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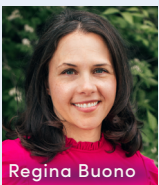
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GOVERNANCE AS INFRASTRUCTURE FOR WATER SECURITY

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At home and abroad, discussions on water security quickly turn to investment in built infrastructure. Achieving water security is about more than water policy and management, but likewise we can't simply build our way out of this problem.

It's both challenging and useful to think of governance as part of the essential infrastructure to achieve water security.

Governance guides the nature and timing of a development, supports its effectiveness and extends the life of the physical asset. Like all infrastructure, good governance requires planning, design, integration across many disciplines, effective operation and maintenance, and investment in capability to deliver.

This insight explores the role of governance in realising water security and the enormous economic, social and environmental

benefits it can bring to water infrastructure investment.

Water insecurity threatens the viability of economies and societies across the planet

Surface and groundwater supplies are on the verge of collapse in many parts of the world. Water crises are consistently cited by government and business leaders as a top global risk in terms of impact (WPG 2021; CDP 2022; WEF 2021), making the rise of water insecurity one of the most critical issues of our time.

Water insecurity is both acute and chronic. A lack of water availability has traumatic impacts for people and livelihoods. Ongoing insecurity impacts on the underlying quality of life for populations and the viability of economies. By 2030, 45 cities – almost half a billion people – will experience extremely high water stress. By 2050, global water demand is expected to increase by up to 30%. These conditions will have serious repercussions for economic development, public health and social unrest, and have a multiplier effect on phenomena like mass migration and political insecurity. Growing demand and dwindling supply will make this crisis increasingly acute across the globe.

The challenges – and many of these facts and figures – are familiar and well recognised. It is for good reason that Sustainable Development Goal 6 focuses on water security, that the UN initiated the Decade of Action on Water in 2018, and that a large majority of countries see water

management as a priority in their climate adaptation plans. Despite this, progress is very much lagging. The United Nations' Summary Report on progress states that even before Covid-19 struck, the world was off track to meet goal 6. Alarming, the current rates of progress need to quadruple in order to reach the global target of universal access by 2030, with no sustainable development goal region currently on track for this goal.

Why addressing water security is so challenging

Many reasons are given to explain the poor progress being made towards addressing water security, but our global experience suggests the problem lies in at least 3 areas:

- + **a lack of agreed water security definitions and objectives**, and a lack of clearly articulated strategies capable of responding to hydrologic uncertainty which is getting worse
- + **fragmented institutions and a complexity of players**, which obscure lines of decision making, impede the introduction of new approaches, as well as roles and responsibilities and accountability
- + **inadequate cost recovery and incentives**, which impede attempts to better attract and direct capital, improve efficiency, improve coverage and service delivery, and achieve a financially viable sector.

These challenges are – at their heart – governance problems. Poor governance was identified in a recent survey of global water sector leaders as the primary reason for them considering that tackling water insecurity was either challenging or impossible.

Water governance means the political, social, economic, and administrative systems that directly or indirectly affect the use, development, and management of water resources and the delivery of water service at different levels of society. More practically, this means laws, regulations, policies, institutions and processes, pricing and markets introduced in support of better decisions about water management and use.

Effective and equitable governance creates conditions under which societies make better decisions about the development and use of natural resources and infrastructure. Governance is, itself, essential infrastructure for decisions about everything ranging from water allocation to urban land use to dam construction. So, how do we act to improve both governance and infrastructure. And how do efforts in these areas relate?

There are a growing number of examples of effective responses, and insights to be gained from practical experience, in particular that of Australia.

Australia's experience in responding to scarcity with improved governance and infrastructure

While events like the Millennium Drought (1997–2009) lodge in our memories, Australia has long faced the drivers of scarcity that are increasingly presenting themselves across the globe. Australia's naturally dry and variable climate is becoming more so, with extremes of flood and drought occurring against a backdrop of increasing water scarcity. We also face challenges in balancing growing and competing demands from agriculture, urban growth, and the environment.

Australia's response to scarcity through governance reforms and improvements to infrastructure investment and use is particularly relevant to other countries.

Wholesale reforms of Australia's approach to water governance and infrastructure have taken place over the last 2 decades. Australia has:

- + sought to define clear objectives for managing water sustainably and efficiently
- + overhauled water planning, pricing, entitlement and allocation frameworks, utility ownership, and regulation – as well as introducing water trading
- + made major investments in infrastructure to secure supply
- + introduced transparent performance monitoring and reporting frameworks at multiple scales.

The net effect of these reforms has been positive. We have succeeded in enhancing water security through more sustainable water use including through:

- + enabling more efficient and high-value allocation of available supply between different users and uses
- + driving efficient service delivery and improved cost recovery through utility and regulatory reform
- + providing more certainty for investors and operators
- + making increasingly efficient investments through better economic appraisal
- + improving publicly available information on performance and transparency.

With this snapshot of Australia's journey in mind, 3 lessons stand out.

Lesson 1: Have clear objectives, a clear pathway, and a commitment to track and report on progress

This means providing time and resources to ensure that stakeholders understand and are influential in defining the problem and proposing solutions. While there may be general agreement between stakeholders on issues, we often

see vastly different interpretations of the true nature of the problem. These differences can amplify policy incoherence, fragmentation and uncertainty – and they may undermine efforts to respond.

From the 1990s onwards, Australia benefitted immensely from an explicit focus on improving both economic and environmental performance. These objectives anchored reforms and guided the water sector.

Enshrining these objectives in national reform agreements was instrumental in bringing stakeholders into the debate, achieving consensus on the detail of reforms, and maintaining commitment to long-term improvements. Australia's 2004 National Water Initiative provides a clear example of how water reform can be enshrined as a national political and policy priority.

Effective implementation also requires actionable plans and measuring and reporting on performance. Well-developed frameworks for this are required at the organisational and program level across the water sector. Again, Australia's National Water Initiative provides an example in its agreed implementation plans and regular and comprehensive assessments of progress.

Lesson 2: Improved governance and improved infrastructure are essential and interdependent

Where we see success, it can often be traced back to decision makers who are willing and able to accept and act on advice about the interdependency between governance and infrastructure.

Australia's experience shows the role of governance in supporting water security. From splitting policy and service delivery functions to corporatising utilities and introducing independent economic regulation, better governance has changed Australia's approach to water infrastructure planning and delivery. It has allowed for greater transparency and public accountability, the recovery of more of the costs of infrastructure in urban and rural settings, and more efficient and financially sustainable utilities. Water utilities that are more financially sustainable are better positioned to invest in physical infrastructure and other elements to support long-term water security.

Governance reform can be hard fought and incremental, and it is seldom achieved in a vacuum. Infrastructure investments can be strategically linked to improvements in governance and policy reforms. It is imperative that decision makers leverage incentives available, including approaching funding in smarter ways. For example, this may mean using government infrastructure funding to influence structural adjustment outcomes in rural areas; or providing improved water services to demonstrate the case for tariff increases.

Lesson 3: Build the capability for next generation water management

Improved economics, policy and strategy is a critical part of responding to water scarcity, and for the water sector this requires learning new languages and approaches. Water management is no longer the exclusive domain of engineers, and the future lies in committing resources over the long term to build the necessary capability and capacity to advance new agendas.

One of the major changes we have seen in the last 2 decades is the practical incorporation of economics in water sector decision making. Economic appraisal and other decision support methods have proved essential in better infrastructure and utility planning, and investment decisions. Business cases that address the distribution of costs and benefits and consider long-term financial and environmental sustainability support better due diligence and transparency on major expenditures. This can make a real difference to decision-making processes and outcomes. However, these approaches are relatively new. Globally there is still a low level of literacy in water agencies when it comes to the use of these tools, and adherence to these best practice approaches is by no means universal.

Government can support the adoption of these approaches, including by introducing requirements and standards for cost-benefit analysis and business case development. Academic institutions can offer programs which help integrate these skills. And utilities can adopt and refine these decision support methods in their work. These actions will raise the quality of decisions by raising the quality of inputs to decision-making.

As well as advancing and better integrating economic analyses into decisions by the water sector, next-generation water management must also incorporate a 'systems thinking' approach. This approach recognises and enables the roles of all stakeholders and facilitates engagement with the full spectrum of values, agendas, jurisdictions, and disciplinary and cultural perspectives. This will be just as important for water businesses as it will be for governments. Improving governance in the face of different and conflicting interests, values, norms, and objectives is tremendously challenging. It requires coordination, compromise, and cooperation across government levels, private sectors, and civil society – objectives that require thoughtfully designed and inclusive planning and implementation frameworks.

Governance is an integral part of the infrastructure to deliver water security

Around the world, our response to water scarcity will define the success of economies and societies for future generations. The complexity and enormity of the challenge can seem overwhelming – masking obvious entry points and preventing practical steps to effect change. It is clear, however, that governance must be at the core of our response. Governance is an essential part of the infrastructure we need to create water security.

Governance shapes any decision to build physical infrastructure. It guides the nature and timing of any development, and it supports the effectiveness and

extends the life of the physical assets. Governance, like all infrastructure, requires planning, design, integration across many disciplines, effective operation and maintenance, and investment in capability.

It's time to recognise the role of governance in realising water security, along with the enormous economic, social and environmental benefits investing in governance can bring to water infrastructure investment and use. Doing so will help see enhanced water security become a force multiplier for sustainable growth and improved human and environmental wellbeing.