously affected by consumptive uses and environmental requirements upstream, and it affects the flow regime downstream and limits withdrawals for other uses. Add to this the high degree of fragmentation of water-related prerogatives in Brazil's decentralised administrative structure: water falls under the purview of a national water agency, several federal ministries, 27 states, more than 200 basin committees and many more municipalities involved in water decision-making, planning, finance and implementation.



There cannot be a one-size-fits-all response to the water issues and risks associated with 'too much, too little or too polluted' water and the need to provide universal access to drinking water and sanitation. In addition to varying degrees of exposure to water security challenges, Brazilian territories have a range of hydrographic characteristics, stages of economic development and institutional capacity. While place-based solutions are appropriate, priorities can differ between federal, state, basin and municipal entities. The question is how to take water-wise decisions that are compatible across different constituencies and sectors, and mutually reinforcing.

Water resilience requires a multipart strategy that engages multiple stakeholders, levels of government, and sectors. While technological responses have made Brazil's water engineering an example to many countries, solving the water challenge requires a combination of hard and soft infrastructure, including nature-based solutions, demand management and behavioural change.

Brazil's achievements

Ambitious and forward-looking reforms shape Brazil's water resources management towards decentralisation, participation and integration:

The 1997 **Federal Water Law** set the legal and institutional framework for water resources management in Brazil. The subsequent adoption of state-level water laws and the creation of institutions such as river basin committees and agencies, and state and national water councils contributed to strengthening a much-needed multi-level water policy framework.

In 2000, the **National Water and Sanitation Agency*** (ANA) was created to provide a highly qualified and stable institution to drive the reform process. Decentralisation to the states and river basin committees had laid down a multi-level approach very much in line with the desire of a society to enhance place-based and bottom-up decision making during the democratic transition.

The 2011 **National Pact for Water Management** was instituted to help strengthen water resources management at the state level and provide flexibility to address situations and capacity that vary from state to state. It sets partnership agreements between ANA and state institutions, including the state water resources councils and state water executive agencies, to foster capacity development and better integrate the National Water Resources Management System (SINGREH) and the state water resources management systems (SEGREHs).

The 2019 **National Water Security Plan** (PNSH) sets out strategic infrastructure requirements and an investment plan of BRL 27.6 billion to 2035. The Plan is an unprecedented initiative, in line with the international Water Security concept and the ministry's new institutional function. Projects proposed in the PNSH are expected to benefit one-third of the 74 million people who live in areas where water supplies are at risk and where an economic impact of BRL 518 billion is likely to occur from loss of industrial and agricultural production in the absence of action.

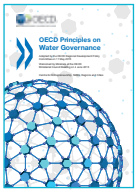
The 2019 **Water Security Program** (PSH) attached to the PNSH foresees BRL 27.6 billion per year in capital investment and an average of BRL 1.2 billion per year to operate and maintain water infrastructure. This doubles current levels (from roughly 0.2% of GDP in 2017), although investments in the sanitation sector remain lower than in other sectors, such as electricity (0.54% of GDP in 2017).

The 2020 **Sanitation Law** expands ANA's role from water resource management to defining reference standards for water and sanitation services, and overseeing their application by sub-national authorities. The framework encourages transparency and provides for increased opportunities for private investment, with the aim of developing infrastructure and providing universal access to safe drinking water and sanitation.

**before 2020, the name of the ANA was National Water Agency.*

A decade of OECD insights and policy guidance

Water Governance in Latin America and the Caribbean: A Multi-level Approach (2012) examines how the region's water policy is designed, regulated and implemented in 13 countries, including Brazil. It identifies the main multi-level water governance challenges, common gaps and policy responses, and provides a typology of countries facing similar challenges. The report thus offers preliminary, practical, and place-based guidance to local and national governments on how to improve their water governance systems.



The OECD Principles on Water Governance (2015) provide 12 must-do's for governments to design and implement effective, efficient and inclusive water policies with shared responsibility. They result from the OECD Water Governance Initiative set up in 2013 as a global policy forum that gathers 150+ stakeholders from around the globe to share good practices and co-produce guidance, and were endorsed by all OECD countries and 7 non-member countries, including Brazil. To support the implementation of the Principles, the OECD developed a Checklist and set of indicators for self-assessing governance frameworks, institutions and instruments.

Water Resources Governance in Brazil (2015) focuses on two critical conditions for more sustainable, inclusive and effective water policies in Brazil: (1) better water allocation regimes to manage trade-offs across water users and uses to cope with future water risks; and (2) a stronger multi-level governance system to better coordinate state and federal priorities and improve capacity at different levels of government. It calls for more efficient coordination of federal, state and basin-level governance, and stronger capacity at sub-national level.

The OECD Council Recommendation on Water (2016) captures the main messages from OECD policy guidance on water, covering water quantity and quality management, the management of water-related risks, governance, and pricing, and financing water services and infrastructure. It builds on a 2-year consultation process with OECD member countries, and stakeholders, in particular members of the OECD Water Governance Initiative. The Recommendation provides a unique source of policy guidance that helps address pressing issues for central and subnational authorities.

Water Charges in Brazil: The Ways Forward (2017) focuses on setting and governing water charges, including how to design economic instruments, govern water charges and manage the revenues. It assesses the current state of play in Brazil and suggests policy recommendations to support demand-driven water reform agendas. It also provides concrete steps to implement more effective existing water charges and support states and basins willing to introduce water charges within their water management systems.

Fostering Water Resilience in Brazil: Turning Strategy into Action (2022) focuses on how to move from water crisis to risk management and make the regulatory framework work. The report focuses on improving multi-level governance and financing to enhance water resilience in Brazil and cope with pressing and emerging environmental, economic and social challenges. It builds on four multi-stakeholder, capacity-building workshops to learn from the state-of-the-art and international best practices.

Timeline of progress

Until 1980s

- Growing awareness of need to manage water in a collective manner
- Shift from private water management to public
- Centralised approach favours technical and infrastructure solutions

1988

New constitution of the Federative Republic of Brazil defines ownership of water resources and establishes parameters for their decentralised management and regulation

1991

São Paulo state water law, first in the country

1995

Federal Ministry of Environment created with a Secretariat for Water Resources

1997

National Water Law

1998

State water plans for Pernambuco and Rio Grande do Norte

2000

Creation of the **ANA** by federal law to implement a national water resources policy

2002

State water plan for Ceará

2004-06

State water plans for Bahia, the Federal District, Minas Gerais and Paraíba, and basin plan for the São Francisco river

Policy impacts

- To strengthen basin committees' results-oriented implementation and stakeholder engagement, ANA created the Procomitês programme, which helps to improve the decision-making process, elaborate and implement basin plans, and ensure stakeholders are included.
- To strengthen the capacity and financial sustainability of state-level institutions, ANA created Qualiáguas to improve water quality monitoring, and Progestão to improve water resources management. All 27 states adhered to the programmes.
- To improve policy instruments, ANA organised a more efficient water grants system, a negotiated water allocation process, and created crisis rooms where specific basins are discussed during extreme events.
- To review and design effective water charges, ANA made sure water charges were updated and built basins' capacities to implement their own charges.
- To facilitate spending that enhances water security and transparency, ANA´s Resolution nº53/2020 allows water charges funds to be used in projects, programmes and infrastructure within the basin committee water plan.

2009-10

State water plans for Alagoas, Mato Grosso, Mato Grasso do Sul, Paraná, Piauí and Tocantins, and river basin plans for Araguaia-Tocantins, Doce, Paraíba do Sul, and Piracicaba, Capivari e Jundiai

2011

▶ **National Pact for Water Management**

▶ State water plan for Sergipe, river basin plans for the right bank of the Amazon and Verde Grande

2012

▶ State water plan for Acre

2014

▶ Water scarcity crisis in Brazil provides a unique momentum for change. Fierce competition across users opens a window of opportunity to consider the use of water charges as a resource management tool to transition from water crisis management to water risk management. A dedicated policy dialogue with the OECD was initiated to take stock of the state of play and to learn from international best practices

▶ State water plan for Rio de Janeiro

2015

2017

2018

2019

▶ ANA, the Water Resources Secretariat and the National Water Resources Council reassigned from Ministry of Environment to Ministry of Regional Development (MDR), strengthening the institutional framework for planning, execution, operation and maintenance of strategic water infrastructure in Brazil, an essential element in ensuring water supply for human consumption and economic activities, as well as reducing risks associated with droughts and floods

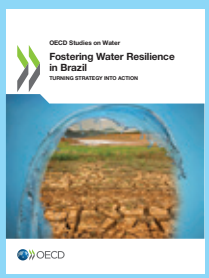
▶ **National Water Security Plan** (PNSH)

▶ **Water Security Program** (PSH)

Sanitation Law

2020

2022



Water security is national security

Water is intertwined with Brazil's economy and can help or hinder both national and local development. Many decisions that affect water are taken elsewhere. For example, hydropower is a major source of energy in Brazil but can be heavily affected by upstream withdrawals for consumption and environmental needs, and dams affect ecosystems and downstream flows. Similarly the consequences of water management flow throughout the economy. In 2020, 1.1 million people were affected by floods and about 15 million by droughts, with many more affected by knock-on effects, such as higher food prices. In 2021, the depletion of hydropower reservoirs that started in 2013 meant that energy to two-thirds of Brazilians was at increased risk of supply default. Urgent policy responses for water resilience are therefore needed to tackle the consequences of climate uncertainties.

Megatrends such as population growth, urbanisation, deforestation and climate change will likely increase the frequency and intensity of water related events. Meanwhile, the economic and social consequences of a years-long economic crisis, exacerbated by the COVID-19 pandemic, limit Brazil's options to provide the resources needed to respond and prepare the future.

▶ Water and sanitation in Brazil 2018

	Water	Sewage	Coverage of drinking water network system**		Coverage of sewerage network system**	
	Sample size		2010	2019	2010	2019
Total population*	204.2	188.8	147.7 **81.1%**	170.8 **83.7%**	82.7 **46.2%**	110.3 **54.1%**
Urban population*	174.8	165.4	143.9 **92.5%**	162.2 **92.9%**	82.3 **53.5%**	108.1 **61.9%**
Municipalities	5 191	4 226				

Source: Sistema Nacional de Informação sobre Saneamento
* Millions inhabitants. ** Percentages exclude coverage with alternative systems.

Did you know...?

- Domestic wastewater discharge is the main problem affecting the quality of surface waters, as only 48% of domestic sewerage is collected and only 39% is treated.
- 2.3 million Brazilians people use unsafe water sources for consumption and hygiene, 15 million urban dwellers lack access to safe drinking water, and 8 million rural inhabitants lack access to safely managed water
- An estimated 92% of Brazil's population will be at a higher risk by 2035 if water sources prove to be inefficient at meeting demand.

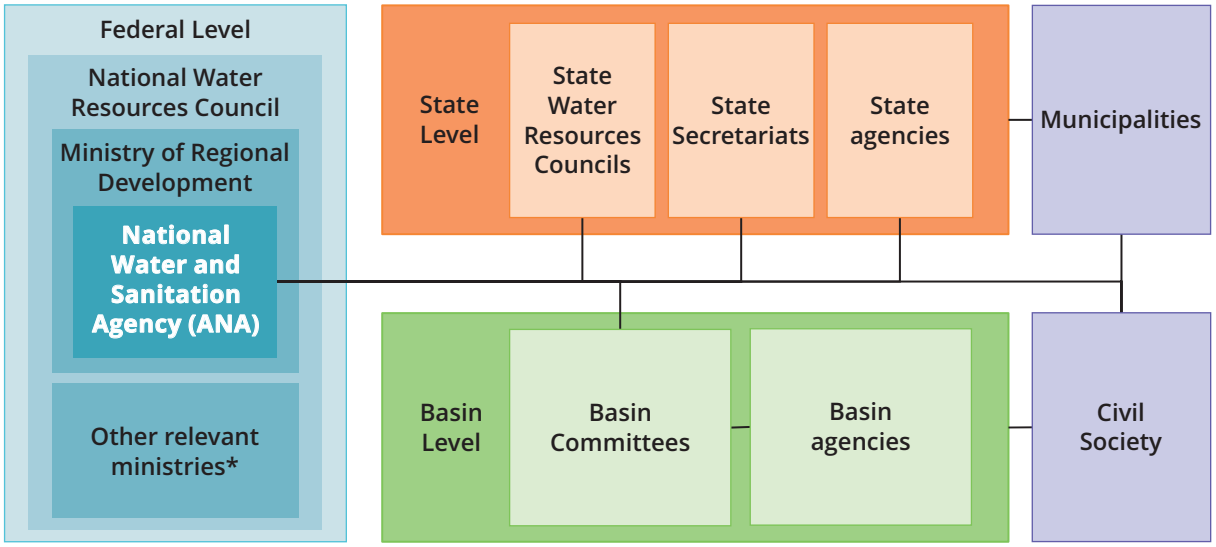
Addressing water risks requires a holistic response

Several water crises brought intense scrutiny of what had and had not worked properly, and what could be improved. An ongoing, decade-long drought in the Northeast, severe droughts between 2013 and 2018 including water crises in São Paulo and Brasília, flooding on the Madeira River in 2014, and major dam collapses in 2015 and 2019 required coordinated action by various stakeholders, resulting in improved and new water management practices, including water use restrictions and control. Investments in infrastructure helped manage water scarcity and lead to enhanced water security in the affected systems.

Nevertheless, water security challenges persist, and the intensity and frequency of extreme, water-related events highlight the need to prepare for shocks. Enhancing water resilience is urgent and policy and strategies need to respond to climate uncertainties. Issues resulting from climate change will not be confined to competing uses of water in economic sectors; they will also affect health because water-borne problems could become seriously aggravated due to climate change.

Addressing these challenges is a responsibility shared across sectors – including environment, agriculture, industry, energy, urban and rural development, health – and among levels of government. While infrastructure is one solution, it is a 'what' that requires a surrounding environment of 'who' does what, including providing financing for investment and operation, 'how' to design, implement and regulate policies to manage water quantity and quality for all, and 'where' strategic approaches and good governance are needed.

▶ Institutional mapping of water resources management in Brazil

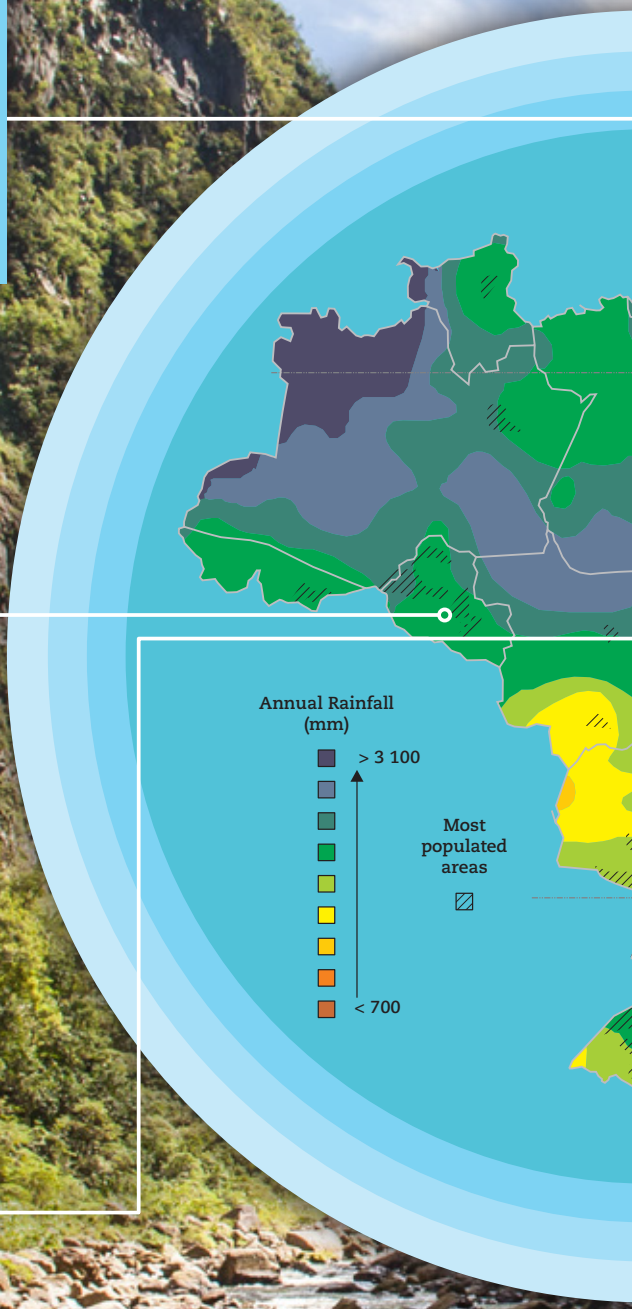


*Includes ministries covering, economy, infrastructure, agriculture, health, energy, environment, and tourism, among others.

Place-based solutio

The **Piancó-Piranhas Açu River basin** cuts across the States of Paraíba and Rio Grande do Norte. As of 2009, a single committee governs the river basin, as agreed between the federal level and the two states. The basin has a deficit of water supply – Human consumption and irrigation draw heavily on resources constrained by drought and intermittent rivers – and is polluted by domestic sewage. The São Francisco River water transfer project is paving the way to discuss implementation of water charges that would shape user behaviour and raise revenue for water management.

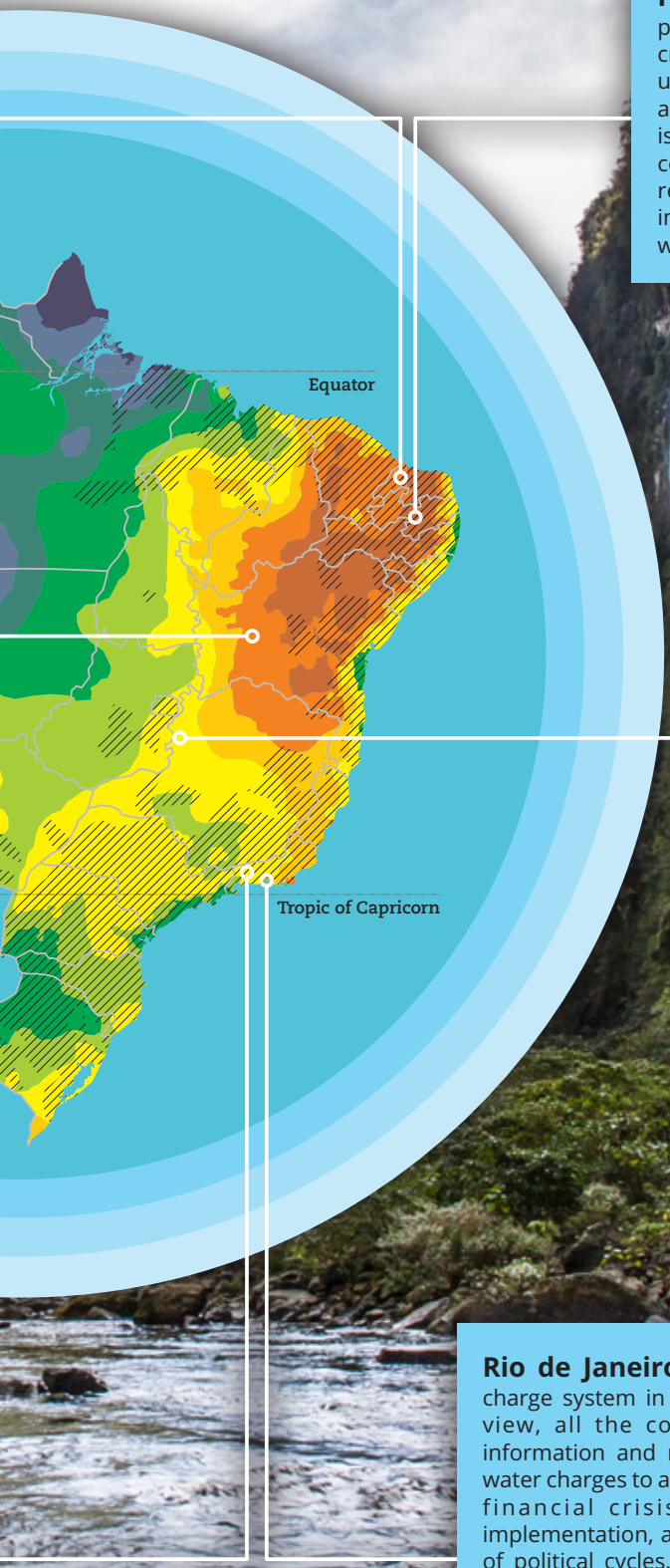
Rondônia is a state with water abundance and few water problems until recent floods had a devastating impact on the population and economy, and triggered an urgency to act. Progress was made in planning and institutional structure at state and basin levels. A State Water Resources Plan was announced in 2011 to increase understanding of water demand and availability from surface and groundwater to better deal with water balance and entitlements. Nevertheless, river basin committees are not fully operational and river basin agencies do not yet exist. Some segments of civil society are active but not fully considered in decision-making. Water permits exist but are rooted in low technical criteria, and water charges are not yet a consideration.



The **São Francisco basin** covers seven states, with tributaries upstream (in Minas Gerais and West Bahia) convering on a single channel in the semi-arid region downstream. The challenge is avoiding crises from competing uses upstream and favouring development of semi-arid regions downstream. Dams along the river attenuate floods and droughts but cause environmental impacts. Deforestation causes erosion and sedimentation in the basin, affecting transportation on the river. Prioritising the allocation of water should consider equity issues, including how risks are shared. For example, the river contributes 11% of national hydropower generation, but the hydropower sector considers that water risks are not managed equitably. This is ultimately a strategic question for which the process should be transparent and set out in advance to reduce potential for conflict and allow users to plan accordingly.

The **Paraíba do Sul River basin** was the first interstate basin to implement water charges, serving as an example for other basins and helping improve the legal and institutional framework for water charges. It also presents socio-economic characteristics relevant to implementing water charges aimed at changing users' behaviour towards greater water security in urbanised and industrialised areas subject to conflicts over multiple uses. Different management models across the three states within the basin could be streamlined and made more efficient.

ns to local conditions



Paraíba pioneered the approval of water laws in 1996 – paving the way for a state water resource plan and the creation of river basin committees – its state plan is currently under revision. Legislation for collecting water charges was approved and implemented in 2015 and the registry for users is advancing. Besides these achievements, Paraíba faces gaps concerning climate information, the condition of dams and reservoirs. While the institutional framework is in place, implementation lags despite awareness of the importance of water and the need to go beyond infrastructure logic.

The **São Marcos basin** illustrates the consequences of failing to anticipate competing users between irrigators and the electric sector. Irrigation started in the 1980s, which boosted agriculture productivity and revenues in the region (Goiás), but created localised tensions. The expansion of irrigation and the resulting increase of the water demand generated imbalances between water availability and demand in the basin, especially in the region of the Alto São Marcos. There is no "silver bullet" to address the challenges. A suite of measures will be necessary to maximise the benefit of existing supplies, to provide a level of and security to disputing water users, to allow water managers to respond to changing circumstances, and to improve the awareness and understanding of water users (and other stakeholders) of the availability of water and limitations on supply within the basin.

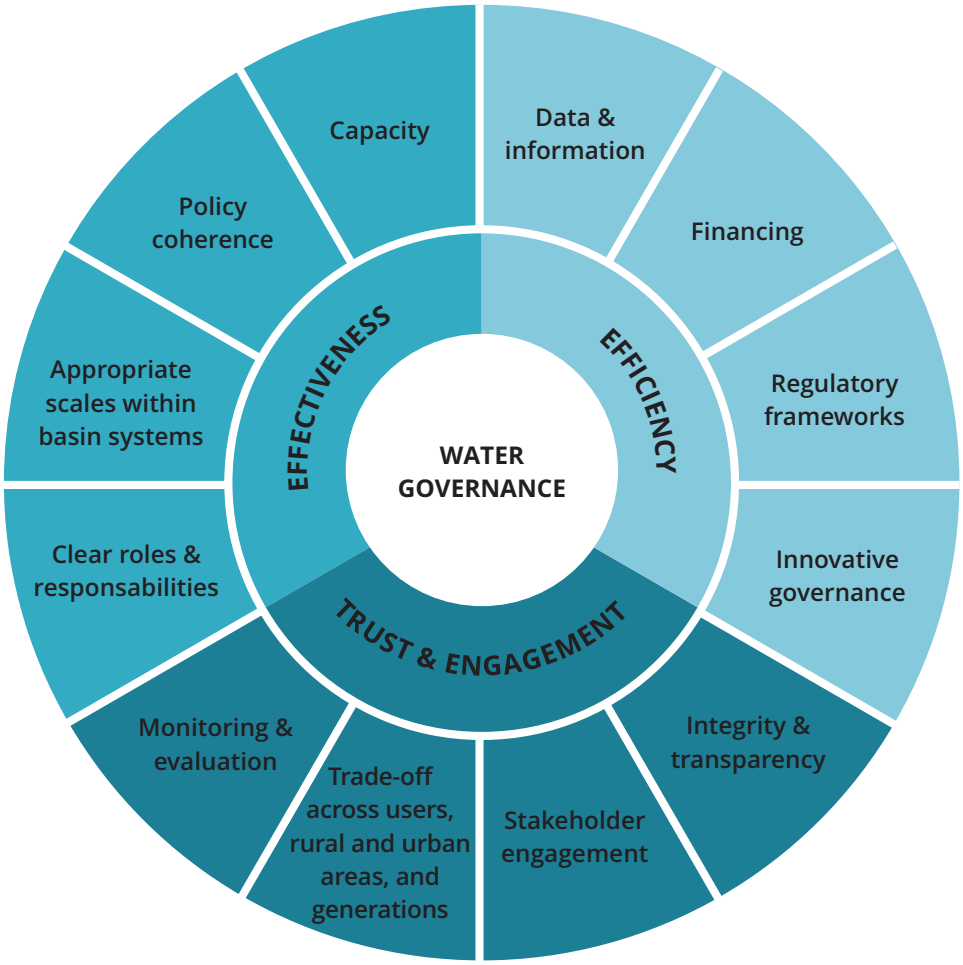
Rio de Janeiro pioneered the creation of a water charge system in Brazil. From an institutional point of view, all the conditions (e.g. technical capacity, information and monitoring systems) are in place for water charges to achieve their goals. However, the state's financial crisis and drought are barriers to implementation, and challenges arise from the volatility of political cycles. As a result, questions surround the future of water charges as a management instrument to enhance resilience in a very industrialised and urbanised state. For users to be convinced of the impact of water charges, revenues must be directed to where they bring direct benefits. Flexibility should be given to the application of revenues collected and funds should match the reality of revenues and investments.

Multi-level coordination reconciles diverse interests and approaches

Challenge

Multi-level governance is critical in a decentralised federation, where water resource management is rooted in participatory democracy. Decentralised management is an appropriate response to diversity in needs and local conditions, but it poses coordination challenges. These include reconciling the 'double dominion' of federal and state responsibilities and determining the functional scale for oversight, breaking down silos to foster policy coherence among water, agriculture, energy, environmental licensing, sanitation and land use, and making sure data, capacity and funding flow to where they are needed.

▶ Overview of OECD principles on water governance



As the overarching link in decentralisation to river basins, states and municipalities, ANA can reconcile top-down and bottom-up influences and policies. Based on a decade of dialogue, the OECD formulated the following recommendations for ANA and relevant, federal, state and other stakeholders:

Empower states to strengthen basin governance and integrate federal water management

- Strengthen the power, influence and effectiveness of the national and state water resources councils in guiding decisions at the highest level.
- Strengthen the capacity of state-level institutions in terms of staff, funding, monitoring and enforcement.
- Strengthen the effectiveness of basin-level institutions for results-oriented engagement of stakeholders and full-fledged implementation of river basin plans.
- Scale-up opportunities for sharing experience across states and basins to foster learning through peer-to-peer dialogue.

Support evidence-based stakeholder engagement and social mobilisation

- Raise the profile of water as a strategic priority with broader economic, social and environmental benefits for national policy.
- Raise awareness among stakeholders about future risks and promote greater interaction with municipalities in consultative and deliberative fora.
- Foster transparency and regular information-sharing for greater trust.
- Enhance cross-sector coordination for greater policy coherence and consistency.

Combine top-down and bottom-up approaches

- Foster the continuity and impartiality of public policy for a long-term vision towards sustainable water resources management.
- Take a consistent approach to defining the water resource pool to maximise benefits, and facilitate reallocation when appropriate to encourage water efficiency.
- Encourage pricing mechanisms, including water charges, to reflect the opportunity costs of alternative uses of water resources.
- Set water resources plans that guide water allocation decisions, and make the best use of the variety of economic instruments to support their implementation.

Economic instruments signal water's value and help recover costs

Challenge

Water charges for the use of a shared resource for economic purposes are set by basin committees, involving water users, civil society and public authorities. Sectors subject to water abstraction and pollution charges in Brazil are water supply and sanitation utilities, industry, hydropower and agriculture. The objective is to signal the economic value of water while encouraging its rational use and preserving its quality.

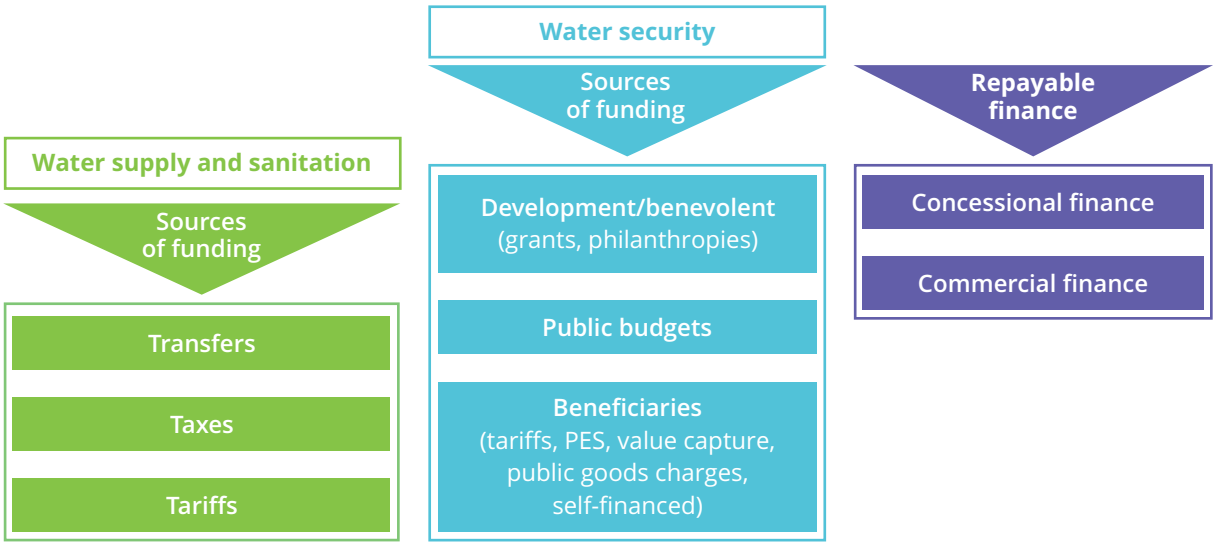
However, the social and competitiveness consequences of Brazil's economic crisis since 2015 hamper its readiness to charge and willingness to pay for water. Where they exist, water charges in Brazil are too low to finance water resource management functions and drive the behavioural change of most users.

Many users consider water charges a tax rather than a collective effort to improve the conditions of the river basins. And, as the structure and level of charges are similar across the country, they do not reflect local circumstances or changes in water availability over time, the opportunity costs of using water in specific basins, the risk and consequences of pollution, or the dilution capacity of rivers and water bodies.

Economic and financial functions of water charges

- Incentivising behavioural change to improve water-use efficiency and reduce pollution
- Socialising the benefits of using a collective resource
- Catalysing funding for water management

▶ Potential sources of funding and financing for water-related investment



Response

Strengthening water charges where they exist and introducing them where appropriate could safeguard water quality and quantity, and prevent water risks from becoming barriers to sustainable growth. For ANA and relevant federal, state and other stakeholders, the OECD recommends:

Set water charges to serve dedicated policy objectives

- Use short-term proxies to set water charges and send economic signals to water users that pave the way for more sophisticated methodologies and rate calculations as the evidence base grows.
- Target users who abstract or pollute the most first to maximise benefits for water management and revenue raising, and to minimise the transaction costs of setting and managing charges.

Strengthen institutional frameworks to manage water charges at the right scale

- Give river basin committees a consultative rather than deliberative role for governments to follow their recommendations on water charges or explain if otherwise.
- Coordinate across water agencies when implementing charges at state and federal levels to account for differences in governance models, regulation and enforcement.

Harmonise water charges with other policy instruments and actions in river basin plans

- Design and implement charges in coordination with policy instruments such as water allocation regimes and water quality standards.
- Consider water charges in the context of water resources management plans that set goals and priorities, guide infrastructure development, and accompany sustainable financing strategies and expenditure.
- Accompany reform with monitoring and regulatory capacities, and document unintended consequences, such as trade-offs between different water sources.

Economic practices for water resources management

- The **Polluter Pays Principle** creates conditions to make pollution a costly activity and to either influence behaviour (and reduce pollution) or generate revenues to alleviate pollution and compensate for welfare loss.
- The **Beneficiary Pays Principle** allows sharing the financial burden of water resources management, taking account of the opportunity costs related to using public funds for the provision of private benefits users can afford.
- The **Water Pays for Water Principle** means that water tariffs should allow for financing operation and investments.
- The **Equity Principle** focuses on who bares the costs and benefits of water management, aiming to ensure equity in the access to water services and protection against water-related risks.
- The **Policy Coherence Principle** seeks to ensure that different policy areas (agriculture, energy, land use, urban development or trade) do not harm water availability, quality and ecosystems, or increase management costs.

Better regulatory governance can improve water and sanitation services

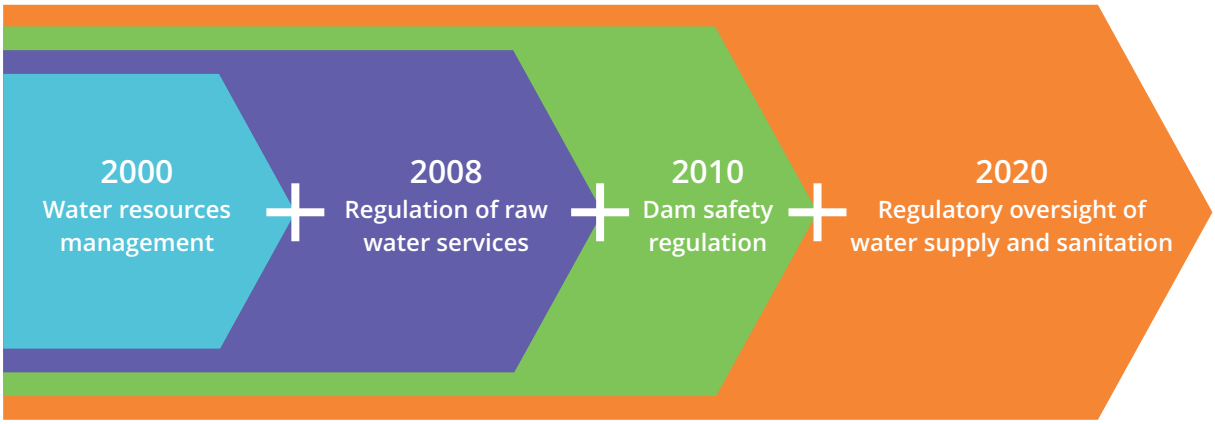
Challenge

The new Sanitation Law of 2020 marks the reform of the regulatory framework for water and sanitation (WSS) in Brazil. This is an important change which is expected to create a more stable regulatory environment for the sector. Under the previous legal framework, WSS was regulated locally without federal direction or supervision, which led to dispersed, un-harmonised and unbalanced rules, creating inefficiencies and regulatory risks.

The new legal framework has the potential to raise challenges for the various actors involved. A process of harmonising regulations with the aim of achieving universal access to WSS for Brazilian citizens will require engagement and flexibility from all actors involved. According to the National System of Information for Sanitation data (see table, p.6), in 2018 only 83.6% of the population had access to water supply (93% in urban areas), and 53.2% to sanitation services (61% in urban areas).

The characteristics of the water sector imply that it is highly sensitive to and dependent on multi-level governance. The regulatory challenge is exacerbated in the context of a decentralised federation such as Brazil, where there are 72 sub-national regulatory agencies, including 34 municipal, 13 inter-municipal, and 25 state regulators. Therefore, there is a need for coordination between ANA, federal regulators, municipal/local governments, and the federal government.

▶ Evolution of the role of ANA



The regulatory scope of ANA's responsibilities has expanded to include harmonisation across the sector, with reference standards applicable to all sub-national authorities and oversight of their implementation. Nevertheless, shortcomings in its mandate remain, especially in relation to its lack of enforcement powers. To strengthen performance, ANA should aim to:

Coordinate with sub-national authorities so that all parties share an understanding of the new law and regime

- Set up coordination mechanisms with sub-national authorities to ensure that the application of the new law creates no real or perceived conflict across levels of government in relation to decision-making, evaluating impacts and reviewing the implementation process.
- Facilitate dialogue with other state authorities, including sub-national regulators, so that the responsibilities of each agency are understood. Beyond increased awareness, sector actors need to be committed to the delivery of the new framework.

Ensure effective stakeholder engagement

- Strengthen stakeholder engagement mechanisms to raise awareness of regulatory activities, increase public acceptance, and enhance understanding of and compliance with rules and regulations.
- Rethink ANA's strategic relationship with groups not usually engaged (e.g. unions or unserved populations), and build these relationships while considering the economic context and challenges these groups might encounter.
- Maintain dialogue so that all key players (including the federal government, sub-national authorities, consumer groups and private providers) can keep informed about developments in the sector as they happen and there is a 'no surprises' relationship among sector actors.

Build human and technical capacities

- Rethink ANA's skill set and add legal, economics and data-analytics specialists to the current engineering-focused staff base.
- Be mindful of the additional financial resources ANA will need to carry out the mandate bestowed by the new Sanitation Law and consider how the increased financial burden will be resourced and how this might affect its independence in the long term.

OECD best practice principles for governance of regulators

Next steps

Water security in Brazil calls for a modern approach, balancing supply and demand management, grey and green infrastructure, and risk management and resilience, while embracing a holistic view that connects water to areas such as environment, land use and territorial development. Conservation of water ecosystems should be enhanced to guarantee water availability for all needs in the long term. Better measuring the social, economic and financial consequences of water-related risks should be prioritised, as robust data can raise awareness about the benefits of investing in water security.

Based on the 2022 OECD report, ANA highlights the following areas for action:

- Integrate resilience thinking into water infrastructure and investment planning to minimise the duration and magnitude of shocks and failures, and assess the potential benefits of various demand management techniques, such as leakage reduction programmes with performance targets, water efficiency appliance labelling, nudge messaging on bills, and incentives for water-efficient industrial and agricultural processes.
- Enhance coordination with sub-national authorities so that all parties share an understanding of the new sanitation law. More specifically, there needs to be horizontal coordination at federal level: so that the various programmes for grant funding are aligned, there is a need to consolidate approaches among the federal authorities, and quality control needs to be implemented in a harmonised manner.
- Demonstrate the value of water and recover the costs of operation and maintenance through equitable charging schemes levied on all beneficiaries, with safeguards for affordability where users need them.
- Broaden the possible sources of funding (e.g. from the land tax, or from other budget streams such as energy and agriculture) for development and maintenance of water infrastructure, and use legislative and budgetary support and accountability to formalise the basis for delivering green infrastructure for climate change adaptation.
- Set limits (i.e., an abstraction cap) that are acceptable to all stakeholders on the total volume of water available for allocation from bodies with chronic water deficit; differentiate validity periods of water rights according to the risk of water scarcity, with annual allocations for areas at risk and longer-term entitlements for areas well-provided with water; and consider combining abstraction charges and water markets to guarantee a minimum market price.

About ANA

The **National Water and Sanitation Agency** (**ANA**) is responsible for implementing the National Water Resources Policy, created to ensure the sustainable use of rivers and lakes for current and future generations. This implies regulatory water use according to the mechanisms established by Law No. 9433, of 1997. The regulation scope of ANA involves tools such as management support, monitoring and water resources planning. The 2020 Sanitation Law extended the responsibilities of ANA to the sanitation sector.

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About the OECD

The **Organisation for Economic Co-operation and Development** (**OECD**) consists of 38 member countries and works to build better policies for better lives. It provides a forum where governments work together to address the economic, social and environmental challenges of globalisation. The Organisation is at the forefront of efforts to help governments understand and respond to developments and concerns such as corporate governance, the information economy and the challenges of an ageing population. Through the OECD, governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

www.oecd.org

About the OECD Water Governance Programme

The **OECD Water Governance Programme** advises governments at all levels on how to design and implement better water policies for better lives. It relies on multi-stakeholder engagement and bottom-up processes to produce policy analysis, policy dialogues, policy standards and a policy forum. Since its creation in 2009, it has produced evidence-based analysis, benchmarks and peer reviews. The key milestones of the Programme include the bottom-up and multi-stakeholder design of the OECD Principles on Water Governance (2015), which provide the 12 must-dos for governments to design and implement effective, efficient and inclusive water policies.

www.oecd.org/cfe/watergovernanceprogramme.htm |
www.oecd.org/water/regional | water.governance@oecd.org

About the Centre for Entrepreneurship, SMEs, Regions and Cities

The Centre for Entrepreneurship, SMEs, Regions and Cities helps local, regional and national governments unleash the potential of entrepreneurs and small- and medium-sized enterprises, promote inclusive and sustainable cities and regions, boost local job creation, and implement sound tourism policies.

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