Verdad y Derecho
Revista Arbitrada de Ciencias Jurídicas y Sociales
Vol. 3(1), 16-36, 2024
https://doi.org/10.62574/nhxa6e22

Access to safe drinking water in Ecuador: transcending borders towards the universality of a human right

El acceso al agua potable en Ecuador: trascendiendo fronteras hacia la universalidad del derecho humano

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ABSTRACT

The research aims to analyse Access to Safe Drinking Water in Ecuador towards the Universality of the Human Right. This study is framed within a descriptive documentary research, characterised by the exhaustive collection and analysis of data and information from bibliographic sources. The data collection was carried out through a thorough review of the 15 selected articles, extracting relevant information on access to safe drinking water in Ecuador. Ecuador has made progress in enshrining access to safe drinking water as a universal human right, but the challenge now lies in translating these normative advances into concrete actions that overcome existing gaps and ensure equitable and safe access for the entire population. Continued collaboration between government, institutions and communities will be essential to achieve comprehensive and sustainable water management in the country.

Descriptors: drinking water; water supply; public utilities. (Source: UNESCO Thesaurus).

RESUMEN

La investigación tiene por objetivo analizar el Acceso al Agua Potable en Ecuador hacia la Universalidad del Derecho Humano. Este estudio se enmarca en una investigación descriptiva documental, caracterizada por la recopilación y análisis exhaustivo de datos e información proveniente de fuentes bibliográficas. La recopilación de datos se realizó mediante la revisión minuciosa de los 15 artículos seleccionados, extrayendo información relevante sobre el acceso al agua potable en Ecuador. Ecuador ha avanzado en la consagración del acceso al agua potable como un derecho humano universal, pero el desafío radica ahora en traducir estos avances normativos en acciones concretas que superen las brechas existentes y garanticen un acceso equitativo y seguro para toda la población. La colaboración continua entre el gobierno, instituciones y comunidades será esencial para lograr una gestión del agua integral y sostenible en el país.

Descriptores: agua potable; abastecimiento de agua; servicio de utilidad pública. (Fuente: Tesauro UNESCO).

eceived: 14/09/2023. Revised: 11/10/2023. Approved: 21/11/2023. Published: 01/01/2024.
Research articles section

INTRODUCTION

In the 21st century, access to safe drinking water emerges as a global challenge and a moral imperative (Palacios-Valencia, 2020). In the specific context of Ecuador, the issue takes on significant dimensions by addressing access to safe drinking water as a universal human right. This analysis dives into the intersection of politics, infrastructure and fundamental rights, exploring how Ecuador navigates the currents of universality of access to water.

The declaration of access to safe drinking water as a universal human right implies a shared responsibility between the state and civil society (Pandal-Campos, & Pandal-Campos, 2021). Theory unfolds in this scenario, where the pillars of social justice and equity are intertwined with water infrastructure and government policies (Murillo, 2018), (Pérez-Garzón, 2019). Understanding this interrelationship becomes essential to examine the progress and challenges Ecuador faces in its quest to guarantee this fundamental right.

Ecuador, with its geographic and cultural diversity, faces unique challenges in providing safe drinking water to all its citizens. From the high peaks of the Andes to the lush lowlands of the Amazon, the country's geography adds complexity to the task of ensuring equitable access to water. Analysing the national context provides an essential basis for understanding regional disparities and the specific approaches required to address them.

A close examination of government policies therefore reveals the interconnectedness of political vision and the realisation of fundamental rights. From infrastructure initiatives to water management programmes, Ecuador embarks on a multifaceted journey to ensure universal access to safe drinking water. However, it is crucial to assess the effectiveness of these strategies and their alignment with human rights principles (Lascano-Demera, 2022).

Despite significant progress, there are persistent challenges that threaten the universality of access to safe drinking water in Ecuador. Sustainable management of water resources, mitigating environmental impacts and overcoming economic

barriers are obstacles that require continued attention. In addition, the opportunity to learn from successful experiences globally highlights the importance of international collaboration and knowledge sharing.

Ecuador is therefore at a crucial crossroads, where ensuring access to safe drinking water transcends geographical and political boundaries. By recognising this right as universal, the country lays the foundation for a future where every citizen has equitable access to this vital resource. The convergence of theory, government practice and local experiences offers a comprehensive perspective to address this moral imperative in the contemporary world.

Based on the above, the research aims to analyse access to drinking water in Ecuador towards the universality of the human right.

METHOD

This study is framed within a descriptive documentary research, characterised by the exhaustive collection and analysis of data and information from bibliographic sources. The bibliographic design allows for a detailed exploration of the existing literature on the specific topic, in this case, "Access to Safe Drinking Water in Ecuador as a Universal Human Right". The choice of this design is justified by the need to obtain a deep and contextualised understanding of the various aspects related to the topic of study.

The population selected for this research consists of 15 relevant research articles related to access to safe drinking water in Ecuador. These articles were identified through exhaustive searches of academic databases, scientific journals and other specialised resources. The choice of this population is based on their relevance and contribution to a comprehensive understanding of the topic, encompassing diverse and enriching perspectives.

The methodology adopted to carry out this study involves an analytical-synthetic method. The analytical approach is used to break down the key elements of the selected articles, identifying significant patterns, trends and relationships. On the other hand, the synthetic method allows for the integration of this information to

develop a holistic understanding of the topic. The combination of both methods facilitates the synthesis of knowledge and the generation of informed conclusions.

Data collection was carried out through a thorough review of the 15 selected articles, extracting relevant information on access to safe drinking water in Ecuador. Bibliographic sheets and analysis matrices were used to organise and categorise the information collected. Data systematisation was carried out using specialised computer tools that allowed for efficient management and subsequent application of analytical-synthetic techniques.

Data analysis was developed through the application of analytical and synthetic approaches, allowing the identification of patterns, trends and relationships in the information collected. Content analysis techniques were used to critically examine the texts, categorising relevant information and drawing meaningful conclusions.

This study was carried out respecting the fundamental ethical principles of scientific research, ensuring the integrity of the information and proper acknowledgement of the sources consulted. Copyright was respected and the authors of the articles reviewed were properly cited.

The application of this method allowed us to obtain a detailed and comprehensive analysis of access to safe drinking water in Ecuador, contributing to the construction of a solid framework for the discussion and conclusions derived from this research work.

ANALYSIS OF THE RESULTS

A detailed analysis of the results of the research on access to safe drinking water in Ecuador as a universal human right is presented:

Reflection and Challenges of the Recognition of the Human Right to Water in the International and Inter-American Human Rights System

The progressive recognition of the human right to water at the international level, especially within the UN human rights protection system, represents a significant development in the response of states to the growing media images of human suffering. The resonance of water-related crises, such as lack of access to safe

drinking water and water-borne diseases, has catalysed the formulation of legal standards to address these issues. Drawing on the work of (Ribeiro-do-Nascimento, 2018), the following analytical proposition is detailed:

The evolutionary process that led to the adoption of Resolution 64/292 by the United Nations General Assembly in 2010 marks a crucial milestone by expressly recognising clean and safe water and sanitation as basic rights for the full enjoyment of life and all other human rights. This resolution, backed by Human Rights Council Resolution 15/9, consolidates the autonomous recognition of the right to water, marking a turning point in the international human rights agenda.

Despite these advances, there is a historical trajectory where the human right to water was not initially treated as a priority, alongside other economic, social and cultural rights. Concerns about the scope and applicability of this right persist, raising crucial questions that need to be addressed. Determining the core content of the right to water presents itself as a fundamental challenge, essential to prevent states from shirking their responsibilities.

The Committee on Economic, Social and Cultural Rights has contributed significantly to the formal definition of the right to water through General Comment No. 15. This states that the human right to water implies access to sufficient, safe, acceptable, accessible and affordable water for personal and domestic uses. However, the apparent simplicity of this definition requires careful analysis to understand its applicability in practice.

Availability, quality and accessibility emerge as key elements of the right to water, each with significant implications. Availability, according to the ESCR Committee, must ensure a continuous and sufficient supply for personal and domestic uses. However, the interpretation of terms such as "continuous" and "sufficient" is influenced by geographical, climatic, economic and cultural factors, which underlines the complexity of their implementation.

The quality principle is closely connected to environmental issues, highlighting the importance of sustainable management of water resources. Accessibility, on the other hand, has physical, economic, non-discriminatory and information access dimensions. Attention to vulnerable and marginalised groups, such as women,

children, indigenous peoples and refugees, is consolidated as an imperative need on the road to equity in access to water.

The jurisprudence of the Inter-American Court of Human Rights reflects an indirect recognition of access to water as a right derived from other rights, primarily the right to life. While the Court has made progress in protecting this right by considering it essential for a dignified life, it still falls short of directly recognising the human right to water as an autonomous entity. This gap could be considered an area for improvement and clarification in the protection of this vital right in the Inter-American region.

In conclusion, the progressive recognition and definition of the human right to water at the international level are significant steps towards the effective protection of this fundamental right. However, the complexity of its implementation, especially in terms of availability, quality and accessibility, implies considerable challenges. The experience accumulated to date underlines the need for continued action to clarify and strengthen the legal and practical foundations underpinning universal access to water as an inalienable human right.

As a complement to the above, the following theoretical argument is presented from the work of (García-Vázquez, 2020):

The proclamation of the human right to water by the UN marked a significant milestone, imposing a fundamental responsibility on all member countries of the organisation. This obligation, rooted in fundamental and membership commitments, establishes a universal standard that every nation must adopt and respect. In the Ibero-American region, this commitment is reflected in the inclusion of these rights in the most relevant treaties, thus consolidating a coherent regional position on the protection of access to water as a human right.

The explicit recognition of the human right to water in constitutions strengthens the position of the citizen vis-à-vis the state, providing them with a vital tool to address malpractices and abuses related to this essential resource. However, recognition in the constitution must be accompanied by legislation that not only affirms it in theory, but ensures its practical implementation. Legislation must establish effective

systems to ensure the preservation of water, involving both government institutions and citizens in the management and protection of this vital resource.

The lack of uniformity in the recognition of the human right to water between countries, compounded by geographical differences and variations in socio-economic orders, can influence society's perceptions and responsibilities towards sustainable water management. Awareness and commitment vary, and it is crucial to seek a homogenous approach that recognises the importance of water as an essential common good for all countries in the region.

In the specific case of Chile, it stands out as an exception due to the particular legal regime governing water use and development. Although it could be argued that the human right to water is implicitly recognised, the primacy of ownership over the resource, to the detriment of human consumption, poses significant challenges. This situation suggests the urgent need to modify Chilean legislation to align it with the demands of the population, guaranteeing the human right to water through its explicit recognition. In addition, it is necessary to establish a legal order that prioritises human consumption and sanitation, thus ensuring that water management is oriented towards satisfying the basic needs of the population.

In short, the current challenge lies in harmonising national legislation with international standards, ensuring that the human right to water is not only recognised on paper, but also translated into effective practices that safeguard this vital resource for present and future generations.

Based on the work of (Valdés-de-Hoyos, Elena, & Uribe-Arzate, 2016), the following is described:

'The evolution of the recognition of the human right to water has been a direct response to the growing awareness of the importance of this vital resource in a global context where its access can no longer be taken for granted. This process has generated debates and conflicting positions, especially in relation to the perception of water from an economic approach and that which highlights its relevance from an opposing perspective.

The rationale for the recognition of this right has been driven by the need to highlight both the essential functions that water plays in the satisfaction of various human needs and the alarming problems facing natural resources, in particular the water crisis that threatens the preservation of life on the planet. This attention has resulted in international efforts to analyse the global situation, as well as in the formulation of plans and policies aimed at addressing the challenges associated with water management.

The path towards recognition of the right to water involves ongoing work, which seeks to establish its justification as an independent right or as an essential component for the enjoyment of other fundamental rights, being crucial for leading a life of dignity. This effort is based on a variety of reasons, ranging from the global crisis to the inequitable distribution of the resource, the latter being central to the social concerns of the 21st century.

Water has been subjected to exhaustive analysis and the search for recognition by states and international organisations. As this process moves forward, the importance of constructing the minimum content necessary to ensure access to this essential resource is highlighted. However, although Resolution 64/292 of the UN General Assembly establishes this right, its character as a recommendation and the absence of a minimum essential content in this document pose challenges for its effective implementation. This situation has led to the need to resort to other texts, through interpretation, which do develop this right, although they are not binding.

At the legal level, the framework established by the UN has laid the foundations for the recognition of the right to water, but effective implementation depends on the internal action of States. The reform of article 4 of the constitution in 2012 in some countries demonstrates significant progress; however, challenges remain in states and sectors that do not yet prioritise this recognition. The importance and minimum content of the right to water exists, but its consolidation depends on the will and commitment of actors at national and international level to overcome obstacles and ensure its effective implementation.

Based on the work of (Becerra-Ramírez, & Salas-Benítez, 2016), the following is analysed:

The analysis provided highlights the importance of theory and international instruments in the field of human rights, specifically with regard to access to safe drinking water and sanitation. It is emphasised that these rights are not unattainable goals, but commitments that States must gradually assume according to the principle of progressivity of rights.

The constitutionalisation of these rights is seen as a fundamental step, providing a legal basis for their enforceability through judicial mechanisms. However, it is argued that mere positivisation is not enough; it is essential that both public and private actors adopt ethical measures to translate these rights from norm to reality. The need for real commitment on the part of all individual elements representing the state is highlighted.

The lack of effective administrative measures presents itself as a persistent challenge in the realisation of these rights. Although awareness of the right to water has increased thanks to the dissemination of its content and scope, there is still a long way to go. The work of jurisdictional and non-jurisdictional bodies in protecting these rights, especially in regions such as Latin America, is acknowledged. However, it is stressed that a more comprehensive approach is needed that prioritises the use of public goods for the fulfilment of human rights, instead of relegating them to inputs in productive processes that can be quantified in monetary terms and do not translate into people's well-being.

In summary, the analysis argues for an effective and ethical implementation of the human rights to water and sanitation, recognising the current challenges and highlighting the importance of a holistic approach that promotes the well-being of people and peoples.

From the perspective of (Suárez-Serrano, *et al.* 2019), it details:

'The analysis highlights a number of significant challenges in water security for communities, especially those dependent on drinking water distribution and sanitation systems. Several key concerns are identified:

Irregular water availability compromises the water security of communities. Lack of consistent access to safe drinking water is a threat to the health and well-being of the population. The possibility that water may not meet basic parameters of potability highlights the importance of ensuring the quality of the distributed resource. The fragility and underdevelopment of drinking water and sanitation distribution systems make them highly vulnerable to hydro-meteorological events, whether droughts or floods. The limited storage capacity of drinking water exacerbates the impact of these events on the availability of the resource.

The lack of maintenance and the age of wells represent potential risks for water contamination. This highlights the need for investments and efforts in infrastructure modernisation. It underlines the need for participatory training on legal, administrative, water quality and quantity, as well as vulnerability in water management. The promotion of methodologies such as water security plans (WSPs) is seen as fundamental to strengthen community management towards water security.

The creation of federations, leagues or unions stands out as an interesting approach to work in a collaborative and coordinated manner to improve the management of drinking water supply and sanitation systems. These entities can also play a crucial role in climate change adaptation, facilitating the monitoring of water sources and providing a platform for the generation of information on hazards and risks.

Drinking water in Ecuador as a universal human right

First, the analysis is based on the work of (Martínez-Moscoso, 2021):

The analysis of regulation on water management in Ecuador reveals an evolution over time, marked by different models and approaches. Two clearly defined models stand out: one based on private property (water markets) and another in which water is considered public domain and managed by the State.

The history of water management in Ecuador dates back to 1860 with the first Civil Code, which recognised that rivers and waters in natural channels were national assets for public use. However, exceptions were made for springs that had their source and source on the same property, as well as for wells on private land.

For much of the 20th century, there were significant changes, especially during the military dictatorship and the nationalist government of the Armed Forces in the 1970s. In 1972, a revolutionary law was enacted that declared all waters in Ecuador to be national public property, even those previously considered private property.

The 2008 Constitution introduced important innovations, such as Sumak Kawsay or good living, the recognition of nature as a subject of rights and the division of state functions. In addition, water was recognised as a human and fundamental right, with characteristics of public use and an express prohibition of privatisation.

In terms of regulation, the 2014 Organic Law on Water Resources, Uses and Development of Water (LORHUAA) was a fundamental step. This law guarantees the human right to water, establishes principles, rights, guarantees and obligations, and creates a strategic national system under the leadership of the Single Water Authority.

The LORHUAA defines water as a strategic, inalienable, imprescriptible and unseizable national patrimony. It also establishes a vital quantity of water per person and a minimum tariff to guarantee basic needs for domestic use. It creates an institutional structure that includes the Single Water Authority, the Water Regulation and Control Agency, and the River Basin Council.

The law emphasises equality and non-discrimination in access to water, adopting affirmative measures to promote the exercise of the right, especially for priority groups. It also establishes state obligations, such as the principle of progressivity and universality of the right to water.

Despite these normative advances, statistics indicate that there is still a gap between urban and rural areas in terms of secure access to water. This suggests that, despite the legal recognition of the human right to water, additional efforts are needed to ensure effective implementation and equity of access throughout the country. The institutionality created around this right must be translated into concrete actions to improve the quality of life of the population.

Based on the work (Arroyo-Arévalo, & Ramón-García, 2022), it stands out:

The article addresses decentralisation as an essential component for exercising democracy in a state that has historically been centralist. The 2008 Constitution of Ecuador establishes a territorial design that seeks the organised transfer of competences with the aim of achieving territorial equity and harmonised development of localities. Decentralisation plays a crucial role in improving the quality of public services, especially in critical areas such as the provision of drinking water and sanitation services, which have a direct impact on structural problems of the economy, such as chronic child malnutrition.

The analysis focuses on the management models of Quito and Guayaquil, two major cities in Ecuador, examining how the exercise of the water and sanitation competence, in the framework of decentralisation, has positively affected the indicators reported from the water control entity. It highlights the importance of evaluating these indicators in terms of coverage and continuity of service provision, which are fundamental to addressing structural problems.

The article supports the idea that water and sanitation competition should be addressed in a comprehensive manner, considering the whole cycle of these services. It also emphasises the need for a mapping of responsible and co-responsible actors in this area. Decentralisation, according to the article, should not only imply a transfer of competencies, but also the establishment of an institutional framework that facilitates inter-institutional coordination and articulation, overcoming sectoral practices that can hinder the harmonious development of the territories.

The case analysis between Quito and Guayaquil reveals specific weaknesses, especially in coverage and attention to rural areas. It also points to a lack of information gathering from community actors, highlighting the need to strengthen water and sanitation management models, especially in relation to community participation and collaboration. This observation suggests that, despite progress, there are still pending challenges in the effective implementation of decentralised models in this sector, with a more inclusive approach oriented to the specific needs of all communities.

In relation to water quality, (Baque-Mite, *et al.* 2016), state that:

The Water Quality Index provides crucial information on the fitness for human consumption of the water resource in question. The results indicate that the assessed water is not suitable for direct consumption, as it is classified as "doubtful for consumption", indicating the need for potabilisation treatment. This finding suggests concerns about the safety of the water supply and highlights the importance of addressing water quality to ensure public health.

Analysis of the different parameters reveals that the average levels of nitrites, turbidity, total dissolved solids, pH, total hardness, colour and iron are within acceptable limits for environmental quality. However, specific concerns are identified during the rainy season, where values for faecal coliforms, manganese and dissolved oxygen exceed the maximum permissible limits. This indicates the seasonal influence on water quality and the need to consider climatic variations when assessing security of supply.

Seasonal variability is reflected in the increase of some parameters during the rainy season and others during the dry season. The increase in pH, hardness, colour, nitrite and phosphate levels during the rainy season could be attributed to factors such as runoff of agricultural or urban pollutants. On the other hand, the increase in nitrates and iron during the dry season could have different sources, such as mineral concentration due to decreased water flow.

The call for permanent monitoring is key. This suggests the need to establish a constant surveillance system to identify pollution hotspots and understand trends over time. This proactive approach would allow a rapid response to changes in water quality, facilitating the implementation of corrective and preventive measures.

In summary, the analysis highlights the importance of considering both point results and seasonal trends when assessing water quality. Furthermore, it underlines the need for continuous monitoring and treatment measures to ensure the safety of the drinking water supply and to effectively address identified contamination problems.

In complement, (Campos, *et al.* 2021), stresses that:

The analysis of water availability in Ecuador provides essential insight for the sustainable management of this vital resource. The data reveal that, on average, the country has a significant amount of water, with 241,048.61 hm3 annually. The distribution in the Pacific and Amazon basins, with 68,262.25 hm3 and 172,786.36 hm3 respectively, highlights the importance of considering regional disparities in water planning.

Per capita availability provides a more specific perspective on individual access to water. In 2016, per capita availability on the Pacific slope was 5,018.90 m3/inhab/yr, while on the Amazon slope it was significantly higher, reaching 77,584.23 m3/inhab/yr. This difference highlights the need to address not only the total amount of water available, but also the equity in its distribution between regions.

The annual rate of decline in per capita availability provides valuable information on the long-term sustainability of water resources. The decline of 0.66% on the Pacific slope and 1.91% on the Amazon slope underlines the importance of taking measures to preserve and optimise water use in both regions.

The call for action by the national government and relevant institutions is crucial. The implementation of plans and projects must be based on updated data to understand the real situation of water resources in the country. The emphasis on regular monitoring, management, conservation and optimisation highlights the need for comprehensive and sustainable approaches to water management.

It is essential to address water management not only from a quantitative perspective, considering the total quantity available, but also from a qualitative perspective to ensure the quality of the resource. Planning must be adaptive and consider the possible impacts of climate change and other variables that may affect water availability in the future.

In conclusion, the analysis highlights the importance of an integrated approach to water management in Ecuador, considering both the quantity and quality of the resource, and advocating for equity in regional distribution. Collaboration between

government, institutions and universities is essential to ensure the long-term sustainability of water resources in the country.

In contrast, (Zuñiga, *et al.* 2023), state the following:

Processing monthly consumptions in population centres to determine average and maximum historical consumptions provides valuable information on water consumption patterns, especially in the context of the year 2020, marked by isolation due to the pandemic. The key aspects of this study are discussed below:

Comparison with Historical Consumptions:

The choice to use historical average and peak consumptions as benchmarks demonstrates a robust approach to assessing any significant changes in consumption during quarantine in 2020.

The finding that in none of the samples did monthly quarantine consumption exceed historical peak consumption indicates that, despite the isolation situation, the residential sector did not increase its water demand.

Impact of Low Demand on Other Sectors:

It is noted that water demand in sectors such as commercial, public, education, tourism and industry was low or non-existent during the quarantine. This positively influenced the stability of residential water supply.

Projected Future Water Supply Shortfalls:

The projection that 32.6% of the studied villages will experience drinking water shortages in future emerging cases raises concerns about the ability of supply systems to cope with sudden increases in demand.

The identification of educational, commercial and tourism activities as the main drivers of demand highlights the need for careful planning to ensure supply in situations of increased activity.

Recurrence of Fortuitous Events:

Reference to fortuitous events due to recurrent natural or socio-economic phenomena over the last three decades highlights the importance of preparing for unforeseen situations.

The lack of geographical service coverage greater than 90% in the population centres studied highlights a significant vulnerability, as unserved areas could experience greater difficulties in the event of an emergency.

Concern for the Future:

The concern expressed is intensified when considering the combination of recurrent fortuitous events, projected future shortages and limitations in geographic service coverage.

In summary, the analysis highlights the importance of anticipating and addressing changing demands for water, especially in crisis situations, and highlights the need for proactive measures to strengthen the resilience of water supply systems in the future.

Qualitative Categories Generated:

Based on the above arguments, the qualitative categories of the study are presented, generated as an essential factor to deepen further research on the edges that legally underpin water as a universal right in Ecuador:

Historical Evolution of Water Regulation in Ecuador:

Private Property Model (Water Markets): Highlights the historical phase in which water was considered private property, with the existence of water markets.

Public Domain Model Managed by the State: This refers to the transition towards the recognition of water as a public good, managed by the State, especially since the 1972 legislation and the 2008 Constitution.

Normative and Constitutional Development:

Historical Period (1860 to 20th Century): highlights changes in water management from the time of the first Civil Code in 1860 through much of the 20th century, with exceptions for private property.

2008 Constitution and 2014 Water Resources Law: Refers to the inclusion of Sumak Kawsay, recognition of nature as a subject of rights, and the enshrinement of water as a human and fundamental right in the Constitution. It also highlights the importance of the 2014 Water Resources Law.

Implementation Challenges and Gaps:

Urban-Rural Gap: Underscores the existence of disparities in secure access to water, despite normative advances. Decentralisation Challenges: Highlights weaknesses in management models in Quito and Guayaquil, especially in rural areas and community participation.

Water Quality and Monitoring:

Water Quality Index: Focuses on suitability for human consumption and the need for potabilisation treatment. Seasonal Variations: Considers seasonal changes and their effects on parameters such as faecal coliforms, manganese and dissolved oxygen.

Availability and Sustainability:

Availability Figures: Highlights annual and per capita figures for water available in the Pacific and Amazon basins.

Annual Decline Rate: Underlines the importance of long-term sustainability and the need for measures to preserve and optimise water use.

Water Consumption in Populated Centres during Quarantine:

Comparison with Historical Consumption: Analyses the impact of low demand during quarantine and projects possible future shortages.

Recurrence of Fortuitous Events: Highlights concerns about natural or socio-economic events and lack of geographic service coverage.

These categories provide an organisational structure for understanding the complexities and challenges of water management in Ecuador, addressing historical, legal, quality and sustainability issues, as well as specific concerns about water consumption in exceptional situations.

CONCLUSIONS

Water management in Ecuador has undergone a significant evolution over time, marked by diverse models and approaches. From the first recognitions of rivers as national goods for public use in 1860 to the revolutionary law of 1972 that declared all waters as national goods, and more recently, the 2008 Constitution that recognises water as a fundamental human right.

Access to drinking water in Ecuador is consolidated as a fundamental human right, backed by a significant normative evolution over time. From the recognition of rivers as national assets in 1860 to the enshrinement in the 2008 Constitution and the enactment of the Organic Law on Water Resources, Uses and Development of Water (LORHUAA) in 2014, Ecuador has taken important steps to guarantee this right.

Ecuadorian legislation defines water as a strategic and inalienable national patrimony, establishing minimum quotas per person and minimum tariffs to ensure basic needs for domestic use. However, challenges remain, such as the access gap between urban and rural areas, which underlines the need for additional efforts to achieve effective and equitable implementation throughout the country.

The decentralisation analysis highlights the importance of devolving competencies to improve the quality of services, especially in critical areas such as water supply. Despite progress, the focus on Quito and Guayaquil reveals weaknesses in coverage and attention to rural areas, indicating the importance of strengthening community participation.

Water quality, assessed through various parameters, demands continuous attention and constant monitoring to address seasonal challenges and maintain high safety

standards. Water resource availability, although significant in total terms, requires equitable distribution and measures to preserve its long-term sustainability.

In summary, Ecuador has made progress in enshrining access to safe drinking water as a universal human right, but the challenge now lies in translating these normative advances into concrete actions that overcome existing gaps and ensure equitable and safe access for the entire population. Continued collaboration between government, institutions and communities will be essential to achieve comprehensive and sustainable water management in the country.

FUNDING

Non-monetary

CONFLICT OF INTEREST

There is no conflict of interest with persons or institutions involved in the research.

ACKNOWLEDGEMENTS

To the people who have worked for the achievement of water as a fundamental right in Ecuador.

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