

Challenges in the access to piped water in rural localities of the municipality of Acapulco de Juarez, Guerrero, Mexico

Abstract

Universal and equitable access to drinking water service is a requirement included in international agreements, such as the 2030 Agenda, which aims to reduce the percentage growth of water scarcity for rural and urban societies in the 21st century. Faced with this dynamic, since the end of the 20th century, the heads of state of Latin American and Caribbean (LAC) countries have made changes in national and international policy to facilitate access to piped water for human settlements lacking this resource. However, in spite of these interventions, many countries in LAC still lack access to the vital liquid, and Mexico is a clear example, since a considerable percentage of the population lives in poverty and without water service in several rural localities, which is why they have organized themselves to gain access to water service through the coordination of their human potential and the adequate management of local water resources, benefiting thousands of families.

Keywords: water scarcity, poverty, community-based organizations

Volume 8 Issue 3 - 2024

Guillermo Ezbón Toribio Brito,¹ Artemio López Ríos²

¹Dirección General del Bachillerato (DGB), Centro de Estudios de Bachillerato (CEB) 5/3 "José Vasconcelos", Mexico

²Centro de Gestión del Desarrollo, Universidad Autónoma de Guerrero, Mexico

Correspondence: Guillermo Ezbón Toribio Brito, Dirección General del Bachillerato (DGB), Centro de Estudios de Bachillerato (CEB) 5/3 "José Vasconcelos", Mexico, Tel (+52) 733 1357248, Email ezbo2024@gmail.com

Received: April 01, 2024 | **Published:** May 15, 2024

Introduction

The 21st century is the natural scenario where the governments of the world recognize that they have not been able to solve the social problems accumulated since the eighties of the 20th century. From the exercise of public policy, it is accepted that problems have worsened due to water scarcity; there is talk of a humanitarian crisis recognized as an international issue. This social reality generated the concern of organizations such as the United Nations (UN), which motivated heads of state to establish a new international pact with the aim of forming political-economic alliances between nations to address the various social problems detected.

In 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development,¹ proposing 17 Sustainable Development Goals (SDGs),² aimed at putting an end to social problems such as poverty, hunger and water scarcity, among others. In legal matters, safe access to drinking water is a constitutional responsibility of national States, which has resulted in the design of laws to create governmental water instances and economic investment in the construction of infrastructure. In this sense, embodied in SDG 6, access to water is an international political demand required by the UN in the 2030 Agenda for Sustainable Development, where clean water and sanitation are demanded in order to ensure the availability of water for all and its sustainable management.¹

The international agreement of the 2030 Agenda for Sustainable Development is not new with respect to access to safe drinking water, since in 2002 General Comment No. 15, in point number two, states the following: The human right to water is the right of everyone to sufficient, safe, acceptable, accessible and affordable water for personal and domestic uses. An adequate supply of safe water is necessary to prevent death from dehydration, reduce the risk of water-related diseases, and meet drinking and cooking needs, as well as personal and domestic hygiene needs.³ However, it is estimated that 2.2 billion people do not have access to safe drinking water⁴ and that, if current trends continue, there will be more than 4 billion by 2025.⁵ Of these 2.2 billion people without access to water, 1,524,370,686 live in rural areas, representing 69.2% of this population segment.⁶

In Latin America and the Caribbean (LAC), out of a population of 664,997,000 million inhabitants,⁷ 166 million people do not have access to public piped water service, representing 26% of the population living in the region.⁸ Of the 166 million people without access to piped water, 44,270,046 (20.5%) are located in Brazil;⁹ 9,000,000 (20.1%) in Argentina;¹⁰ 6,563,500 (13.6%) in Colombia;¹¹ 3,000,000 (16.8%) in Guatemala;¹² 2,994,000 (9.2%) in Peru;¹³ 2,627,000 (15.3%) in Ecuador;¹⁴ 1,580,339 (21%) in Paraguay;¹⁵ and 1,442,651 (13.3%) in Dominican Republic.¹⁶ These countries account for 71,477,536 people without access to piped water service, representing 43% of the 166 million who subsist in the region. It is worth mentioning that of these 166 million people, 59,263,923 are located in rural areas⁶ where their inhabitants live in conditions of poverty and without access to public services, facing a more complicated and vulnerable subsistence.

Another social problem in LAC is poverty, since it is estimated that 201 million people are moderately poor (32.1%) and 82 million are extremely poor (13.1%), totaling 283 million people living in poverty¹⁷ out of a total population of 664,997,000.⁷ In practice, the international political demands set forth in the 17 SDGs in the 21st century have not yielded the projected macro-social results, since many developing countries and vulnerable human groups are in conditions of high and very high levels of marginalization, living in poverty and without access to public water services, two quantifiable variables that demonstrate the harshness of this social and economic marginalization.

In Mexico, out of a population of 126,014,024 million inhabitants,¹⁸ 27,813,720 do not have piped water service, representing 22% of the national average.¹⁹ In the State of Guerrero, out of a population of 3,657,048 inhabitants,²⁰ 1,986,796 people (54.3%) do not have access to public water service.¹⁹ While in the municipality of Acapulco de Juarez, the main city and port of the State of Guerrero, out of a population of 846,121 inhabitants, 181,367 people (21.4%) do not have access to piped water service.²¹

Globally, water scarcity has motivated rural and indigenous localities to mobilize individually or collectively, demanding the intervention and political-economic support of municipal and state

authorities to guarantee water services. As a result, civil organizations have been formed to manage piped water services in several LAC countries, as is the case of the Community Organizations for Water and Sanitation Services (OCSAS), where more than 180,000 have been operating for more than 40 years,²² benefiting more than 80 million people in rural and peri-urban areas.²³ For more than 40 years.²²

To the extent that social groups gain local recognition and the need to strengthen themselves through permanent projects that require external resources appears, the experiences become institutionalized by assuming a legal figure (Association, Corporation, Institutes, etc.), a name or label that expresses their identity by establishing an operating structure with its own headquarters and dynamics.²⁴ Actors use social institutions not only as a function of the possibilities of accessing a better status in the social hierarchy, but also to reinforce the capacity to undertake social actions engendered by them.²⁵

The objective of this study was to assess the participation of citizen committees in the management of water for domestic use, their contribution to local development and the health and well-being of the inhabitants in three rural localities of the municipality of Acapulco, in the State of Guerrero, Mexico. Namely: Los Organos de Juan R. Escudero; El Salto; and Kilometro 39.

Materials and methods

The methodology used in this research was qualitative. It is identified as qualitative because it takes very seriously the words and actions of the people studied. Qualitative studies can be investigations of people's lives, lived experiences, behaviors, emotions and feelings, as well as organizational functioning, social movements, cultural phenomena and interaction between nations.²⁶ The purpose of qualitative research is to give voice to human groups marginalized from modern social systems (poor, ethnic, racial, sexual minorities, as well as segments of migrants and other by-products of capitalist societies), to interpret the historical and cultural significance of social phenomena (historical-cultural understanding) and to advance theory (construction of new theories).²⁷

The collection and review of documents was carried out to obtain key information on the research phenomenon. Here, documents are written testimonies of a past or historical fact that we must value in its right dimension.²⁸ Documentary research makes it possible to "contextualize" the phenomenon to be studied, establishing diachronic and synchronic relationships between current and past events; this makes it possible to make a comprehensive and interpretative "prognosis" of a given event. Documentary research enables a retrospective view, a current view, and a prospective view of the reality under investigation.²⁹ This indicates that documentary research is based on previous scientific knowledge;³⁰ already published or fully known.³¹

The official documents reviewed were the population and housing censuses of the National Institute of Statistics and Geography (INEGI), as well as reports from the Ministry of Welfare, concessions of water rights to rural localities by the National Water Commission (CONAGUA), National Water Law, and executive projects for the construction of infrastructure of hydraulic systems in rural localities supervised by the Drinking Water, Sewerage and Sanitation Commission of the State of Guerrero (CAPASEG). As for unofficial documents, the following were consulted: historical archives, organizational documents, local newspapers, lists of users who have piped water service in their homes, contracts, energy bills from the Federal Electricity Commission (CFE) and requests for piped water service by managers and commissioners on duty before municipal and state authorities.

Semi-structured interviews were conducted with key informants, such as founders and promoters of rural localities, municipal commissioners, natural leaders, members of water committees, users, managers of the local water system and municipal employees. Key informants are those persons who, because of their position in the structure and organization of the community or group under study, or because of their knowledge and experience on the subject under analysis, can provide relevant information on the topic under investigation.³²

Location of study areas

Los Organos de Juan R. Escudero is located at latitude 16° 56' 30" north and longitude 99° 48' 34" west and has an elevation of 100 meters above sea level. El Salto is located at coordinates 16° 51' 53" North latitude and 99° 45' 55" West longitude and has an altitude of 20 meters above sea level (m.a.s.l.). Kilometro 39 is located at coordinates 17° 02' 41" North latitude and 99° 46' 42" West longitude and has an altitude of 385 m.a.s.l..³³ The three localities belong to the municipality of Acapulco de Juárez, Guerrero, Mexico Figure 1.³⁴

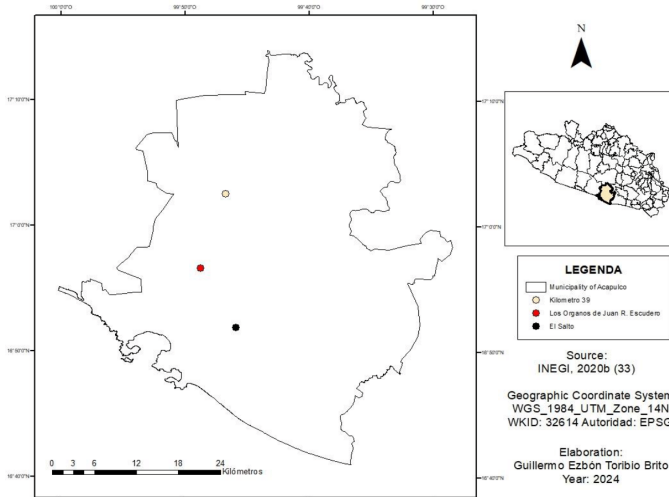


Figure 1 Location of the study areas.

Results

The municipality of Acapulco has a total population of 846,121 inhabitants (22.9% of the state population) of which 268,190 people (35.4%) live in moderate poverty and 126,670 people (16.7%) in extreme poverty, indicating that 394,860 people in the municipality (52.1%) are at the poverty line.²¹ Poverty is a social problem that has been addressed by the municipal authority of Acapulco, in conjunction with the federal and state governments; social programs have been implemented and economic resources have been allocated in the construction of public works required to address this situation. It must be recognized that there has been progress: in 2010, 512,547 people were poor (65.2%), of which 405,499 lived in moderate poverty (51.6%) and 107,048 in extreme poverty (13.6%).³⁵ In 2023, 394,860 people are in poverty (52.1%), of which 268,190 are moderate poor (35.4%) and 126,670 are extreme poor (16.7%).²¹ As it can be seen, there is a 13.1% decrease in poverty Table 1.

Table 1 Poverty in the municipality of Acapulco (thousands of people)

Municipality	789,971	100	846,121	394,860	100
In poverty	512,547	65.2	268,190		52.1
In moderate poverty	405,499	51.6	126,670		35.4
In extreme poverty	107,048	13.6			16.7

Source: INEGI, 2010a;³⁴ CONEVAL, 2012;³⁵ Ministry of Welfare, 2023.²¹

As documented in the aforementioned data, poverty has been reduced in real and percentage terms. However, despite the fact that the three levels of government have addressed this social problem, it still persists as a deficit that questions governance, so public policy will have to double its efforts to undermine the scourge of poverty. The municipality of Acapulco is composed of a municipal capital, which is the city of Acapulco, territorially organized by 67 commissariats and 57 municipal delegations.³⁶ Most of the poor population is located in localities in conditions with high and very high degree of

marginalization, without access to the main public services, such as piped water.

The city of Acapulco accounts for the majority of the municipal population with 658,609 inhabitants, while 120,957 people live in the remaining 233 localities.³³ According to the information gathered in the population and housing censuses conducted by INEGI, the rural area of the municipality of Acapulco had a demographic growth from 1990 to 2020, while the urban area experienced a population decrease in the same period Table 2.

Table 2 Urban and rural population growth in the municipality of Acapulco (thousands of people)

Population	1990	1995	2000	2005	2010	2015	2020
Municipality	593,212	687,292	722,499	717,766	789,971	810,669	779,566
Urban	515,374	592,528	620,656	616,394	673,479	689,068	658,609
Rural	77,838	94,764	101,843	101,372	116,492	121,601	120,957

Source: INEGI, 1990,³⁷ 1995,³⁸ 2000,³⁹ 2005,⁴⁰ 2010a,³⁴ 2015,⁴¹ 2020b.³⁰

The municipality is made up of 234 localities; eight of them have more than 2,500 inhabitants and 226 have less than 2,500 people.³⁶ The 234 localities are housed in 220,033 inhabited dwellings representing 24.6% of the 895,157 dwellings that the State of Guerrero has.⁴¹ Of the 234 localities in the municipality of Acapulco, 189 are in conditions with a high degree of marginalization, 43 with a very high degree of marginalization, one with a medium degree and one more with a low degree of marginalization.⁴²

In the 189 localities with a high degree of marginalization live 104,733 people (12.9%), the 43 localities with a very high degree of marginalization concentrate 11,867 inhabitants (1.4%); the locality of Tres Palos is the only one with a medium degree of marginalization where 5,001 people live (0.6%), while the only locality with a low degree of marginalization is the city of Acapulco where 689,068 people live (84.9%). The 189 localities living in conditions of high degree of marginalization and the 43 localities with very high degree of marginalization (totaling 232 of the 234 localities) concentrate a total of 116,600 people representing 14.3% of the total municipal population Table 3.⁴²

The management of potable water is the responsibility of the Drinking Water and Sewerage Commission of the Municipality of Acapulco (CAPAMA), which is in charge of supplying piped water in the urban area of the municipality. In the rural area of Acapulco, 121,601 people do not receive the water service that CAPAMA should guarantee, because some localities are located outside the distribution area of CAPAMA. This situation has caused rural inhabitants to request water service from the corresponding municipal or state authority, resulting in various procedures to access public water service.

The fact that the rural area does not have piped water service has led inhabitants and community authorities to organize themselves in order to be attended by state and federal authorities. Through organization and mobilization, they have been able to gain access to certain economic and technical support for the construction of water systems in their local areas, thus creating better living conditions for their families and the locality.

As a result and product of collective effort, in the municipality of Acapulco there are 61 rural localities that have piped water systems organized in a self-managed or independent manner. These organizations are administered by citizen committees made up of inhabitants of each locality, elected by direct vote in a general assembly of users who receive public water service. The committees are responsible for the administration, operation and maintenance of the water system in their local areas.

The 61 localities concentrate 85,578 inhabitants, a space where they have organized themselves socially and politically to access piped water service as a human right, demonstrating their capacity for social organization in the management of water in the municipality of Acapulco. It is worth mentioning that, of the 61 localities, 53 are in conditions of high degree of marginalization, seven with a very high degree of marginalization, and one with a medium degree of marginalization Table 3.⁴⁴

Given the results obtained, the rural towns of Los Organos de Juan R. Escudero, El Salto and Kilometro 39 are clear examples of social organization in the management of piped water and a specific way to solve historical and social problems, suffered for decades in their work and coexistence spaces. In these towns, the water supply is managed by committees made up of inhabitants of each of the rural localities; these bodies are in charge of the piped water systems, which they manage and operate without receiving a salary for the services provided to each community.

The sources of supply, on which the piped water systems in Los Organos de Juan R. Escudero, El Salto and Kilometro 39, are springs and noria wells (groundwater); the first and third localities are located in the sub-basin Hydrological Region (RH) 19Ab River the Sabana and the second locality located in the sub-basin RH19Aa Lagoon Tres Palos of the basin River Atoyac and others,⁴⁶ belonging to the RH19 of the Costa Grande of Guerrero, Mexico Figure 2.⁴⁷

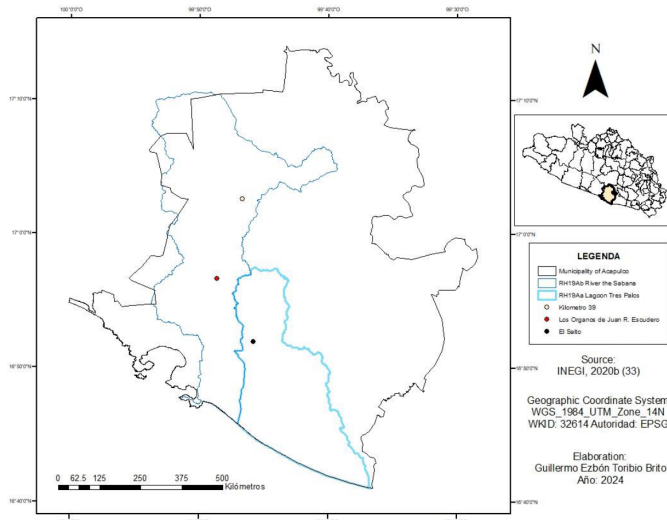


Figure 2 Location of the sources of supply in the study areas.

The municipality of Acapulco is part of two RHs, RH19 Costa Grande and RH20 Costa Chica;⁴⁸ of RH19 are located three sub-basins RH19Aa Lagoon Tres Palos, RH19Ab River the and RH19Ac Bahía de Acapulco belonging to the basin of the Atoyac River and others,⁴⁹ and of RH20 is located the sub-basin RH20Ea River Papagayo belonging to the basin of the River Papagayo -RH20 Costa Chica-River Verde.⁵⁰ The River Atoyac basin (RH19 Costa Grande-River Atoyac and others) is located in the west, southwest and south of the municipality and covers 31.62% of the territory, and the River Papagayo basin (RH20 Costa Chica-River Verde) is located in the north and east of the municipality and covers 68.38% of Acapulco's territory.⁵¹

According to the National Water Law (Chapter II, Article 20) there are two ways to obtain water rights for domestic use (for private use by individuals and households) and urban public use (to serve population centers and human settlements): one by concession and the other by assignment; the first is for individuals and legal entities, the second for agencies and decentralized bodies of the federal, state or municipal public administration.⁵² This law recognizes (Title One, Article 3, Section XLI) as individuals, ejidos, communities, associations, societies and other institutions that the law recognizes as legal entities with the modalities and limitations established therein.

In this sense, the 1994 Regulations of the National Water Law, in Chapter IV, Article 18, recognizes the organization and participation of users to exploit, use or take advantage of water, but only by constituting one of the legal entities recognized in the current legislation.⁵³ In accordance with the above, this makes possible and gives legal support to the collective action of rural localities in water matters (concession), in addition to receiving economic support from the State for the construction of infrastructure (hydraulic system) and technical advice from state (such as CAPASEG) or municipal (such as CAPAMA) bodies with administrative responsibility, commissioning rural localities to supply piped water on a permanent basis. Furthermore, political support for rural localities is an international

requirement established in Principle 22 of the 1992 Rio Declaration on Environment and Development.

Indigenous peoples and their communities, as well as other local communities, play a fundamental role in environmental management and development due to their traditional knowledge and practices. In this sense, the proper management of resources such as water, should be encouraged to solve urgent problems without losing the strategic sense, i.e., States should recognize and duly support their identity, culture and interests of these sectors in their effective participation in achieving sustainable development.⁵⁴

Historically, in this study area, rural localities have organized themselves by requesting piped water service from the corresponding authorities, and by requesting economic and material support for the construction of hydraulic systems in their living spaces, taking advantage of hydro-territorial potentialities to satisfy vital needs. Some rural localities at the municipal level have efficiently resolved water scarcity without having many economic and technical resources; they do so by taking advantage of endogenous capacities such as local knowledge, organizational capacity to carry out social, political and economic activities. The objective is to guarantee the long-term supply of water resources in their local areas.

The water supply in the three localities has its antecedents in the sixties of the twentieth century, a time when active citizen participation was generated to meet the water needs of its inhabitants through the use of available natural sources, such as rivers and streams, or the construction of artesian wells located in some localities.

In the case of Los Organos de Juan R. Escudero, this is a rural locality in conditions of high social marginalization⁴⁴ with a total population of 2,756, see Table 3, 4. Of the 808 occupied households, 691 have piped water service (85.51%) and 112 homes do not have public service (13.86%).³³ There has been significant progress in this aspect as in 2010 the locality had 635 inhabited households;³⁴ 138 had piped water service (21.7%) and 497 did not have public service (78.2%).⁴²

Table 3 Degree of marginalization of the localities of the municipality of Acapulco (thousands of persons)

		Degree of marginalization			
		Very high	High	Medium	Under
Total locations	234	43	189	1	1
Total population	810,669	11,867	104,733	5,001	689,068
% population	100	1.4	12.9	0.6	84.9

Source: Own elaboration with data from INEGI, 2015;⁴¹ SEDESOL, 2017;⁴³ SEDESOL, 2014.⁴²

Table 4 Rural localities in the municipality of Acapulco with independent piped water systems

No.	Location	Population	No.	Location	Population
1	Aguas Calientes	2,099	32	Las Plazuelas	891
2	Agua de Perro	111	33	La Providencia	989
3	Alto del Camaron	876	34	Lomas de Chapultepec	2,064
4	Amatepec	635	35	Los Guajes (Colonia Guerrero)	889
5	Amatillo	3,914	36	Los llamos	141
6	Barra Vieja	869	37	Lomas de San Juan	2,161
7	Cacahuatpec	611	38	Los Organos de Juan R. Escudero	2,756
8	Cerro de Piedra	1,337	39	Metlapil	1,286
9	Colonia 10 de abril	879	40	Nicolas Bravo	675
10	Dos Arroyos	1,917	41	Oaxaquillas	929
11	Ejido Nuevo	2,304	42	Parotillas	398
12	El Bejuco	2,457	43	Paso Texca	400
13	El Canton	590	44	Piedra Iman	988

Table 4 Continued...

No.	Location	Population	No.	Location	Population
14	El Carrizo	229	45	Las Parotas	356
15	El Quemado	965	34	Playa Encantada	1,398
16	El Rincon	477	47	Playones de San Isidro	470
17	El Salto	1,385	48	Rancho Las Marias	254
18	Espinalillo	244	49	Sabanillas	1,861
19	Huajintepec	330	50	Salsipuedes	459
20	Huamuchitos	2,076	51	San Antonio	1,081
21	Kilometro 21	1,435	52	San Isidro Gallinero	2,709
22	Kilometro 22	416	53	San Jose Cacahuatepec	200
23	Kilometro 30	6,334	54	San Pedro Cacahuatepec	1,552
24	Kilometro 39	831	55	San Pedro Las Playas	4,430
25	Kilometro 42	775	56	Tasajeras	746
26	Laguna del Quemado	819	57	Texca	2,314
27	Las Chanecas	567	58	Tunzingo	376
28	La Concepcion	1,770	59	Tres Palos	5,668
29	La Estacion	1,419	60	Xaltianguis	6,564
30	Las Joyas	444	61	Xolapa	978
31	Las Marias	480			
Total population:		85,578			

Source: Own elaboration with data from CAPAMA, 2014;⁴⁵ SEDESOL, 2014;⁴² INEGI, 2020b.³³

El Salto is a locality with a high degree of social marginalization,⁴⁴ with a total population of 1,385 inhabitants, see Table 3, 4. Of the 396 occupied households, 388 have piped water service (97.9%) and only eight homes do not have access to water (2%).³³ There has been significant progress in this aspect, as in 2010 the locality had 361 inhabited households;³⁴ 312 had piped water service (86.4%) and 49 did not have public service (13.5%).⁴²

Kilometro 39 is also a locality in conditions of high degree of social marginalization,⁴⁴ with a population of 831 inhabitants, see Table 3, 4. Of the 210 occupied households, 202 have piped water service (96.1%) while the other eight households do not have access to water (3.8%).³³ There has been significant progress in this aspect, as in 2010 the locality had 196 occupied households;³⁴ 27 had piped water service (13.7%) and 169 did not have access to public water service (86.2%).⁴²

These three rural localities live in highly marginalized conditions, as do 186 other localities, see Table 3. These three localities concentrate 4,972 inhabitants, which represents 4.7% of the 104,733 people living in highly marginalized localities; lacking basic services that limit the human development of the inhabitants of each community.

In spite of the socioeconomic disadvantages of the three rural localities mentioned above, they have organized themselves to face the challenges or problems in their areas through social organization, managing in-kind or technical-economic support to address the multiple existing social, economic and environmental problems; in addition to administering their endogenous resources and intervening in their community development.

Discussion

Acapulco's 61 local experiences in rural water management concretely represent the active participation of civil associations, not only at the municipal level but also, as noted, in other earthly latitudes evidenced in the experience of the Community Organizations for Water and Sanitation Services (OCSAS).

Organizational experiences in water management in Latin America are becoming increasingly visible, as each year new cases of collective action are registered to guarantee access to piped water to vulnerable localities, or to solve other local problems such as education, housing, street paving, etc., and to influence local- community development. A clear example of this is the locality of Los Organos de Juan R. Escudero, which in addition to managing the first piped water system in 1963 also managed other public services for the locality, such as electricity in 1950, an elementary school in 1952, a health center in 1967, a space for religious worship in 1960 and a civil registry in 1968.

In the municipality of Acapulco, many localities in rural areas try to solve water scarcity through their own means; with the participation of civil authorities and community participation, access to economic resources is promoted to take advantage of the natural capital of the environment. The above indicates that rural localities should not be perceived as neutral, passive entities, nor reduced to quantifiable variables (voters, illiteracy, low-skilled labor, religious creed) or abstractions (conceptualizations, categorizations, classes) stripping them of their human potential.

The 61 cases in access to piped water, in rural areas of the municipality of Acapulco de Juarez, Guerrero coincide with the experiences in the State of Veracruz, Mexico, where it is recognized that there are 2,000 community organizations of water and sanitation services (OCSAS); of these, 1,425 have self-managed practices and 646 are administered by the State Water Commission of the State of Veracruz (CAEV).⁵⁵ Likewise, in the municipality El Cardonal in Hidalgo, Mexico, there is a record of 12 piped water systems, of which the municipal authority manages only one with 650 intakes, while the rest are managed by user committees with 1975 intakes.⁵⁶

One aspect to highlight is that, if there is a solid social organization and a real knowledge of the local territory, the local space can be correctly managed and viable endogenous proposals for the supply of piped water can be generated; that is, the conjunction between a good social organization and the correct use of local knowledge of the

territory can be basic elements for the solution of the water shortage that rural localities in Acapulco have suffered. Historically, many rural localities have solved in a practical way the needs in their living and coexistence spaces, showing themselves as authentic managers of community development.

The participation of rural localities in water management is increasing, offering innovative proposals for solutions to long-standing problems, such as water scarcity, designing representative (partisan) or citizen (non-partisan) social structures to manage public services before local and municipal authorities. In the case at hand, they are working to build organizational structures for the efficient administration and distribution of water resources in their localities, but also evidencing the inefficiency and incapacity of the municipal government responsible for offering basic services to its inhabitants in accordance with article 115 of the Mexican Constitution. In synthesis, when local actors interact in a common territory, exchanging resources (information materials, experiences and capacities) they share socio-cultural frameworks that allow them an adequate reading of their environment and certainty to act in their territory.

Conclusion

Western societies have attributed to water a commercial value and use for the development of their productive activities. However, at the end of the twentieth century it has been recognized as a human right, therefore, it is the political responsibility of sovereign states to provide water service to all human groups in a territory, and in each political-administrative division, regardless of racial or socioeconomic status. Regardless of the cultural diversity of human groups existing in a territory, of their histories as protagonists or antagonists since, however strange they may be, they are connected because they share a natural need in the use and distribution of water.

In the 1970s, the municipality of Acapulco experienced a demographic growth derived from the immigration of settlers from other municipalities in the State of Guerrero and other states, establishing, in some cases, certain urban centers and, in others, favoring the emergence of rural localities. The creation of rural localities implied the appointment of specific authorities (commissariats), subject to a municipal authority (mayor's office), with powers to exercise local political power and access economic support, as well as public goods and services for the wellbeing of their inhabitants.

In the rural area of the municipality of Acapulco, access to piped water has been a public issue for many localities living in conditions of poverty and social marginalization. In Los Organos de Juan R. Escudero, El Salto and Kilometro 39, it was observed that water service is provided by committees that strive to continuously involve users in socio-cultural tasks for the efficiency of the public service.

Piped water committees, as organizational structures, are citizens' proposals set up by rural (and even urban) localities to solve the water shortage in their local areas, thus giving evidence of a new social reality in these spaces that can be basic elements for social change. The organization and active and creative social participation of the collective subject is the social capital required to outline the future of each locality, as well as for the valuation, management and administration of existing water resources.

These forms of socio-community organization are not only empirical references for understanding the new dynamics in rural areas, they can also be agents for generating social change; Therefore, through the efficient development of social functions and responsibilities in the management, administration, distribution and

management of water in their local areas, they can transcend in their functions, both in decision-making and in their structure, and be an axis that articulates the various social sectors existing in the locality (municipal, ejido, parents' committee, youth groups, women's groups, professionals) for the effective implementation of activities, and integrate themselves into the multiple local, regional, state or national processes.

Expressions of gratitude

To the inhabitants of the rural localities studied who participated in making this research possible, as well as to the Centro de Ciencias de Desarrollo Regional de la Universidad Autonoma de Guerrero, our Alma Mater.

Conflicts of interest

The authors have no conflicts of interest to declare.

References

1. NU (United Nations). *Transforming our world: The 2030 agenda for sustainable development*. Nations U, editor. Buenos Aires: UNDP; 2015.
2. CEPAL (Economic Commission for Latin America and the Caribbean). *The 2030 Agenda and the Sustainable Development Goals An opportunity for Latin America and the Caribbean*. Nations U, editor. Santiago: CEPAL; 2018.
3. United Nations. *General Comment No. 15. The right to water (articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights)*. Council EaS, editor. Ginebra: United Nations; 2002.
4. United Nations. *Sustainable Development Goals 2020 Report*. Publications UN, editor. New York: United Nations; 2020.
5. Arrojo Agudo P. *Typology and roots of water conflicts in the world*. In (Coord.). JD, editor. Water, a right and not a commodity. Civil society proposals for a public water model. Spain: Icaria; 2009. p. 9–34.
6. UNICEF (United Nations Children's Fund). *Water Supply, Sanitation and Hygiene (WASH)*. Monitoring (JMP). 2020.
7. CEPAL (Economic Commission for Latin America and the Caribbean). *Statistical Yearbook for Latin America and the Caribbean 2023*. Nations U, editor. Santiago: CEPAL; 2024.
8. CEPAL (Economic Commission for Latin America and the Caribbean). *The recovery paradox in Latin America and the Caribbean. Growth with persistent structural problems: inequality, poverty, low investment and low productivity*. Special Report COVID. Nations U, editor. Santiago: CEPAL; 2021.
9. SNIS (National Sanitation Information System). *Diagnóstico Temático Serviços de Água e Esgoto. Visão Geral ano de referência 2022*. -SNSA-SNNSA, editor. Brasília: SNSA; 2023.
10. MOPA (Ministry of Public Works Argentina). *Current report on access and equality to water and sanitation*. Works MoP, editor. Buenos Aires: MOPA; 2021.
11. DANE (Department of Statistics). *Results of the National Population and Housing Census 2018*. Colombia Go, editor. Bogota: DANE; 2018.
12. UNOPS (United Nations Office for Project Services). *13 million people in Guatemala do not have access to adequate basic sanitation*. 3rd Virtual Forum on Water and Sanitation. United Nations ed. Guatemala: UNOPS; 2022.
13. INEI (National Institute of Statistics and Informatics). *Peru: Forms of Access to Water and Basic Sanitation*. INEI, editor. Lima: ENAPRES.; 2020.
14. STP (Technical Secretariat of Planning). *Voluntary National Examination*. Ecuador 2020. Planifica TS, editor. Quito: STP; 2020.

15. MMF (Meeting of Ministers of Finance). *The investment system of the Drinking Water and Sanitation (DWSS) sector in Paraguay*. Country summary-Paraguay. MMF, editor. Asuncion: UNICEF; 2020.
16. BID (Inter-American Development Bank). *Opportunities for sustainable, inclusive and resilient development Dominican Republic*. Bank IAD, editor. Santo Domingo: BID; 2020.
17. CEPAL (Economic Commission for Latin America and the Caribbean). *Social Panorama of Latin America and the Caribbean 2022*. The transformation of education as a basis for sustainable development Nations U, editor. Santiago: CEPAL; 2022.
18. INEGI (National Institute of Statistics and Geography). *Main results Population and housing census 2020*. United Mexican States. INEGI, editor. Mexico City; 2022.
19. INEGI (National Institute of Statistics and Geography). *National Institute of Statistics and GPrivate dwellings inhabited by States according to availability of services, series of census years from 2000 to 2020*. INEGI, editor. Mexico City; 2020a.
20. Ministry of Welfare. *Annual report on the Situation of poverty and Social Backwardness 2020 State of Guerrero*. Mexico Go, editor. Mexico City: Ministry of Welfare; 2020.
21. Ministry of Welfare. *Annual report on the situation of poverty and social backwardness 2023 Acapulco of Juarez, Guerrero. Mexico*. Go, editor. Mexico City: Ministry of Welfare; 2023.
22. Foundation, Avina. *Community-based Water and Sanitation Services Organizations, fundamental in Latin America*. [Online].; 2014.
23. Vivanco Castillo CSBMAMEG. *Community organizations of water and sanitation services (OCSAS) in Latin America and the Caribbean*. Water management in rural areas from a technical-social perspective. UNESCO, editor. Montevideo; 2022.
24. Torres Carrillo A. Popular organizations, identity construction and political action. *Latin American Journal of Social Sciences, Childhood and Youth*. 2006;4(2):1–23.
25. Touraine A. *After the crisis*. Mexico City: FCE; 2013.
26. Strauss AaCJ. *Foundations of qualitative research*. Techniques and procedures to develop grounded theory. 1st ed. Publications S, editor. Medellin: Universidad de Antioquia; 2002.
27. Ragin Charles C. *The construction of social research*. Introduction to methods and their diversity. Publications S, editor. Bogota: Universidad de los Andes; 2007.
28. Cerda Gutiérrez H. *The elements of research*. How to recognize, design and build them. 2nd ed. Bogota: El Buho; 1993.
29. Yuni JAaUCA. *Techniques for researching. Methodological resources for the preparation of research projects*. Cordoba: Brujas; 2014.
30. Vara Horna A. *From Idea to Substantiation: Seven Steps to a Successful Thesis*. An effective method for business studies. Lima: Universidad de San Martín de Porres; 2012.
31. Piloña Ortiz GA. *A practical guide to documentary and field research methods and techniques*. 10th edn. Guatemala: GP Editores; 2016.
32. Rojas Soriano R. *Social research, theory and praxis*. 12th edn. Mexico City: Plaza y Valdes; 2007.
33. INEGI (National Institute of Statistics and Geography). *Territorial Integration Systems (ITER) 2020 Count*. INEGI, editor. Mexico City; 2020b.
34. INEGI (National Institute of Statistics and Geography). *Territorial Integration Systems (ITER) Count 2010*. INEGI, editor. Mexico City; 2010a.
35. CONEVAL (National Council for the Evaluation of Social Development Policy). *Poverty and assessment report in the State of Guerrero 2012*. CONEVAL, editor. Mexico City; 2012.
36. PMD (Municipal Development Plan). *Building the new Acapulco: Municipal Government 2015-2018*. Planning SoPaEDbtDo, editor. Acapulco city; 2015.
37. INEGI (National Institute of Statistics and Geography). *Territorial Integration Systems (ITER) 1990 Count*. INEGI, editor. Mexico City; 1990.
38. INEGI (National Institute of Statistics and Geography). *Territorial Integration Systems (ITER) Count 1995*. INEGI, editor. Mexico City; 1995.
39. INEGI (National Institute of Statistics and Geography). *Territorial Integration Systems (ITER) Count 2000*. INEGI, editor. Mexico City; 2000.
40. INEGI (National Institute of Statistics and Geography). *Territorial Integration Systems (ITER) Count 2005*. INEGI, editor. Mexico City; 2005.
41. INEGI (National Institute of Statistics and Geography). *Intercensal Survey. Sociodemographic panorama of Guerrero 2015*. INEGI, editor. Mexico City; 2015.
42. SEDESOL (Ministry of Social Development). *Total population*. Private dwellings inhabited by locality according to availability of services and presence of soil floor, Acapulco. Mexico. SEDESOL, editor. Mexico City; 2014.
43. SEDESOL (Secretariat of Social Development). *Annual report on the Situation of poverty and social backwardness: Guerrero, Acapulco de Juarez (12001)*. Undersecretary of Planning EaRD, editor. Mexico City; 2017.
44. SEDESOL (Ministry of Social Development). *Catalogue of localities in the municipality of Acapulco of Juarez, Microregions Unit*. SEDESOL, editor. Mexico City: Deputy General Directorate of Microregional Planning; 2013.
45. CAPAMA (Drinking Water and Sewerage Commission of the Municipality of Acapulco). *List of Rural Communities with Independent Drinking Water Systems in Acapulco*. CAPAMA, editor. Acapulco city; 2014.
46. INEGI (National Institute of Statistics and Geography). *Hydrological Region (HR) 18 Balsas- Mezcala (Basin)*. Hydrographic Network. Scale 1:50 000. Edition 2.0. INEGI, editor. Mexico City; 2010b.
47. CONAGUA (National Water Commission). *Regional Water Program Vision 2030*. Hydrological- Administrative Region V South Pacific. CONAGUA, editor. Mexico City; 2012.
48. CONAGUA (National Water Commission). *Atlas of Water in Mexico 2014*. CONAGUA, editor. Mexico City; 2014.
49. INEGI (National Institute of Statistics and Geography). *Hydrological Region (HR) 19 Costa Grande- Río Atoyac (Basin)*. Hydrographic Network. Scale 1:50 000. Edition 2.0. INEGI, editor. Mexico City; 2010c.
50. INEGI (National Institute of Statistics and Geography). *Hydrological Region (HR) 20 Costa Chica- Río Verde (Basin)*. Hydrographic Network. Scale 1:50 000. Edition 2.0. INEGI, editor. Mexico City; 2010d.
51. INEGI (National Institute of Statistics and Geography). *Municipal Geographic Information Record of the Municipal Geographic Information Record of the United Mexican States, Acapulco de Juarez, Guerrero, Mexico*. INEGI, editor. Mexico City; 2009.
52. DOF (Federal Official Gazette). *National Water Law, New Law published in the Official Gazette*. December 1, 1992 current text, last amendment published DOF 07/06/2013. DOF, editor. Mexico City; 1992.

53. DOF (Federal Official Gazette). *Regulation of the National Water Law, New Regulation. Published in the Federal Official Gazette on January 12, 1994, current text, last amendment published DOF 24/05/2011.* DOF, editor. Mexico City; 1994.
54. UN (United Nations). *Rio Declaration on Environment and Development.* The United Nations Conference on Environment and Development. Rio de Janeiro from June 3 to 14, 1992.
55. Domínguez Serrano JaCPE. Community water organizations in the state of Veracruz. Analysis in light of the Latin American experience. *Demographic and Urban Studies.* 2018;33(2):469–503.
56. Galindo Escamilla EaPVJ. Decision making and financial situation in small drinking water systems: two case studies in El Cardonal, Hidalgo, Mexico. *Region and Society.* 2012;(No. 54):261–298.