

# POLICY BRIEF

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## Advancing Multiple Values of Water in Water Policy & Management in Asia

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### Highlights

Water security is intrinsically connected to development, sustainability, and well-being, encompassing complex and interconnected challenges. In Asia and other regions, issues of water accessibility, reliability, and safety are a critical threat to economic and human development. Mitigating them requires addressing the social mechanisms underpinning water insecurity, which thus far have been largely overlooked in government policies and actions.

#### Recommendations:

- Recognise and quantify water security issues to reveal the various values of water (instrumental, economic, moral, and relational values) and inform decision-making in planning, policy, and management.
- Integrate the multiple values of water into policy and management, and decrease dependence on external economic support by promoting cultural innovation and technology investments.
- Implement monitoring systems to capture the effects of policies and investments for advancing water security in terms of social and environmental well-being.

### Water Insecurity in Asia: from Concept to Data

Water security has received significant attention in the last decade, becoming a prime concern of international organisations and the global political agenda — as evident in the 2030 Agenda for Sustainable Development and the International Decade on Water for Sustainable Development 2018–2028. The concept encompasses the complex and interconnected challenges of ensuring accessibility, adequacy, and reliability for 2 billion people around the world who lack access to safely managed water (WHO and UNICEF 2021). While several definitions exist, the concept has maintained a focus on the protection of the resource to ensure human well-being and development (Jägerskog et al. 2014).

Asia has witnessed a remarkable social and economic transition in recent decades. However, the pressure on freshwater resources (due to industrialisation and agricultural transitions), climate extremes, and the lack of adequate technology and infrastructure (Asian Development Bank 2016), has exacerbated conditions of water insecurity. Despite recent progress (WHO and UNICEF 2021), much of Asia still lacks access to basic sanitation and fresh drinking water, and faces water quality issues — almost 80% of wastewater is discharged into water bodies with little or no primary treatment (Kelkar and Ram 2019).

Water insecurity has numerous direct economic costs, not only reducing income for individuals, but also slowing potential economic growth in the aggregate. The negative economic impact has been calculated as up to USD 500 billion annually, with Asia bearing a disproportionate share of these costs (Sadoff et al. 2015).

## Beyond Economic Value

The economic costs of water insecurity are usually easy to identify and quantify. However, there are also non-monetary costs that are often overlooked in analysis of water insecurity. These are explored in the World Water Development Report 2021 (United Nations 2021a), and include emotional distress and possible conflict generation when water allocation, distribution, and/or regulation are unequal and inequitable, destabilising societal well-being and cohesion, among others.

Although a significant body of literature on water insecurity in Asia exists, the social mechanisms connecting water insecurity and well-being in the local context are insufficiently understood compared to those in other regions of the world. Conventional methods for measuring household water security are relatively simple, quantifiable, and cross-culturally comparable, but they also oversimplify and obscure their wider social impact (Wutich et al. 2017). This is because these methods only consider the material state of water insecurity, without evaluating the non-physical dimensions of water (related to well-being, development, health, education, and security, among others). In addition, while the economic value of water insecurity is easily calculated, it is difficult to find social instruments that effectively capture both positive and negative changes due to the influence of subjective

One of the main drawbacks of relying exclusively on economic instruments to analyse water challenges is their inadequate capture of negative spillover (negative externalities) resulting from management policies (Zetland 2021). The second is related to the interconnection between monetary and non-monetary costs. Current financial methods underestimate the broad range of economic costs connected to the existence value of water, as evident in the example of India below. Without a multidisciplinary analytical tool for water security, evaluation of solutions and financial investments would be based on anecdotal evidence, precluding understanding of cause and effect. The ability to understand the social mechanisms and effects of water (in)security can “help to monitor changes in water insecurity over time, assess impacts of development interventions, and target scarce resources to where they are most needed” (Jepson et al. 2017). It can also offer data-driven and empirically sound models of how different levels of water (in)security may impact well-being and public health, enriching understanding of water (in)security conditions worldwide to support achievement of SDG 6.

An example from India illustrates how the value of water extends well beyond its role in life-sustaining functions and economic development, to include broader well-being, emotional balance, and happiness. Rural populations in the country are often marginalised due to limited access to adequate water supplies. The tribal villages of Eastern Ghat in rural Visakhapatnam (Andhra Pradesh, India) experienced pervasive water shortages and lack of access to safe drinking water until 2004 when the NGO Visakha Jilla Nava Nirmana Samithi constructed a reliable year-round, gravity-fed water supply system. This self-sustaining water supply is implemented in several vulnerable communities, in collaboration with various funding agencies, including

support through corporate social responsibility funding. Increased water availability enabled villagers to reallocate their time from water collection to income-generating activities, especially for women and children who were able to access education. Crop yield losses, which were previously

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## Conventional methods for measuring household water security oversimplify and obscure its wider social impact

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indicators and values. This is one of the greatest challenges — transitioning to a system of water governance that reflects multiple values through recognised measurement methodologies. However, such alternative measures have not been widely adopted, and best practice remains underdeveloped.

causing mental and physical stress for farmers, were transformed into increased annual yields and quality, access to new markets, and diversification and uptake of new farming practices. In addition, the presence of water allowed the organisation of festivals and religious celebrations at the community level, revitalising people’s cultural identity and well-being. This example (see Note) illustrates that water

security conditions can increase community well-being across multiple dimensions — social interaction, cultural, and educational — while also advancing regional economic development and expanding the range of economic possibilities for individuals and families.

## Policy Recommendations

While the links between water security and well-being have gained broad recognition in recent decades, they are yet to be reflected in many policies at the national, regional, and local levels. The following policy recommendations aim to guide policymakers in this process.

### Identify Multiple Values of Water

Community well-being is not only a qualitative instrument but also a quantitative indicator of sustainable development. In this context, there is an urgent need to recognise and quantify experiences of household water insecurity across multiple contexts, and identify existing gaps and capacities to address its challenges. The World Water Development Report 2021 provides a framework of five interrelated perspectives that can guide recognition of the multiple values of water, including valuing water sources and ecosystems health; valuing water infrastructure and services; valuing water as an input to production and socio-economic activity; and other sociocultural values of water, including recreational, cultural, and spiritual attributes (United Nations, 2021b).

However, one of the greatest challenges is the enormous data gap that exists, especially on water-related socio-economic and environmental issues, in addition to questions of what can or should be measured at all, and by whom (United Nations 2021b). In this regard, cultural mapping has been recognised as crucial to identifying intangible and tangible assets (UNESCO 2017) that are able to enhance recognition of the economic and non-economic values of water security.

This makes clear the need for multi-stakeholder participatory processes to reveal the different values of water and to drive or influence decision-making regarding planning, policy, and management (Hellegers and Van Halsema 2019). Directly involving communities can be the first step for achieving well-being; however, co-governance takes time to establish and operate. Lessons learned can be applied in different locations but must reflect the dynamic nature of water security challenges. Additionally, effective policy requires investments, thus compatible actions need to be accounted for in project development.

### Enable and Sustain Multi-value Governance Processes

Once policymakers have identified the scale and the severity of water-related problems (acknowledging both economic and psychological burdens resulting from water insecurity), they must consider including local stakeholders into the development and planning of solutions in order to increase their acceptance. Innovation, including both traditional and advanced technologies, also requires well-designed and empowered institutions with supporting legislative and policy instruments capable of integrating complex natural and social dimensions. In this context, shifting the focus from sharing water quantities to sharing the benefits of water use, can be considered an alternative method to include the multiple values of water (Sadoff and Grey 2003).

Innovation is essential to translate knowledge into effective mechanisms for integrating water data and using them to inform policy and management. This requires increased knowledge sharing of the complexity of water issues and the socio-cultural dynamics at play, as well as large financial investments. To create a response strategy to water insecurity, governments need to create openings in water infrastructure financing, since coping costs are mainly suffered at the individual level. To solve the problem of sustainable financing, one method is based on the idea that water and sanitation infrastructure generate positive spillover effects that can be captured and returned to investors to increase the rate of return and, hence, the incentive to invest (Kelkar and Ram 2019). These positive spillover effects include a significant reduction in morbidity from waterborne diseases, more affordable water supply, increase in water consumption, and the appreciation of urban property values that often translate into higher tax revenues, which can then be reinvested in other infrastructure. Additionally, there is a need to localise policy implementation to reduce dependence on external financial and institutional support that may promote rapid actions with limited long-term benefits.

### Implement Monitoring Systems to Tackle Water Security Dynamics

There is a need to create integrated monitoring systems able to comprehensively tackle the effects of policies and the investments undertaken, because “uncoordinated policies aimed at water security in one area may reduce security in another: less water security as the cost of greater energy security through biofuel production” (Zeitoun 2011). Problems of replicability arise when we consider different time periods as well as different metrics for assessing

water issues. To address this challenge, the systems should be embedded into the SDGs monitoring framework for goal 6, implemented locally but aligned with international standards. Thus, trans-sectoral coordination should be established between national, local, and academic institutions in order to boost the positive impacts of the projects. Sharing capacity development and resources could also produce a national open-source database on water security progress, enabling countries to self-evaluate their achievements and guide future investments.

#### Note

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#### References

- Asian Development Bank. 2016. Asian water development outlook 2016: Strengthening water security in Asia and the Pacific. Mandaluyong City, Philippines.
- Evans AEV, Hanjra MA, Jiang Y, et al. 2012. Water Quality: Assessment of the Current Situation in Asia. *International Journal of Water Resources Development* 28:195–216. <https://doi.org/10.1080/07900627.2012.669520>
- Hellegers, P. and Van Halsema, G. E. 2019. Weighing economic values against societal needs: Questioning the roles of valuing water in practice. *Water Policy* 21(3), pp. 514–525. [doi.org/10.2166/wp.2019.048](https://doi.org/10.2166/wp.2019.048).
- Jägerskog A, Swain A, Öjendal J. 2014. Introduction: Water Security – International Conflict and Cooperation Introduction – Security and Its Relation to Water. In: *Water Security, A Four Volume Set of SAGE Major Works*. SAGE Publications Ltd, London, UK.
- Jepson, W. E., Wutich, A., Collins, S. M., Boateng, G. O., & Young, S. L. 2017. Progress in household water insecurity metrics: a cross-disciplinary approach. *Wiley Interdisciplinary Reviews: Water* 4(3).
- Kelkar V. and KE Seetharam. 2019. A Literature Review Evaluating New Approaches to Resolving the Sanitation Challenge in Developing Asia. In: *Water insecurity and sanitation in Asia*.
- Sadoff, C.W., Hall, J.W., Grey, D., Aerts, J.C.J.H., Ait-Kadi, M., Brown, C., Cox, A., Dadson, S., Garrick, D., Kelman, J., McCormick, P., Ringler, C., Rosegrant, M., Whittington, D. and Wiberg, D. 2015. *Securing Water, Sustaining Growth: Report of the GWP/OECD Task Force on Water Security and Sustainable Growth*, University of Oxford, UK, 180pp
- Sadoff, C.W. and Grey, D. 2003. Beyond the river: The benefits of cooperation on international rivers. *Water Policy* 4(6). pp. 389–403. [doi.org/10.2166/wst.2003.0365](https://doi.org/10.2166/wst.2003.0365).
- United Nations. 2021a. Culture and the values of water, in: *The United Nations World Water Development Report 2021: Valuing Water*. UNESCO, Paris, pp. 97–106.
- United Nations. 2021b. Enabling multi-value approaches in water governance, in: *The United Nations World Water Development Report 2021: Valuing Water*. UNESCO, Paris, pp. 121–131.
- UNESCO. 2017. Cultural Mapping. UNESCO Bangkok Office website. [bangkok.unesco.org/content/cultural-mapping](http://bangkok.unesco.org/content/cultural-mapping).
- WHO and UNICEF. 2021. Progress on household drinking water, sanitation and hygiene 2000–2020: five years into the SDGs. Geneva. <https://washdata.org/sites/default/files/2021-07/jmp-2021-wash-households.pdf>
- Wutich, A., Budds, J., Eichelberger, L., Geere, J., Harris, L. M., Horney, J. A., and Young, S. L. 2017. Advancing methods for research on household water insecurity: Studying entitlements and capabilities, socio-cultural dynamics, and political processes, institutions and governance. *Water Security* 2. 1–10.
- Zeitoun, M. 2011. The global web of national water security. *Global Policy* 2(3), 286–296.
- Zetland, D. 2021. The role of prices in managing water scarcity. *Water Security* 12. 100081.

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