

WATER GOVERNANCE AND THE CHALLENGES FOR UNIVERSAL ACCESS

GOVERNANÇA DA ÁGUA E OS DESAFIOS PARA O ACESSO UNIVERSAL

GOBERNANZA DEL AGUA Y LOS DESAFÍOS PARA EL ACCESO UNIVERSAL



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ABSTRACT

Water is an essential resource for life and a human right recognized internationally, but its guaranty still faces significant challenges related to scarcity, mismanagement, and social inequalities. Although the planet has a large volume of water, the portion available for consumption is limited, and losses in supply systems, governance failures, and inadequate practices compromise safe access, especially in developing countries. The current water crisis is not limited to physical availability but primarily involves issues of governance, transparency, and accountability. In this scenario, water integrity emerges as a central element to ensure social justice, management efficiency, and environmental sustainability. Women and girls are disproportionately affected by the precariousness of services, highlighting the need for inclusive public policies aligned with the Sustainable Development Goals, especially SDG 5 and 6. Thus, strengthening ethical practices, expanding social participation, and investing in infrastructure are indispensable measures to guaranty the universal right to water and sanitation.

Keywords: Water Governance. Water Integrity. SDG 6. Gender Inequality.

RESUMO

A água é um recurso essencial à vida e um direito humano reconhecido internacionalmente, mas sua garantia ainda enfrenta desafios significativos relacionados à escassez, má gestão e desigualdades sociais. Embora o planeta possua grande volume de água, a parcela disponível para consumo é limitada, e perdas nos sistemas de abastecimento, falhas de governança e práticas inadequadas comprometem o acesso seguro, especialmente em países em desenvolvimento. A crise hídrica atual não se restringe à disponibilidade física, mas envolve, sobretudo, problemas de governança, transparência e responsabilização. Nesse cenário, a integridade da água surge como elemento central para assegurar justiça social, eficiência na gestão e sustentabilidade ambiental. Mulheres e meninas são desproporcionalmente afetadas pela precariedade dos serviços, o que evidencia a

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necessidade de políticas públicas inclusivas e alinhadas aos Objetivos de Desenvolvimento Sustentável, especialmente os ODS 5 e 6. Assim, fortalecer práticas éticas, ampliar a participação social e investir em infraestrutura são medidas indispensáveis para garantir o direito universal à água e ao saneamento.

Palavra-chave: Governança da Água. Integridade Hídrica. ODS 6. Desigualdade de Gênero.

RESUMEN

El agua es un recurso esencial para la vida y un derecho humano reconocido internacionalmente, pero su garantía aún enfrenta desafíos significativos relacionados con la escasez, la mala gestión y las desigualdades sociales. Aunque el planeta posee un gran volumen de agua, la parte disponible para consumo es limitada, y las pérdidas en los sistemas de abastecimiento, las fallas de gobernanza y las prácticas inadecuadas comprometen el acceso seguro, especialmente en los países en desarrollo. La crisis hídrica actual no se restringe a la disponibilidad física, sino que involucra, sobre todo, problemas de gobernanza, transparencia y rendición de cuentas. En este escenario, la integridad del agua surge como elemento central para asegurar justicia social, eficiencia en la gestión y sostenibilidad ambiental. Mujeres y niñas son desproporcionadamente afectadas por la precariedad de los servicios, lo que evidencia la necesidad de políticas públicas inclusivas y alineadas con los Objetivos de Desarrollo Sostenible, especialmente los ODS 5 y 6. Así, fortalecer prácticas éticas, ampliar la participación social e invertir en infraestructura son medidas indispensables para garantizar el derecho universal al agua y al saneamiento.

Palabras clave: Gobernanza del Agua. Integridad Hídrica. ODS 6. Desigualdad de Género.

1 INTRODUCTION

Water is the fundamental building block for life on our planet, as it ensures the health of ecosystems and human well-being (UN, 2017). According to the UN, the first time safe drinking water was recognized as a right was in 2010 by the UN General Assembly and the Human Rights Council (NEVES-SILVA; HELLER, 2016).

Although most of the planet is made up of water, the scarcity of drinking water is one of the greatest obstacles of this century (Falkenmark; Lundqvist; Widstrand, 1989)element. Thus, the global water crisis is increasingly seen as a "crisis of governance" and not only as a problem of physical scarcity (Rogers; Hall, 2003). One of the biggest challenges in water management is inefficiency. It is a problem that translates into huge losses in supply and inadequate disposal of what we use, in a world where the demand for water only grows, the lack of infrastructure and technical planning ends up leading to alarming waste (Ferreira, 2016).

Madani called this a "strange paradox" meaning that most of this abundant water cannot be used for human consumption, agriculture or industry due to high salinity which ultimately compromises access to vital water resources, harming both humanity and the agricultural and industrial sectors (Madani, 2026).

Water losses in supply systems represent a critical challenge that combines infrastructure failures, management obstacles and integrity crises, studies indicate that there are two types of losses, losses that are classified as physical losses that are linked to the volumes of water that leak from the supply system due to pipe ruptures and apparent losses that refer to water consumed but not accounted for, such as connections clandestine or vandalism the famous "gatos" (ANA, 2024).

Precisely to understand the importance of this aspect in Brazil and its reflections on the water crisis, the Thematic Diagnosis of Water and Sewage Services for the year 2022, (SNIS-AE 2022) points out that the rate of losses in water distribution (IN049) is 37.8%. This percentage represents the part of the water made available that was not accounted for as the volume used by users, either due to leaks, failures in the measurement systems or irregular connections. In quantitative terms, the index shows that for every 100 liters made available, only 62.2 liters are counted as used by users (ANA, 2024).

This scenario highlights the sensitivity of our supply systems and relates these issues to the concept of water integrity. The integrity of water is an ethical issue, demanding a consistent commitment to water. To this end, the concepts are established in principles such

as transparency, accountability and participation, the TAP pillars⁴, which are crucial for fair, efficient and lasting water governance (Water Integrity Network, 2016).

Among the most vulnerable, women and girls are disproportionately affected by the precariousness of water, sanitation and hygiene services and facilities. However, they are often ignored in the planning and implementation of improvements, which perpetuates their marginalization (UN WATER, 2023).

Access to safe water and sanitation is a fundamental human right, but it is not yet guaranteed equally between genders. Heller emphasizes that the fight against corruption is essential to ensure justice and equity in access (1998, p. 98). Gender inequalities become even more visible in this scenario, since women, although they have a central role in the management and care of water, are the most impacted when governance is marked by corruption (HELLER, 1998).

2 LITERATURE REVIEW

Water is a limited resource, while its demand has been steadily increasing. With the growth of the world population, the water systems and infrastructure of several countries become insufficient to meet this growing demand (UNITED NATIONS, 2021).

Global data show that 2.1 billion people (1 in 4) do not have water safely managed, including 106 million people who consume surface water (WHO/UNICEF, 2025).

Climate change aggravates the scenario of water scarcity. Terrestrial water storage – the water held in soil, snow and ice – is dwindling more and more. This context contributes to the worsening of water scarcity, with direct impacts on social activities (UNITED NATIONS, 2021).

The most socially vulnerable groups are the most directly affected by water scarcity crises, which compromises their ability to preserve health, protect their families, and secure livelihoods. For many women and girls, the lack of water implies longer and more exhausting routes for collection, increasing their exposure to risk situations and often making it difficult or impossible to access education and work (UN WATER, 2023).

In 2015, the United Nations defined a global appeal where 17 Goals called Sustainable Development Goals and 169 goals were developed that were adopted by the members of the United Nations, these goals address the greatest challenges faced by people in the world, they must be achieved in the 2030 Agenda (UNICEF, 2023). And they aim to

⁴ Transparency, Accountability & Participation Network. In Portuguese: Network of transparency, accountability and participation.

combat inequality, poverty, climate change and environmental damage, the agenda applies to all countries, regardless of their level of development, and recognizes that progress on one goal is essentially linked to the success of the others (Sharma et al., 2025).

One of these goals, which is SDG 6, aims to ensure that by 2030, we have universal and equitable access to safe drinking water for all, the phrase "Leave no one behind" has been mentioned in the sense of universalization of care, as real progress only exists when it is inclusive. Among the goals present in SDG 6 are targets 6.1 and 6.2, which proposes that by 2030, access to water should be universal (target 6.1), as well as ensuring adequate and equitable sanitation and hygiene conditions for all, with special attention to the demands of women, girls and populations in vulnerable situations, including the elimination of the practice of open defecation. (target 6.2) (UN, 2023a).

The world has 60% of its water bodies in good quality conditions, but despite this, only 74% of the population has safe access to drinking water services, which indicates that by 2030 we will not achieve SDG 6 without investing in improving safe access to drinking water (UN, 2022).

The central commitment of the 2030 Agenda is to achieve high levels of public health, gender equality, educational attainment and economic productivity, all its members should enjoy the right to quality water and sanitation (UN WATER, 2023). At the global level, it is verified that to meet the universalization with access to safe water, it is necessary to advance at an 8 times greater pace (UNICEF, 2025).

To structure the debate, the United Nations General Assembly defined, in 2025, six themes for the interactive dialogues of the Water Conference, scheduled for 2026, aiming to accelerate the implementation of sustainable practices by 2030. Themes include (a) "Water for the people", prioritizing human rights and socially vulnerable groups; (b) "Water for prosperity", which deals with water management, the efficient use of water and its relations with other sectors; (c) "Water for the planet", with a focus on climate and biodiversity; (d) "Water for cooperation", highlighting governance and cross-border cooperation; (e) "Water in multilateral processes", addressing SDG 6 and the 2030 Agenda; and (f) "Investments for water", which deals with financing, technology and capacity building (United Nations General Assembly, 2025).

The first theme of the 2026 Water Conference interactive dialogues, "Water for the People", highlights the central role of the human rights to water and sanitation. This does not represent a starting point, but the recognition of a global struggle already underway, reflected in the SDG approach itself (UN, 2023a).

Brazil has proposed the inclusion of an interactive dialogue entitled "Water and Sanitation for All" at the 2026 UN Water Conference. The Brazilian proposal proposes to address aspects of water governance in an integrated manner, focusing on the specific challenges of developing countries. The document highlights that rapid and unplanned urbanization exerts pressure on ecosystems and water infrastructure, compromising watersheds and degrading water sources (Brasil, 2025).

In recent decades, the demand for water has increased at a rate of 1% each year, due to the increase in population with each passing year, economic development and changes in consumption habits, among other factors, are expected to grow expansively in the coming years. The UN predicts that global water demand will increase by 20 to 30% by 2050 (UN, 2017).

Sustainable Development Goal 5 (SDG 5), focused on gender equality, seeks to ensure the full and effective participation of women and ensure equal leadership opportunities at all levels of decision-making. This guideline is especially relevant in the context of water management, since the inclusion of women in decision-making processes is essential to ensure effectiveness, equity and integrity in water resources governance (UN, 2025, p. 5). According to the Water Integrity Global Outlook (WIGO)⁵ (Das et al., 2016) women are the main managers of water for the home in many parts of the world, especially in rural Africa and Asia, where 90% of the water and firewood collection work is carried out by women. Women's involvement in subsistence agriculture is crucial for feeding households, highlighting their key role in maintaining communal waters and controlling their use (WIN, 2016).

Despite all the progress in laws and the mobilization around the 2030 Agenda, the challenges remain. Mismanagement still deeply affects the sector, harming the quality of services, increasing inequality. This affects these women, children and people in vulnerable situations. Un Water (2023) makes this clear:

"Women and girls often have a responsibility to fetch water. This can be a dangerous, time-consuming, and physically demanding task. Long journeys on foot, often more than once a day, can leave women and girls vulnerable to attack and often prevent them from going to school or earning income" Un Water (2023).

As is explicit in Figure 1, where mothers and their young children are collecting water with jerry cans in unsanitary conditions.

⁵ WIGO. In Portuguese: Global Perspective on Water Integrity.

Figure 1

Woman and children collecting water in Kenya



Source: Prepared by the authors, 2022.

Another factor that implies the lack of drinking water for people is the fact that 72% of all fresh water withdrawn is used by agriculture, 16% by industries and only 12% by municipalities. Industrial and domestic demand for water will increase much faster than agricultural demand, although agriculture remains the largest consumer overall (FAO, 2023)

Water integrity is a multidimensional concept that involves ethical, institutional, environmental and social aspects in the management of water resources. (Water Integrity Network, 2016). According to ANA, the integrity of water bodies must be evaluated considering variables such as water quality, hydrological regime, ecosystem connectivity, and honesty with aquatic habitats, essential elements for the sustainability of water systems. The degradation of these factors compromises the environmental support capacity and can lead to significant negative impacts on the social and economic dimensions (National Water and Basic Sanitation Agency (ANA), 2020a).

This ethical and institutional dimension is fundamental to the achievement of Sustainable Development Goal No. 6 (SDG 6), which seeks to ensure the availability and sustainable management of water and sanitation for all (Tropp; Jiménez; Le Deunff, 2017). However, challenges such as misappropriation of resources, political decisions detached from technical evidence, and lack of oversight compromise the quality of services, especially in regions with greater social vulnerability (Rodrigues et al, 2020).

3 CONCLUSION

It is in this context that water integrity becomes central, the facts addressed expose the systemic failure that prevents sustainable management, social justice and environmental protection, requiring an approach that goes beyond theory and seeks concrete solutions for the rational use and protection of the water resource.

The lack of water integrity, that is, the absence of transparency, accountability and participation in water management is at the origin of these challenges, allows water to be treated as a commodity and not as a human right. This ends up deepening inequalities and disproportionately affecting vulnerable populations, such as women and girls. With the lack of basic resources, integrity ceases to be an abstract ideal to become a concrete and non-negotiable practice.

Beyond technological advances and legal frameworks, success in securing the right to water and achieving the SDGs will depend on our collective ability to foster a culture of honesty, transparency, and accountability at all levels of governance. This includes having stronger laws, good monitoring, technical training, citizen participation and the work of independent media. The goal is to create a culture of ethical and inclusive governance, capable of ensuring the fair and sustainable use of water for all, protecting this vital resource for generations to come.

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