Chapter 144

Participation in water resources management in Latin America 2017-2022: A systematic review

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ABSTRACT
This article addresses a systematic review of research for Latin America on stakeholder participation in water resource management, considering the fragility of this resource, added to the processes of climate change and variation, which, if not addressed in a concerted manner (participatory management), implies a crisis in governance that could worsen with serious effects on ecosystems, including human beings. The objectives of this article focus on characterizing where (country) the articles included in this analysis were developed, establishing the methodological approach, technique, and instrument used, and analyzing the results of the articles reviewed on participation in water resources management for Latin America. The methodology corresponds to a systematic review article using the Prisma statement of articles selected from the databases: Dialnet, EBSCO, Redalyc, SciELO, and Scopus. The conclusions reached show that public management processes have been incorporating participation as mechanisms through which users and civil society are involved, as well as social control mechanisms, to achieve sustainable management of water resources.

Keywords: Water management, sustainable development, involvement, institutional roles, local stakeholders.

1 INTRODUCTION

This article reflects the analysis of participation in the management of water resources, which constitutes a unique irreplaceable, and indispensable resource for life, ecosystems and the different uses that man gives it in the development of economic activities (Zhang, Zhou, et al., 2021; Quintana, 2014; Delgado-García et al., 2017; Azamar, 2018), whose access sometimes generates conflicts associated with climate change and increased demand (Sánchez, et al., 2018), so it is of great importance to agree on interests and ensure a coordinated and sustainable use. Globally it is estimated that 96.50% of the total volume of water is in the oceans, and only 2.53% is freshwater, of which 68.7% is in the form of glaciers and perpetual snow, 30.1% in underground aquifers and only 0.266% is available fresh water (0.26% in lakes and 0.006% in rivers) for use in general (Nieto, 2011; Delgado-García et al., 2017). In this global panorama, South America is privileged to produce about 26% of the planet's water resources (United Nations Educational, Scientific and Cultural Organization, [UNESCO], 2003); and Peru, has an availability of 74,546 m^3 per capita that places it at number 17 of 182 countries (National Water Authority [ANA], 2019); however, this offer is characterized by being irregular in temporal and spatial distribution resulting in serious limitations in its access to satisfy the vital and elementary needs of its inhabitants, as a result of

a weak integral management of water resources that incorporates the physical and demographic characteristics that are in Peru (Bérnex, n.d.). On the other hand, 40% of the world's population is currently water scarce and it is expected that by 2050 this demand will increase by 55% (Organization for Economic Cooperation and Development [OECD], 2015) due to population expansion and industrial and agricultural development (Xiong et al., 2020), which implies the occurrence of harmful effects on human health and impact on the economic activities of the population (United Nations World Water Assessment Programme [WWAP], 2014).

The World Economic Forum (2020), included the water crisis among the five major problems in the world, placing it between the fifth in terms of impact and sixth in terms of probability, showing that the crisis in water management is increasingly considered a risk issue that affects our society (UNESCO, 2003; Greve et al., 2018; Barria et al., 2021); this affectation in terms of the decrease in quantity and affectation in quality occurs mainly to fresh water that is fundamental for population consumption and productive economic activities carried out by man and has been causing serious problems to human health due to water-related diseases, mainly to poor populations (UNESCO, 2003) and the productive economic activities developed by man translated into food insecurity, conflict and migration and financial instability (Sánchez, et al., 2018). Institutional management should be promoted in a participatory manner (United Nations Development Program [UNDP], 2015) to build sustainable multi-secular governance with the cooperation of government actors and individuals (Gutiérrez et al., 2020), supported by the agreement based on the institutional roles around this management (Schmeier, 2015), guaranteeing the flow of information with those represented to legitimize the agreements and improve the institutionality in water management (Martínez and Villalejo, 2018).

Integrated water resources management is considered to be multisectoral and participatory (Villada-Canela et al, 2019); articulating the actors related to this management to collaboratively achieve its sustainable use (Pineda et al, 2019). Participation in water management is promoted at the international level to achieve integrated water resources management (IWRM) (OECD, 2015) through the implementation of systems that guarantee participation in water policy at national and regional levels (Ibero-American Federation of Ombudsmen, 2015), incorporating into the regulatory framework of the various countries seeking decentralized management, egalitarian, effective and promoting social co-responsibility and the exercise of citizenship of the different actors that are linked in water management (Cano, 2013; Petersen-Perlman et al., 2017) , thus promoting the participation of institutional actors (French, 2016); through the Basin Water Resources Councils (Oré-Vélez & Geng-Montoya, 2015), as spaces for participation where the sustainable and harmonious use of water resources in the basin is coordinated, planned and agreed, thus providing the opportunity for users to project their aspirations and demands and thereby improve governance and governance around water in the basin (CAP-NET, 2005), as well as a propitious space to generate activities related to the culture of water and the prevention of conflicts around water considering the context of the territory (Castro-Buitrago et al., 2019).

Likewise, we must consider the interpretation of participation that passes from the condition of spectator or involvement and be part of the protagonism, for which it must guarantee spaces and mechanisms that allow effective participation that promotes the exercise of citizenship (Brachet and Valenzuela, 2012); having to understand this concept as the involvement of the actors from the corresponding roles getting involved through social organizations with capacities in service management (Colmenárez, 2020); this participation in the sustainability of water management projects being key (Carr et al, 2012). This participation is legally based on the fulfillment of global agreements and is expressed in the legislation of countries in Latin America, based on changes in human attitude, the assignment of capacities to government agents and allows the exercise of justice; ideologically in a process led by democratic institutions to solve governance problems and legitimize institutionality through involvement in decision-making; and instrumentally because it allows improving public policy by incorporating the opinions and creative proposals of society, which allows a better understanding of the problem and making more transparent decisions in a coordinated and collaborative manner considering the perspectives of the actors, making interaction possible based on institutional commitments (Villada-Canela, et al., 2019).

The understanding of people, their livelihoods, and complex interrelationships must be considered, so a participatory approach becomes essential, facilitating empowerment and social change (Cleaver, 1999), aspiring to an open and transparent decision-making process (Lengwiler, 2007 and Barriga, Drenkhan and Huggel, 2018), which favors the development of additional regulations where the community is recognized as an element that helps in solving problems, in the distribution of water based on a social spirit (Azamar, 2018).

In this understanding, the objective is focused on a systematic review to characterize where (country) the articles included in this analysis were developed, to establish the methodological, technical, and instrumental approach used to collect information and analysis of the results and the status of research-oriented to experiences on participation in water resources management for Latin America; in the period from 2017 to April 2022.

2 MATERIALS AND METHODS

This review article consists of examining the best scientific production of relevant studies on the subject and available in information sources (García-Peñalvo, 2017), so we proceeded to carry out a systemic review that summarizes the current state of research through a rigorous and reproducible process, on a particular topic (Sobrido and Rumbo-Prieto, 2018), considering as population and unit of analysis original scientific studies (Ferreira et al., 2011) following a process and protocol (Grijalva et al., 2019) of journals indexed from the following databases: Dialnet, EBSCO, Redalyc, SciELO and Scopus that contain journal articles related to participation in water resources management in the period from 2017 to April 2022, published in Spanish, English and Portuguese; finding 388 entries; to which was considered as inclusion criteria: (a) studies related to the theme of participation in the management of water resources,

(b) articles whose development considers Latin America, and (c) documents that have open access. On the other hand, the exclusion criteria were: (a) studies not related to water resources management, (b) that are not in Latin America (c) that do not have access to the complete document, and (d) published in other languages of those indicated.

For the treatment of this review, a Prism flow was designed in which the steps and filters applied are detailed (Briz, 2016), which constitutes a tool that contributes to optimizing the quality and clarity of systematic reviews (Bermúdez, 2021), which begins with the identification, review, eligibility and finally the articles included that, For the present case, 22 were obtained, following the objectives formulated and form the basis for the current systematic review.

Figure 1. Flowchart of the prism review process.

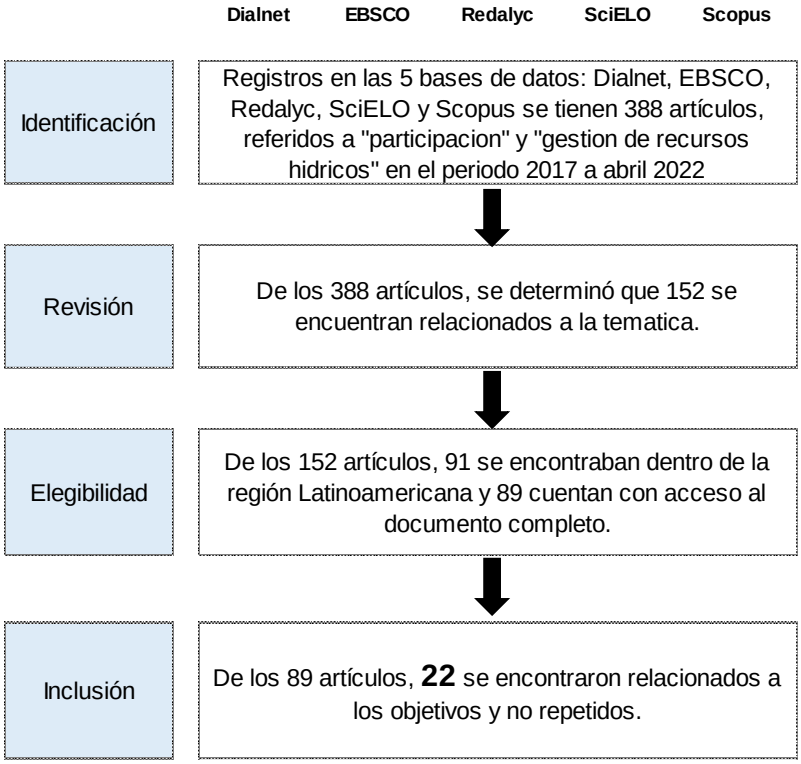


Table 1. Result of selecting entries in repositories

Repository	Code	Search Merge	Results	Thematic	Region	Access	Objectives	Non-repeated articles
Dialnet	Day 1	"Participation""Water resources management"	9	4	3	3	2	2
	Day 2	"Participation" "Water resources management"	14	3	1	1	1	1
	Day 3	"Participação""Gestão de recursos hídricos"	11	5	5	5	0	0
EBSCO	EBS1	"Participation""Water resources management"	35	19	19	18	2	2
	Ebs2	"Participation" "Water resources management"	32	29	4	4	2	2
	Ebs3	"Participação""Gestão de recursos hídricos"	5	5	5	5	3	3

Redalyc	Network1	"Participation""Water resources management"	43	19	18	18	2	2
	Red2	"Participation" "Water resources management"	5	2	1	1	1	1
	Network3	"Participação""Gestão de recursos hídricos"	5	4	4	4	1	1
SciELO	Sci1	"Participation""Water resources management"	7	5	5	5	1	1
	Sci2	"Participation" "Water resources management"	5	5	5	5	0	0
	Sci3	"Participação""Gestão de recursos hídricos"	5	3	3	2	1	1
Scopus	Sco1	"Participation""Water resources management"	22	5	4	4	1	1
	Sco2	"Participation" "Water resources management"	148	35	5	5	3	3
	Sco3	"Participação""Gestão de recursos hídricos"	42	9	9	9	2	2
Results			388	152	91	89	22	22

As detailed in figure 1 and table 1, as part of the process of identification and selection of entries referred to the variable under analysis, whose query was for the databases: Dialnet, EBSCO, Redalyc, SciELO, and Scopus for the search engine "participation" and "water resources management" in the period from 2017 to April 2022 in the Spanish languages, English and Portuguese, obtaining a pre-selection of 388 documents that were transferred to Table 1 in which the inclusion and exclusion criteria were applied to determine those that are part of the present research. Se selected 22 articles for the link to the objectives established in the present research and not being repeated in the different databases. When analyzing them, we were given global and particular knowledge about the scope of the participation of the actors in the management of water resources, which led to the elaboration of the conclusions.

3 RESULTS AND DISCUSSION

Considering the objectives set for this article, the results of the 22 selected investigations are presented:

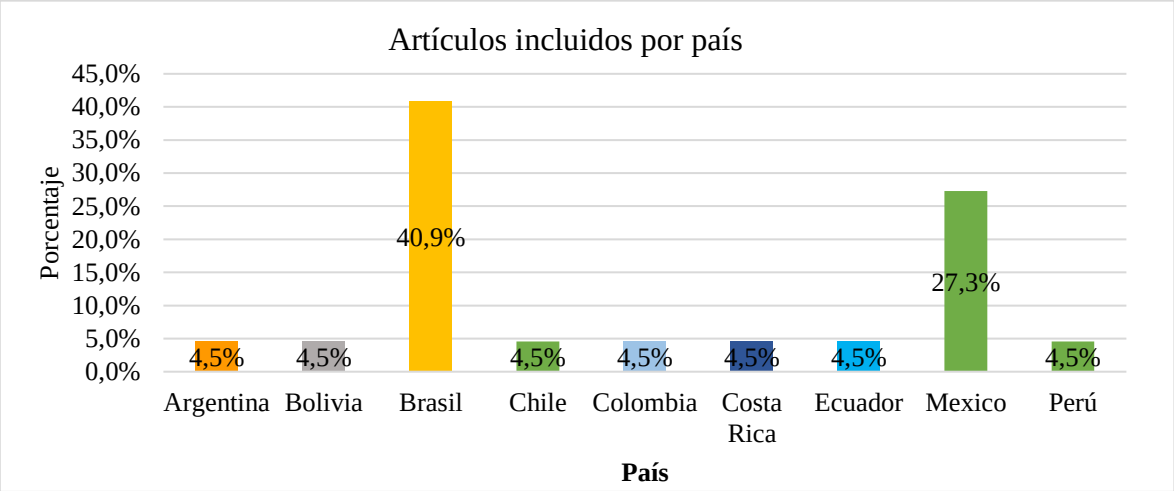
Characteristics of the articles reviewed.

As a result of the review of the twenty-two (22) articles selected and reviewed for Latin America in the period from 2017 to April 2022, nine (9) publications were developed in Brazil, six (6) in Mexico, and one (1) research in Argentina, Bolivia, Chile, Colombia, Costa Rica, Ecuador, and Peru respectively.

Table 2. Articles reviewed by the author and countries in which they were developed

Database	Author(s), year	Country	N°
Dialnet	Ferro, 2017.	Argentina	1
Scopus	Razavi, 2019.	Bolivia	1
EBSCO (4), Redalyc (1), SciELO (1) Scopus (3)	Tsuyuguchi et al; 2020.Ferreira et al., 2017.Xavier and Simoes, 2020.Machado, 2017.Nunes, Fadul and Santos, 2019.Mendonça et al., 2018.Costa et al., 2017.Feil et al., 2017.Mesquita, 2018.	Brazil	9
Redalyc	Sánchez et al., 2018.	Chile	1
EBSCO (1)	Castro-Buitrago et al., 2019.	Colombia	1
Redalyc	Madrigal-Solís et al., 2019.	Costa Rica	1
EBSCO	Martínez-Moscoso and April, 2020.	Ecuador	1
Dialnet (1), EBSCO (1), Redalyc (1), SciELO (1) Scopus (2)	Casteñeda, 2021.Villada-Canela et al., 2019.Azamar, 2018.Zárate, 2017.Acevedo-Ortiz et al., 2017.Godinez-Madrigal et al., 2019.	Mexico	6
Dialnet	Popovici et al., 2021.	Peru	1
Sub totals		**Total**	**22**

Figure 2. Graph of countries of origin in which the reviewed articles were developed



Note: Origin of items considered as a percentage

Methodological, technical, and instrument approaches used

Among the articles reviewed, we have that by those recorded by the authors, seventeen (17) of the investigations used a qualitative approach, of which eight (8) used a technique of the interview with their instrument the interview guide, seven (7) the documentary review with the checklist instrument, two (2) the focus group technique with the discussion guide instrument; Four (4) a quantitative approach within which three (3) the documentary review technique with the checklist instrument, one (1) the observation technique with the observation guide instrument and one (1) the mixed methodological approach with the survey technique and the questionnaire instrument.

Table 3. Methodological, technical, and instrument approaches are used in the collection of information.

Author, year	Methodological approach	Technique	Instrument
Casteñeda, 2021.	Qualitative	Interview	Interview Guide
Ferro, 2017.	Qualitative	Interview	Interview Guide
Popovici et al., 2021.	Qualitative	Interview	Interview Guide
Martínez-Moscoso and April, 2020.	Qualitative	Documentary review	Checklist
Castro-Buitrago et al., 2019.	Qualitative	Documentary review	Checklist
Villada-Canela et al., 2019.	Quantitative	Documentary review	Checklist
Tsuyuguchi et al; 2020.	Qualitative	Documentary review	Checklist
Ferreira et al., 2017.	Qualitative	Documentary review	Checklist
Xavier and Simoes, 2020.	Qualitative	Documentary review	Checklist
Machado, 2017.	Qualitative	Documentary review	Checklist
Azamar, 2018.	Qualitative	Documentary review	Checklist
Sánchez et al., 2018.	Quantitative	Documentary review	Checklist
Madrigal-Solís et al., 2019.	Quantitative	Observation	Observation guide
Nunes, Fadul and Santos, 2019.	Qualitative	Interview	Interview Guide
Zárate, 2017.	Qualitative	Interview	Interview Guide
Mendonça et al., 2018.	Qualitative	Focus group	Discussion Guide
Acevedo-Ortiz et al., 2017.	Qualitative	Focus group	Discussion Guide
Costa et al., 2017.	Mixed	Survey	Questionnaire
Godinez-Madrigal et al., 2019.	Qualitative	Interview	Interview Guide
Razavi, 2019.	Qualitative	Interview	Interview Guide
Feil et al., 2017.	Quantitative	Documentary review	Checklist
Mesquita, 2018.	Qualitative	Interview	Interview Guide

Analysis of the results

Table 4 presents the objectives and conclusions addressed in the articles considered:

Table 4. Analysis of conclusions of articles considered.

Author, year	Objectives	Conclusions
Castañeda, 2021.	Evaluate the progress and challenges in water and sanitation management in the municipality of Tepatitlán de Morelos in the state of Jalisco, in western Mexico.	In the municipality of Tepatitlán, there is a change from centralist models with the presence of the federal government to a decentralized process, with transparency in the administration of resources and social participation. The neighborhood committees have simple schemes, where social participation is promoted, operating efficiently without major bureaucracy which favors community social cohesion. In this space strategic actors are being fundamental to the application of a regulatory framework to solve disputes. It is recommended to expand social participation in an organized manner, having to seek legal and technical support for neighborhood committees to consolidate them in rural areas so that they contribute to the sustainability of the systems.
Ferro, 2017.	Analyze the impact of citizen participation in the process of institutionalization of the environmental paradigm in the Matanza-Riachuelo Basin.	The creation of a process of synergy and cooperation through an innovative, comprehensive, and systemic approach, between citizen participation, mainly those affected by pollution and institutions in environmental matters, constitutes an operational factor in the process of environmental institutionalization.

Popovici et al., 2021.	To analyze the evolution of an integrated water resources management approach initiated by the government in the province of Caylloma, department of Arequipa, Peru.	Farmers had limited capacity to participate in local institutions for water management due to market integration and labor migration, among other socio-economic and political stressors. Likewise, transferring more water management responsibilities and decision-making power to institutions at the community level without considering the factors that limit their sustainability over time is not necessarily feasible or even desirable for local communities. Strengthening and streamlining government institutions and intermediaries at regional scales should be sought to be more effective in addressing local needs in watershed management.
Martínez-Moscoso and April, 2020.	Analyze international human rights norms and instruments on access to water and Ecuadorian legislation, regarding the participation of women in water management at the community level.	For women to be involved in the management and decision-making of water boards for human consumption, physical and social barriers must be eliminated, which prevent them from assuming a leading role in organizations. Ecuadorian legislation and public policy on water recognize the role of women in water management, but we must seek to implement this paradigm shift at the community level, considering that in communities there are still power relations of a sociocultural nature that do not allow equal participation between men and women.
Castro-Buitrago et al., 2019.	Contribute to the improvement of the normative content of water governance from the perspective of human rights.	The basin councils represent an operational instance of the water governance process, allowing the participation of civil society, but the environmental standards established in the Escazú Agreement that includes the human right to water and standards for participation must be considered as a means to achieve this right, thus providing a greater normative content, which is essential in spaces of high conflict. It is necessary to improve its regulations on the integration of new representatives, access to information, actions for the benefit of vulnerable groups, and the incorporation of deliberation as a pillar of water governance, allowing the models of water governance proposed by social actors, coming from the Current models of state initiatives. Water governance (currently limited to basin councils), respecter historical forms of water self-management should be expanded, consider effective participation (non-welfare) as a right and a duty considering the socioeconomic and cultural context of the country.
Villada-Canela et al., 2019.	Analyze the elements that facilitate or inhibit active public participation in integrated water management.	The restrictions for effective participation are associated with: the characteristics and context of the participants; levels of power and access to information; institutional arrangements and rules of the process; limited resources for participation; and weak motivation and political will. The most important challenges are: achieving decentralization; linking non-technical and technical knowledge; promoting capacity-building for participation; and limiting the government's impact on decision-making.
Tsuyuguchi et al; 2020.	Analyze the governance of a socio-ecological system (SES) for which an alluvial aquifer is an essential source of water.	Despite having a water policy that seeks decentralization and participatory governance, gaps are identified in the implementation of these policies. Taking into account the challenges imposed by aquifer characteristics to impact the efficient exploitation of groundwater, equity in water distribution, and conservation of common-use resources, the analysis reveals opportunities to improve the management of common-use resources by supporting the community to increase participation in aquifer governance by existing policies.
Ferreira et al., 2017.	To investigate the effectiveness of the National Water Resources Policy in the states of the Amazon under the bias of participation in the State Water Resources Councils.	The implementation of the aforementioned public policy in a decentralized manner in the Brazilian states of the Amazon has not yet occurred satisfactorily in terms of promoting the participation of civil society and access to information, with the need to invest in environmental education and greater availability of information and facilitate its access.

Xavier and Simoes, 2020.	Identify and analyze the limits, challenges, and opportunities for participation in the Watershed Committees of Brazil.	There are problems with the representation of minority groups such as indigenous peoples and non-compliance with the percentage participation quotas established by law; The inclusion process is limited in such a way that effective participation that ensures equity, diversity, and inclusion does not occur fully in the Brazilian Basin Committees.
Machado, 2017.	To analyze whether the institutional design of the River Basin Committees provided for in Law No. 9,433/1998 favors the implementation of a regulation of public interest.	It is verified that the participation of the Committees favors regulation that is of public interest, since it allows the consideration of the interests of users and civil society in the decision-making process, limiting regulatory capture.
Azamar, 2018.	Analyze the absence of social participation in decision-making about water.	The state promoted access to water poorly due to the lack of comprehensive policies, which it subsequently seeks to correct by promoting alternatives for citizen participation to face the risks of overexploitation of aquifers. At present in Mexico, there is no participatory model that directly involves the population in the development of solutions before the water audience, conceptualizing water as a productive element, a good of exchange, which delegitimizes the real value as a vital resource for man. Legislating without citizen participation, without considering the social and environmental dimensions and interactions that develop; will focus on increasing the supply and technical capacity of the State to solve these problems, without considering demand management, and must also consider water as a community good and environmental governance that allows achieving the sustainable use of natural resources.
Sánchez et al., 2018	Identify the main advantages and/or limitations to face the current dynamic conditions in the case of water governance in Chile.	Governance systems must have an adaptive and flexible approach that gives them effectiveness, equity, and resilience. Although the classic systems of governance were designed from a perspective of optimization in management, where information is taken as already known, not varied or predictable; forging rigid systems that increase tensions, a situation that does not adjust to the dynamic reality of the environment. Likewise, these systems have various forms of entry and barriers that restrict the participation and inclusion of opinions of other actors at the level of people and organizations. Thus, the Chilean legal framework requires a reform that incorporates adaptive governance based on learning and multiple knowledge, with initiatives at the local level that stand out in this process of transition from traditional governance to a collaborative model.
Madrigal-Solís et al., 2019.	Designing a monitoring or surveillance network for water quality in the sub-basins of the Bermúdez, Ciruelas, and Segunda rivers, as well as encouraging the participation of social actors for the operation of the network is surveillance.	The implementation of these networks provides an opportunity for the key actors of the basin the monitoring the quality of groundwater, constituting the first actions for the sustainable management of this resource. Being fundamental is the validation of the actors in the participatory and integrated management of water resources, thus generating synergies in the implementation of monitoring and the generation of information for decision-making.
Nunes, Fadul and Santos, 2019.	To finalize the driving and restrictive factors in the implementation of the water resources management model, in the basin committee of the North Recôncavo and Inhambupe (CBHRNI), in the state of Bahia.	The CBHRNI integrates into its composition a diversity of interest groups and actors by the regulatory framework, which seeks to institutionalize the political, institutional, financial, and managerial decentralization of its activities, establishing a democratic, pluralistic, and participatory relationship that involves elements such as the environment, historical aspects, the relationship of people and communities with problems related to water, the policy at the level of the governments, the commitment of the members, the interference of the public power, the intervention of society, the level of scientific knowledge, the

		visibility and recognition of the committee in the basin, access to information among other elements.
Zarate, 2017	Analyze the social relations, tensions, and conflicts that are established around water and forests, in peri-urban contexts.	The management of water resources aimed at preserving water, supported by local norms and arrangements, emerges as an alternative model to centralized management in Mexico, which due to sociocultural heterogeneity encountered difficulties. In the case of the peri-urban spaces of Chiapas, where traditional forms are confronted with the visions and modes of appropriation of urban actors, they are transformed into novel social arrangements with the challenge of water management at the local level.
Mendonça et al., 2018.	To analyze the restrictive and favorable factors in the implementation of the current water resources management model in the watershed committees in the northeastern states of Brazil.	It is evident that the model was idealized to function autonomously, however, currently, the committees still do not acquire that autonomy, being the collection for the use of water the activity that will give them that autonomy for their functioning, without depending financially or politically on governments, being essential the institutionalization of this collection as an indispensable requirement to be able to exercise that preconceived autonomy.
Acevedo-Ortiz et al., 2017.	Analyze the process of establishing a community committee and its involvement to improve environmental conditions under a logic of collective action in San José Chiltepec, Oaxaca, Mexico.	The voluntary collective action in conserving water resources has contributed significantly to the formation of the local committee, through an internal regulation validated in a community assembly that regulates actions aimed at the sanitation of water sources; Presenting itself to this committee, as a success story due to the degree of local participation it has, but which requires capacity building and institutional accompaniment to guarantee its continuity and scale to a regional level.
Costa et al., 2017.	Analyze the perspective of stakeholders regarding water policy and explore their interactions in the state of São Paulo, Brazil.	The results identified different levels of interactions, where water sector stakeholders demonstrated higher levels compared to institutions in other sectors (environment, energy) and from local levels (city council). The results also indicated the importance of basin committees, since they promote adequate participation, but do not allow adequate interactions, because a significant number of actors still do not have formal interaction conventions in their institutions. Providing a set of recommendations to improve these interactions, including to stakeholders outside the water sector. This was seen as a key way to seek integration and improve the implementation of water policy.
Godinez-Madrigal et al., 2019.	Analyze the controversies surrounding the socio-hydrological uncertainties that arose during this and the previous crisis of Lake Chapala.	It questions IWRM's affirmation of public participation, sound knowledge, and watershed institutions that changed the traditional paradigm of water management, concluding that economic and political interests influenced the decision-making process to address the solution to the water crisis in the Lerma-Chapala basin.
Razavi, 2019.	Identify the difficulties in rebuilding a public water service in Cochabamba, focusing on the different and often incompatible interpretations of public participation.	Social control and public participation were key components of the process of change in Bolivia, which codified social control as a right and included direct citizen participation in its Constitution. Participation arising from social discontent, observing in its implementation contradictions between official discourse and practice in water governance, which reveal how the formalized mechanisms of social control in the water sector have been largely rhetorical, evidencing that the state did not meet the expectations of social control, associating it with this process of municipalization in an inadequate procedural and opaque governmental management in the management of the commons.

Feil et al., 2017.	Verify whether the intervening variables related to geographical, demographic, socioeconomic, and sanitation data correlate with the creation of watershed committees.	The creation of watershed committees is linked to spaces where there are conflicts in the use of water by various actors, population size, and economic growth (GDP). The limited availability of water and its impact on quality can generate a factor of stagnation and a decrease in the economic situation. Being essential the management of watersheds through local public participation, since from them the creation of these organisms and the realization of actions to avoid environmental degradation and the conflicts that are generated in their use are addressed; is vital in a country like Brazil due to its particularities, recommending its implementation that contributes to more efficient management of conflicts and the establishment of the resilience of the environmental system.
Mesquita, 2018.	Identify and analyze the factors that compromise the participation of the members of the basin committees in the Hydrographic Basin Committee of the tributaries of the Rio Preto of the Federal District as a case study and make a critical analysis of the integrated management of water resources.	Aspects such as participation and representativeness were identified that compromise the proper functioning of these institutions (committees), evidencing the difficulties in the process of implementing integrated water resources management. There are necessary conditions to achieve sustainable water management such as the inclusion of scientific and technological discussion of the multidisciplinary nature, and equity of power and collaboration between the different actors in the decision-making process.

4 CONCLUSIONS

Regarding the characterization of where (country) the articles included in this analysis were developed, we have that of the twenty-two (22) articles selected, nine (9) publications were developed in Brazil representing 40.9%, six (6) in Mexico comprising 27.3% and one (1) research in Argentina, Bolivia, Chile, Colombia, Costa Rica, Ecuador, and Peru respectively.

Regarding the methodological, technical, and instrument approach used to collect the information, it was determined that seventeen (17) of the investigations used a qualitative approach which represents 77.3% of the total, four (4) a quantitative approach equal to 18.2% and one (1) the mixed methodological approach. The documentary review technique with the checklist instrument at 45.5%, followed by the interview technique with the interview guide instrument at 36.4%, the focus group technique at 9.1%, and the observation and survey technique at 4.5% each respectively.

On the analysis of the results and status of research aimed at participation in water resources management for Latin America, there is a global trend in adopting participatory water governance as a means to achieve water resources management, which promotes the inclusion of communities through their responsible empowerment and participation, these actors must be strengthened to count on them in an inclusive way in the decision-making process on water resources (Popovici et al., 2021), constituting the hydrographic basin as the territorial unit with its natural complexities and social processes, to achieve sustainable management that goes beyond knowing the problem and having a plan for management; requiring the promotion of the active participation of actors in the elaboration, implementation and monitoring of the plan (Paris and Marano, 2018), thus representing an opportunity for citizen participation, within the integrated water resource management approach (GWP, 2013), that integrate users and

collective interests (Delgado-García, et al., 2017). Thus, participation contributes to the knowledge of the problems in the basin, thus allowing to know the tensions and conflicts between the actors and the generation of collaborative strategies to achieve more sustainable water management (Becerril et al., 2020). Likewise, within the bases of the democratic water governance model, citizen participation is included in the decision-making process, thus allowing democratic, legal, and representative governance; having to consider the intercultural perspective of the valuation of water (Ochoa, 2011). The process of decentralization in water management is necessarily democratic and implies the participation and representativeness of the members that compose it (Mesquita, 2018).

This shows the evolution of water management systems to models where social participation in decision-making is called, generating improvements in technical and administrative issues in the orientation of implementing a new culture of water, spending the opening of greater spaces that guarantee citizen participation (Casteñeda, 2021). In the last three decades, the academic arguments for the implementation of mechanisms of social participation in water management reached a high degree of sophistication and development when considering it as a form that amalgamates social actors in the process of taking decisions are a need to improve water management at the local level (Villada-Canela et al., 2019).

According to regulations in Brazil, water management must be integrated, and decentralized with the participation of the public sector, civil society, and users of each basin to approximate decision-making in local communities, but is influenced by political, economic, and administrative fragility (Mesquita, 2018). On the other hand, in the last two decades in Mexico, IWRM was incorporated accompanied by participatory processes under the argument that water management has complex interactions due to the concurrence of actors, interests, and economic and political trends; Therefore, in addition to technical and scientific contributions, the participation of actors is required, who can contribute to decision-making; but that at present the generation of mechanisms and procedures in legislation and management instruments are insufficient not allowing to achieve the expected benefits; in addition to the possibility of generating conflicts between actors, making this management inefficient (Villada-Canela et al., 2019).

On the other hand, the implementation of basin councils represents advances in promoting the participation of users and local governments in water management, which must be strengthened to capture the energy, innovation, and social capital of social partition (Pineda et al., 2017). Constituting appropriate stakeholder engagement and interactions is essential for effective integrated water resources management (Costa et al., 2017). Likewise, the state must provide logistical and financial support to these recently created participation spaces, and public responsibilities must be defined under a differential approach, especially for groups in vulnerable conditions; otherwise, this participation will be limited and will not contribute to conflict prevention, with the possibility of underrepresentation that does not include the contributions and aspirations to build a holistic vision (Castro-Buitrago et al., 2019). Being essential to the processes of social learning and the construction of progressive consensus among the actors involved; despite the operational difficulties presented by these organizations, their creation is favorable being better

than not having them, emerging as a challenge in trying to adapt them so that they meet the objectives of meeting the demands of users equitably in the basin (Mesquita, 2018).

Likewise, in these processes of improvement, greater interference at the regional level should be considered as a means to provide more effective responses to the needs generated at the local level. Participatory processes are a necessary condition; requiring clear and committed political leadership from the state side and the ethical responsibility of the actors (Sánchez et al., 2018); while paying attention to the limitations linked, among others, to the sex, sector, and age of the people related to participation (Villada-Canela et al., 2019).

Finally, it has been argued that community participation in water governance has advantages over centralized governance, especially about user participation to generate, share knowledge and improve equity in use (Barthel et al., 2017; Reddy, 2012; Reddy et al., 2014).

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