

Comparing IWRM Reporting:  
Can a Context-Specific Framework be Translated into a Universal Standard?<sup>1</sup>  
Comparando reportes de GIRH:  
¿Se puede traducir un marco contexto-específico a un estándar universal?

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### Abstract

This paper critically examines the implementation of Integrated Water Resource Management (IWRM) as prescribed by Sustainable Development Goal 6. Despite its recognition as an essential solution to unsustainable water practices, progress has stagnated, with only 57% global implementation reported by 2023. This paper argues that the standardization of IWRM may conceal the complexities of water management across various contexts. An analysis of IWRM's evolution, evaluation metrics, and case studies of France, the United States, and Ecuador reveals how universal benchmarks may favor specific governance structures, leading to misleading assessments of progress and effectiveness in water management.

### Keywords

Integrated Water Resources Management, Universal Standards, Implementation, Governance Structures.

### Resumen

Este artículo examina críticamente la implementación de la Gestión Integrada de los Recursos Hídricos (GIRH) tal y como se establece en el Objetivo de Desarrollo Sostenible 6. A pesar de su reconocimiento como una solución esencial para las prácticas hídricas insostenibles, el progreso se ha estancado, con solo un 57 % de implementación global prevista para 2023. Este artículo sostiene que la estandarización de la GIRH puede ocultar las complejidades de la gestión del agua en diversos contextos. Un análisis de la evolución de la GIRH, los parámetros de evaluación y los estudios de caso de Francia, Estados Unidos y Ecuador revela cómo los puntos de referencia universales pueden favorecer estructuras de gobernanza específicas, lo que conduce a evaluaciones engañosas del progreso y la eficacia en la gestión del agua.

### Palabras Clave

Gestión Integrada de los Recursos Hídricos, Normas universales, Aplicación, Estructuras de gobernanza.

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## 1. Introduction

Since 2015, global water stress levels have surged by 2.8 percent, underscoring the urgent need for sustainable water management. This increase signals a pressing need for action before the sustainability of freshwater resources is compromised globally (*Progress on the Level of Water Stress*, 2024, p. XV). With the increased water stress level and growing need for freshwater resources, robust, holistic governance and water management are urgently needed worldwide. In the past, water resources were managed and regulated by different, unconnected systems, with the presumption that water would always be an abundant resource. However, as populations have grown and nations have developed, the use and intensity of water have increased exponentially, leaving communities searching for methods to preserve existing water resources and allocate them equitably both today and in the future. The importance of a comprehensive, integrated approach to water management is self-evident.

Therefore, to some degree, states worldwide manage water for sustainability and mitigate risk by applying Sustainable Development Goal 6, aiming to ensure the availability of water and sanitation for all (Goal 6 | Department of Economic and Social Affairs, n.d.-a). This paper will focus on Target 6.5.1, which aims to implement integrated water resource management (IWRM) at all levels by 2030 (Goal 6 | Department of Economic and Social Affairs, n.d.-b, par. 5). According to the UN Environment Programme:

Integrated water resource management is a cross-sectoral approach increasingly recognized as the solution to traditional, fragmented sectoral approaches to water resources management that have led to unsustainable use and poor service, and is based on the understanding that water resources are an integral component of the ecosystem, a natural resource, and a social and economic good (U. N. Environment, 2023, par. 2).

Most scholars and political leaders believe this integrated, multisectoral approach to water management systems would be ideal for many nations. So then, why do the reports and data state that most countries are not on track to implement this management structure? (Goal 6 | Department of Economic and Social Affairs, n.d.-c, par. 5). An initial look at the reports and data might lead one to believe it is merely an issue of infrastructure, governance, or financial constraints. Although this is undoubtedly true to some extent, this paper argues that the data and reports are potentially misleading, obscuring that the formulaic, standardized UN-prescribed IWRM, as a water resource management solution, is inadequate for all situations. IWRM should be viewed and measured within its scope, not as an end goal, but as a tool in the water management toolkit, flexible enough to address specific problems (Lenton & Muller, 2012, p. 13).

This paper will first show the transformation of IWRM from a flexible framework to a global principle. Second, the paper will focus on the standards and metrics, as well as how scoring is conducted for the IWRM goals. Third, using the metrics, the paper will outline the scores and water management structures for three different countries: France, the United States, and Ecuador. Lastly, the paper will analyze and explore how standardized, universal IWRM benchmarks favor specific governments and governance structures, potentially leading to misleading scores that either inflate or obscure actual progress towards holistic water management.

## 2. Historical Perspective of IWRM

Before its formalized adoption within the United Nations, IWRM was viewed as a set of broad guidelines or approaches to water management that could be applied to a specific water-related issue (Giordano & Shah, 2014, p. 367). This approach diverged from fragmented policy approaches,

where sectors within the sociopolitical and industrial spheres worked independently (Giordano & Shah, 2014, p. 364). One of the earliest applications of IWRM was in 1933, with the Tennessee River Valley, where water management was considered basin-wide, incorporating the energy, land use, and water allocation as part of a larger political plan (History of IWRM, 2016, par 1). There are additional case studies in Germany and the United Kingdom that employed the same or very similar principles to manage and organize their water resources for a larger policy agenda (Allouche, 2016, p. 422). By the mid-twentieth century, there was a growing understanding of the need for holistic water management. Through the rise of environmental policies and the success of additional global IWRM projects, the concept was brought into global conversations in 1977 at the first UN Water Conference held in Mar del Plata, Argentina (Allouche, 2016, p. 423). However, global priorities changed, and the discussion on holistic water management was paused until the early 1990s.

In 1992, conversations about multidisciplinary systems analysis for sustainable development were at the forefront of global politics, and IWRM reemerged as a tool for sustainable water development (Allouche, 2016, p. 423). At the International Conference on Water and the Environment (ICWE), a pre-conference summit held before the Earth Summit in Rio de Janeiro, global water experts developed four guiding principles for new approaches to water resource management (Lenton & Muller, 2012, p. 7). These principles include:

1. Fresh water is a finite and vulnerable resource, essential to sustain life, development, and the environment.
2. Water development and management should be based on a participatory approach, involving users, planners, and policymakers at all levels.
3. Women play a central part in the provision, management, and safeguarding of water.
4. Water has an economic value in all its competing uses and should be recognized as an economic good. (*The Dublin Statement on Water and Sustainable Development*, n.d., par. 9)

These principles, known as the Dublin Principles, informed the water resources sections in Agenda 21 of the 1992 Earth Summit (UNCED) in Rio de Janeiro (Lenton & Muller, 2012, pp. 6-7). Here, IWRM was formalized and standardized with specific approaches to water management that “explicitly promote the use of the resource base in ways that best support social equity, economic development, and environmental sustainability objectives” (Lenton & Muller, 2012, p. 7).

This standardized universal approach to water resource management was further ingrained when IWRM became the only norm and solution, as agreed upon at the 2002 World Summit on Sustainable Development (WSSD) and the 2015 Sustainable Development Goals (SDGs) (Allouche, 2016, p. 412). Target 6.5 is: “By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate”; and Indicator 6.5.1 tracks the degree of integrated water resources management implementation, by assessing the four key dimensions of IWRM: enabling environment, institutions and participation, management instruments, and financing (U. N. Environment, 2021, par. 2).

The history of IWRM illustrates the evolution of holistic water management guidelines, which developed from a context-based and need-based approach to formalized, universal standards for water resource management. Although the tenets, principles, and intent are arguably the same, the implementation differs. IWRM started as principles (means) to solve complex water resource issues in specific contexts and has become a solution (end) for water management. Though touted as a methodology for addressing water issues, the standardization and formalization of IWRM implementation leave room for institutional barriers and confusion about what exactly constitutes

IWRM or an “IWRM approach” (Grigg, 2008, p. 282). In practice, the goals of and methods for implementation of IWRM can be vague and unspecific, and implementation “requires balancing numerous natural and societal issues, integrating all relevant sectors and stakeholders, all of which are potentially impossible from an intellectual and logistical standpoint” (Nagata et al., 2022, p. 898). Therefore, it is essential to analyze and critique the results of SDG metrics, because IWRM is more of a paradigm with a broad set of principles, tools, and guidelines that must be tailored to the specific context of a country (Meran et al., 2021, p. 24).

Though there is critique within the standardized reporting process, some scholars have found that this type of reporting structure does benefit the implementation of sustainable water management. Though the framework can be challenging to implement, it is beneficial because it allows global markers for water resource management, and the broad framework, though vague, can allow for more nuanced applications, and with proper education and messaging (Grigg, 2024, p. 13). Moreover, studies have shown that IWRM does “improve water management and the conditions of water resources’ when implemented (Bilalova et al., 2023, p. 7). However, scholars have noted that successful implementation is often correlated with specific governance structures, economic strength, and environmental and geographical conditions (Bilalova et al., 2023, p. 7). The framework can potentially be helpful for water resource management; however, many factors, other than the framework itself, contribute to the successful implementation of IWRM.

### 3. Survey and Scoring Process

To delve deeper into the critique, one must understand how SDG 6.5.1 acquires data for scoring. In general, SDG 6 focuses on ensuring the availability and sustainable management of water and sanitation for all and is broken down into eight separate targets (Goal 6 | Department of Economic and Social Affairs, n.d.-b). The UN states that Goal 6.5 is to “implement integrated water resources management (IWRM) at all levels, including through transboundary cooperation as appropriate” (Goal 6 | Department of Economic and Social Affairs, n.d.-b, par.5).

The data collection can take a year, and the United Nations Environment Programme (UNEP) and Member States meet continuously to confirm and revise questions from the previous survey (UNEP-DHI Centre, 2023). For the 2023 reporting, the official survey and these materials were distributed in mid-April, and the “final draft” report was submitted to the UNEP by October 1st. Before all submissions were finalized in December, UNEP conducted quality assurance checks of the reports (UNEP-DHI Centre, 2023). The institutions that fill out the 6.5.1 surveys vary. On a national level, multiple groups can submit drafts, and a national authority can compile all these drafts to give the most accurate score for every question and section (IWRM Data Portal - Data Collection, Monitoring Guide, 2023, p. 2). The UN asks for input from multiple organizations working on various aspects of IWRM implementation (IWRM Data Portal - Data Collection, Monitoring Guide, 2023, p. 3).

The survey consisted of thirty-three questions split into four sections, each covering a key dimension of IWRM (IWRM Data Portal - Data Collection, SDG 6.5.1 Survey, 2023, p. i). Section 1, titled “Enabling Environment”, surveys the policies, laws, and plans in place to support IWRM implementation. Section 2, “Institutions and Participation”, examines the range and roles of political, social, economic, and administrative institutions and other stakeholder groups in supporting the implementation of Integrated Water Resources Management (IWRM). Section 3, “Management Instruments”, asks various questions about the current tools and activities that enable decision-makers and users to make rational and informed choices about water resource management. The last section, “Financing,” analyzes how the state budgets and finances water resource development (IWRM Data Portal - Data Collection, SDG 6.5.1 Survey, 2023, p. i).

Stakeholders and institutions can assign scores in increments of twenty, with a “half-way” score available in increments of ten if the country falls between the criteria of two scores (IWRM Data Portal - Data Collection, SDG 6.5.1 Survey, 2023, p. ii). Additionally, the two available writing spaces are divided into “Status and Progress,” which refers to relevant initiatives, policies, or strategies and their role in the degree of implementation, and “Way Forward,” which pertains to already planned or recommended activities to advance IWRM (IWRM Data Portal - Data Collection, SDG 6.5.1 Survey, 2023, p. ii). The national score for countries on the IWRM data portal website is the average of all four dimensions’ scores, ranging from 0 to 100. The cumulative scores are ranked from very low to very high degrees of IWRM implementation (IWRM Data Portal - Data Collection, SDG 6.5.1 Survey, 2023, Section 5, p. 1). The following sections will outline the scoring for three countries (France, the United States, and Ecuador), compare the scores, and analyze the different approaches to IWRM.

#### 4. Methodology

To analyze and explore how standardized, universal IWRM benchmarks favor specific governments and governance structures, this paper will use a comparative analysis of three nations’ self-reported scores and water management policies. The paper aims to analyze whether the nations’ water policies are genuinely reflected in the scores. Moreover, this paper seeks to determine whether the universalized nature of the UN-prescribed IWRM metric fully encapsulates all facets of each state’s water policy and IWRM implementation.

France, the United States, and Ecuador were selected for analysis due to their diverse water governance structures and varying scores on the Integrated Water Resources Management (IWRM) rubric. France has consistently received high ratings for its implementation of IWRM and was among the first countries to adopt it as a standard for water management. The United States also scores well in the IWRM survey; though, its complex, multi-layered water governance system conflicts with the framework of IWRM. In contrast, Ecuador’s scores have fluctuated between mid-level and low; however, the country has constitutionally recognized the rights of nature and has engaged in several court cases to defend those rights. Comparing the different governance structures and approaches to integrated water management in these nations offers valuable insights into how a self-reporting and universal scoring system is interpreted and applied.

Using the scores and reports from each country, this paper will compare them to the literature on each country’s water management structures. Ultimately, this paper aims to comparatively analyze these chosen countries to ground the results of the metrics in our understanding of their water laws as they relate to IWRM.

#### 5. IWRM Scores and Rankings for France, the United States, and Ecuador

##### 5.1. France

France is known as one of the models for the success of IWRM. Since 2017, France has consistently scored 100 across all dimensions of IWRM implementation (IWRM Data Portal - Country Report Survey, France, 2023, p. 34). For instance, in 2020, France released a new international policy on water and sanitation that focused on three elements, which aim to improve governance of the water and sanitation sector, strengthen the security of the water supply for all, and bolster the effectiveness of resources and tools (*French Policy on Water and Sanitation - Ministry for Europe and Foreign Affairs*, n.d.-a, par. 2).

In the policy report, France identified several focus areas for improving water quality, quantity, and financing, which are monitored annually using robust data sources and methodologies (*French Policy on Water and Sanitation - Ministry for Europe and Foreign Affairs*, n.d.-a, p. 34–35).

France's high IWRM is reflected through the implementation of these policies, both domestically and internationally. Moreover, France's high score is due to IWRM policies developed after the country passed its comprehensive water laws in 1964; thus, situating France as a primary example of success and one of the biggest advocates for the addition of water to the SDG goals, as well as IWRM (*French Policy on Water and Sanitation - Ministry for Europe and Foreign Affairs*, n.d.-a, p. 12).

The main characteristics of France's water management system are the basin orientation of the *Agences de l'eau* (Water Agency) and its participatory structure, with the state as the owner of the water resources (Matz, 2008, p. 180). This system was established in response to the criminalization of pollution and the recognition of environmental concerns in Europe (Richard et al., 2010, p. 9) since competent authorities (water agencies). However, because it lacks the capacity to manage water resources, responsibilities have progressively shifted to the *Agences de l'eau*. (Matz, 2008, p. 180). The system's participatory and incentive-based fee structure left it open to weaknesses. Initially, there was difficulty in collecting the necessary funds for water projects, but now "industries and water suppliers are using the agencies as a source of funds for investing in more efficient water use technologies or better wastewater treatments" (Matz, 2008, p. 185). The 2006 Water Act created a partial re-centralization of water management, which provided additional legal government structure for the monitoring and surveillance of water quality on a national and local level (Richard et al., 2010, p. 10). With this financial system and strong, legally enforced participatory involvement, France's methodologies for IWRM are touted as a blueprint worldwide (Matz, 2008, p. 186).

## 5.2. United States

The United States' reporting for implementing Integrated Water Resources Management (IWRM) stands at 77 points in 2023, which is defined as having the objectives of IWRM programs generally met, and having typically good stakeholder engagement (IWRM Data Portal - Country Summary, United States, 2023, p. 1). According to the IWRM data portal, the "Enabling Environment Dimension" scored an 84; the "Institutions and Participation" has a score of 77; the "Management Instruments Dimension" scored a 78; and the "Financing" has a score of 68 (IWRM Data Portal - Country Survey, United States, 2023, Section 5, p.1). The scores remained the same as in the 2020 report; no report was made in 2017 (IWRM Data Portal - Country Summary, United States, 2023, p. 1).

The scores reported by the Environmental Protection Agency, in consultation with other federal agencies, do not fully encapsulate the complex and piecemeal implementation of the United States' water governance. A question-by-question critique of the report is unnecessary; simply analyzing the first question and response should sufficiently illustrate the main points. Survey question 1.1 reads "What is the status of policies, laws, and plans to support Integrated Water Resources Management (IWRM) at the national level?" (IWRM Data Portal - Country Survey, United States, 2023, Section 1, p. 1). The United States self-scored 80, 100, and 80, respectively, out of 100 (IWRM Data Portal - Country Survey, United States, 2023, Section 1, p. 1-3). The narratives given in the survey include references to a whole suite of American environmental laws, some, like the Clean Water Act or the Safe Drinking Water Act, set goals and standards for water quality. Others, like the Wild and Scenic Rivers Act or the Estuary Protection Act, provide resources for specific water bodies to enhance planning and protection efforts.

However, there is zero nationwide plan, policy, or law that demands, provides for, or even encourages IWRM. Anything that does exist at the federal level is fragmented and sectoral, changing as federal-state relations evolve. This is the very approach IWRM is intended to overcome (Gerlak, 2006, p. 233). Defenders of the federal government, or at least of this reporting, would point out that in a federal system where water law in the United States is property law,

IWRM is not solely the federal government's concern, but also the duty of the states (Gerlak, 2006, p. 242). This outlook on water resource management focuses on federal-state governance that consists of working groups, task forces, cooperative agreements, and cost sharing (Gerlak, 2006, p. 242). However, this cooperation, or semblance of it, does not excuse insufficient federal action in this realm, nor does it excuse the report to the UN that fails to acknowledge that lack of action. For example, the Clean Water Act, the federal law that applies most broadly across the country, only applies to water quality and an ever-shrinking number of navigable and interstate waterbodies (Opinion, 2023, Sackett v. EPA, 566 U.S. 120). Despite water rights and management being a state concern, federal policies, laws, and plans could do better to promote IWRM. For instance, a policy or program at the federal level to encourage states to enter agreements for the integrated management of interstate basins would be an easy first step.

### 5.3. Ecuador

Ecuador's self-reporting for the implementation of Integrated Water Resources Management stands at a significantly low 26 points in 2023, which is defined as having begun implementation of IWRM but still exhibiting low stakeholder engagement (IWRM Data Portal - Country Summary, Ecuador, 2023, p. 1). Ecuador remains far below the Latin American and Caribbean regional average of 39 and the worldwide average of 57 (IWRM Data Portal - Country Summary, Ecuador, 2023, p. 1). The IWRM data from 2023 reveals that Ecuador's four main IWRM dimensions have regressed since the 2020 survey (IWRM Data Portal - Country Summary, Ecuador, 2023, p. 1).

For the "Enabling Environment" dimension, Ecuador scored a 27 due to inadequate water management policies and planning frameworks; the "Institutions and Participation" score of 29 reflects poor coordination between agencies and minimal involvement from private sector entities and vulnerable communities; the "Management Instruments Dimension" scored a 27 due to insufficient development in data collection procedures, pollution control systems, disaster management plans, and ecosystem protection strategies; and the "Financing" score of 20 shows significant funding shortages at national and sub-national levels because of limited water management revenue generation (IWRM Data Portal - Country Survey, Ecuador, 2023).

A decentralized administration characterizes Ecuador's government, and water management responsibilities are applied at different levels of government (Wingfield et al., 2021, p. 2). At the national level, the central government controls water management; however, local governments are responsible for managing irrigation and drinking water, which can pose difficulties for effective management of water resources (Wingfield et al., 2021, p. 2). According to the nation's survey, the centralized water resource management scheme is governed by the Ministry of Environment, Water and Ecological Transition (*Ministerio del Ambiente, Agua y Transición Ecológica*), which reports that Ecuador has a National Integrated Water Resources Management Plan and a National Irrigation and Drainage Plan. (IWRM Data Portal - Country Survey, Ecuador, 2023, p. 1). However, following a Constitutional Court ruling, one of Ecuador's key challenges in implementing progress towards IWRM is due to the revision of Ecuador's Organic Law on Water Resources, the primary water regulation (IWRM Data Portal - Country Survey, Ecuador, 2023, p. 1).

## 6. Analysis

The paper will analyze whether the standardized metrics and the formal IWRM approaches accurately reflect their scores. Although the data for each country seems to be clear, on its face, this paper argues that the rigid adherence to standardized IWRM metrics favors specific governance structures and can misrepresent findings, thus inflating the "success" of IWRM in some countries and dismissing alternative methods and models for water governance and management in others.

Looking back into the history of IWRM, it was initially a flexible paradigm for holistic water management; however, when the United Nations, backed by money and influence, set up “universal” rules and standards for implementation, it took away the malleability and creativity for alternative interpretations and implementations of IWRM (Giordano & Shah, 2014, p. 370). Using countries like France, which has a high rank and high scores, as universal examples of IWRM can conflate pre-existing historical, cultural, and legal frameworks conducive to this type of implementation with “successful.” France consistently scores high in SDG 6.5 because the metrics were developed using France’s water resource frameworks. Therefore, to use France as a copy-and-paste blueprint for IWRM, with a year 2030 implementation goal, is disingenuous and ignores the pre-existing governance structures and the decades-long refinement and implementation of this version of IWRM in France (Matz, 2008, p. 191).

Using the United States (US), another nation with high scores in IWRM, as an example of a successful implementation, is misleading, as the US’s survey data shows how IWRM, as articulated in France, is not applied to water governance, and the scores do not reflect actual IWRM implementation. For example, the self-reported survey acknowledges that, unlike France, the U.S. has no national plan or strategy (IWRM Data Portal - Country Survey, United States, 2023, Section 1, p. 1). Under the “Enabling Environment” dimension, they provide examples of national and state-level laws and programs that promote integrated water management. However, the survey goes on to indicate that “while policies are consistently used to guide work and many programmatic objectives are achieved, achieving objectives for environmental outcomes is still a work in progress” (IWRM Data Portal - Country Survey, United States, 2023, Section 1, p. 1).

The survey indicates that the US government’s governance structure is not set up for the standardized idea of IWRM implementation. Moreover, the survey clarifies that none of the environmental or water-related polices are IWRM-specific and do not necessarily fit into the governance structure promoted for IWRM implementation (IWRM Data Portal - Country Survey, United States, 2023, Section 1, p. 1). The narrative and explanatory portions of the survey indicate that IWRM is not applied, but the scores do not reflect this. If the data is taken without consideration of context and governance structure, then the scores can be misleading and inflated. Not only are the scores inflated, but it also conceals that IWRM, as formulated by the UN, is challenging to apply in various governance scenarios and that there are alternative methods for water management. However, if the standards formation continues to be upheld, then “successful” results are not as they appear.

Even before the current administration began dismantling the federal governing apparatus, no federal policies, laws, or plans in the United States addressed water on a holistic, multi-sector, or national basis. It is a fact that the narratives in the US response to the SDG Indicator 6.5.1 IWRM Survey obliquely acknowledge and dance around specific issues. The self-reporting nature of the IWRM data collection and the standardized metrics can favor certain nations, especially wealthy Western countries, in the reporting process (Grigg, 2024, p. 14). One wonders if a state not under a global hegemon would be bold enough to give itself such a high score, given the threadbare, patchwork nature of its national water law and policy.

In Ecuador, the opposite problem occurs in data collection and analysis. The scores and the rank are lower due to the lack of a strong governance structure and the lack of technical and infrastructural capacity (Wingfield et al., 2021, p. 2). However, the survey and the scoring dismiss the influence and importance of the Constitutional Court and the power of having the Rights of Nature embedded in the constitution.

This showcases one of the main problems with promoting one standard of formalized IWRM: it ignores many paths to improving water outcomes that are dismissed and deemed

unrelated to IWRM as commonly conceived (Giordano & Shah, 2014, p. 369). The Constitutional Court of Ecuador has ruled on a series of cases that began creating human rights and existing environmental law, which has an integrated approach that takes the environment into consideration (Kauffman & Martin, 2023, p. 367). For example, the Court ruled that coastal marine ecosystems have legal rights that must be protected, and, as mentioned in the survey and reporting, the Constitutional Court ruled that the Organic Law on Water Resources was unconstitutional and is under revision (Sentencia Corte Constitucional del Ecuador, 2024, 95-20-IN/24). However, the ruling came into being due to the Court's finding that the law was promulgated without proper public participation, which is one of the dimensions for IWRM scoring, specifically with Indigenous and Local Communities most affected by the State's water and economic policies (Sentencia Corte Constitucional del Ecuador, 2022, 45-15-IN/22, par. 2). Here, the focus on the formalized, standardized IWRM standards ignores the Court's role in sustaining the rights of nature, water, and community. The Court's "decisions are changing the Rights of Nature from a vague, abstract concept to one that is more specific and concrete" (Kauffman & Martin, 2023, p. 367). As opposed to how the IWRM metrics are set up, the Court, using rights of nature jurisprudence, has become the primary entity compelling the holistic implementation of water resource management, rather than politicians (Kauffman & Martin, 2023, p. 367). The Court is creating binding standards for water management implementation, developing specific criteria for determining when rights of nature violations occur, establishing the state's obligation to protect these rights, and forming a framework for balancing economic rights and rights of nature (Kauffman & Martin, 2023, p. 374). The Court sets the tone for how regulations are to be constructed, invoking the principles of traditional IWRM and using methods that move regulations beyond the requirements promoted by the UN in IWRM.

Moreover, because the methodologies are outside the standardized IWRM metrics and the Courts prioritize nature, they do not count as positive, "successful" outcomes (Kauffman & Martin, 2023, p. 369). The Courts are rejecting the "conventional neoliberal approach to development that prioritizes exponential growth in consumption" and creating laws and regulations that integrate multiple sectors that uphold *sumak kawsay* (translated as *Buen Vivir*, or good living), which is rooted in the idea of living in harmony with nature (Kauffman & Martin, 2023, p. 370). In this way, the UN-promoted IWRM standards, which use rigid metrics, obscure how alternative methods can lead to outcomes fundamentally aligned with holistic, integrated water management.

## 7. Conclusion

While the intention behind Sustainable Development Goal 6 and its accompanying targets is commendable, it is evident that the global implementation of integrated water resource management faces significant challenges. This paper has highlighted the limitations of a one-size-fits-all approach, revealing that the standardized metrics used to evaluate progress can obscure the complexities of regional water management realities. As countries like France, the United States, and Ecuador demonstrate varied approaches and outcomes, it becomes clear that flexibility in the application of IWRM principles is essential. Future strategies must prioritize local contexts and adaptive frameworks to achieve meaningful progress toward sustainable water management globally.

Moreover, the critique of the metrics is not just about misrepresentation or actual achievability, but about what comes after data sharing. Data, scores, and global rankings "produce reality, affecting both those quantifying and what is being quantified: numbers discipline, control, and change realities" (Arora-Jonsson, 2023, p. 5). These numbers inform and structure many political, social, and environmental programs worldwide, framing the issues to be solved and the challenges to be addressed. Data is powerful and can be used for many beneficial and necessary programs, laws, and policies.

Therefore, a “universal” data collection standard must be coupled with “qualitative information derived in context, considering what we know and knowing what to count” (Arora-Jonsson, 2023, p. 6). This includes investigating the methods of collection, questioning the metrics, and using critical historical analysis on how the standards should or could be applied. Data across different scopes and scales is invaluable, as it can reveal similarities and differences between beneficial issues or structures and those that highlight unequal and oppressive relations, all creating new forms of knowledge and action across the globe (Arora-Jonsson, 2023, p. 6). With holistic data and metrics, decision makers can focus on solutions to specific problems rather than universal, water-centered approaches (Giordano & Shah, 2014, p. 375). If particular issues are addressed holistically in their regional and historical context, then IWRM is not merely achieved but implemented successfully. IWRM is a powerful tool for addressing water challenges and issues, and when utilized within the most appropriate scope and scale, it can lead to positive outcomes.

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