

Chapter 6

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COMMUNITY-BASED WATER PROVISION IN COLOMBIA IN TIMES OF COVID-19

This chapter examines the significance of the *Red Nacional de Acueductos Comunitarios de Colombia* (National Network of Community Aqueducts, RNAC) in the context of the Covid-19 pandemic. RNAC is a country-wide network that brings together more than 700 self-managed and community-driven organizations active in the provision of water services in the departments of Cundinamarca, Valle del Cauca, Cauca, Bolívar, Magdalena, Sucre, Guajira, Nariño, Meta, Casanare, Guaviare, Santander, Antioquia and Boyacá.

We begin with a discussion of the legal and regulatory framework of the water sector in Colombia, with emphasis on norms related to the community aqueducts and internal measures implemented by these organizations. We then analyze community-based water initiatives vis-à-vis urgent governmental responses to the pandemic. Finally, we offer some reflections geared to highlighting the lessons of democratizing water provision through the lens of community-based water organizations, as well as concrete recommendations for future policy design and implementation.

The research methodology combined qualitative and quantitative methods to access information from a combination of primary and secondary sources. The primary research provided quantita-

tive data obtained through an online survey and in-depth telephone interviews with representative members of community-managed aqueducts. The survey was implemented between June and July of 2020, reaching 101 community aqueducts with snowball non-probability sampling techniques. After processing the data from the survey, we selected relevant cases for in-depth interviews. The secondary sources were water provision laws and regulations passed during the pandemic, as well as technical reports produced by the RNAC itself.

CONNECTION AND RECONNECTION OF WATER SERVICES

In 1991, Colombia's community aqueducts were legally recognized as a distinct modality for the supply of water services across the country. These processes of participatory democracy and solidarity economy were included in the national legal framework as a non-profit and community-driven alternative, different from other business-type schemes – public, private or mixed – that operate under market logic.

Nevertheless, even though the state should guarantee access to water as a right (Corte Constitucional 2015), the current legislation does not include an essential condition for the protection and support of these organizations: a differentiated legal regime that takes into account their specific characteristics and the needs of the population served by them, mostly low-income rural or peri-urban communities (RNAC 2015). Such omission, in practice, imposes a regulatory framework that mainly benefits for-profit water providers. The current legal regime ignores and even obstructs cultural and traditional practices that do not fit into the formats contemplated by national regulations (RNAC 2017).

The emergency measures launched by the Colombian government in response to the pandemic have tended to reproduce the exclusion that community aqueducts have historically suffered. The decrees issued in the times of Covid-19 have reinforced the pre-

vailing logic, prioritizing an urban and profit-centred approach that seeks to transform cooperation between citizens into a business transaction. Moreover, community aqueducts have been affected by the imposition of financial costs and administrative burdens that exceed their economic and operating capacities (RNAC 2020a), as summarized in Table 1 below.

On March 20, 2020, the Colombian government issued Decree Law 441, which obliged water providers to immediately reconnect the service to families who were disconnected due to lack of payment. According to the interviews conducted for our research, most community organizations feel that this concrete measure is irrelevant for them, given that they do not customarily resort to disconnection (RNAC 2020a).

This perception was verified by the results of the survey, which indicate that 91% of the community aqueducts have implemented additional actions to guarantee the water supply during the pandemic. For the remaining 9% of the respondents, it was not necessary to implement new measures. However, in cases where aqueducts had incorporated the water service provision norms contained in Decree 302 of 2000, or exceptionally had to disconnect the water supply, it was found that they complied with the measure stipulating reconnection.

To cut off the water supply to any beneficiary is not a usual practice among community-run aqueducts, and even less for lack of payment. Even in the context of the pandemic, there were no cases of disconnection due to non-payment. In cases of arrears, these organizations favour mechanisms of social control or co-responsibility to guarantee a vital minimum supply to every member. A clear example of this was observed in the actions of the Girardota and Don Matías aqueducts in the department of Antioquia, which have installed flow control valves to guarantee the basic right to water. In some aqueducts, increased awareness of the significance of water as a common good has meant that there is little concern about the financial sustainability of the aqueduct during the pandemic.

Table 6.1

Emergency measures and their impacts on community water provision

Measure	Aims	Impacts on community-based water provision
Decree Law 441 of 2020	To guarantee the water supply to homes, prohibiting tariff increases and suspending water shutoffs due to non-payment.	In the case of community aqueducts, these measures were not necessary, given the principles of solidarity and democracy and the rights-based approach that guide their forms of organization, management and operations to secure access to water to all users.
Decree Law 528 of 2020	To provide financial support to companies unable to fully recover their costs due to the implementation of Decree 441. The resources that could not be collected from non-paying customers would be offset by the facilitation of better access to credit for water operators.	It does not take into account the specific financial needs of community aqueducts. The requirements for accessing credit are contingent on the presentation of financial statements, which most community-based water providers cannot afford. Moreover, the organizations that do manage to comply with this prerequisite would be putting their community assets at risk by creating long-term debt.
Decree Law 580 of 2020 <i>[Declared unenforceable by the Constitutional Court due to formal defects.]</i>	To increase subsidies and allocate public resources for water supply.	Its application is invariably subject to the methodologies and requirements defined in Law 142 of 1994, which means that community aqueducts cannot access these benefits if they have not already complied with Law 142.
Decree Laws 512 and 513 of 2020, plus some elements of Decree Law 580 of 2020	To enable the use of resources such as solidarity funds, plus changes in the royalty allocation regime.	The measures do not contemplate any real guarantee that these resources will be available for community aqueducts, as they are subject to the political will or budget availability of municipal and departmental governments.

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Emergency measures and their impacts on community water provision

Decree Law 819 of 2020	To enable the possibility of granting a subsidy to rural community aqueducts.	This measure establishes fewer requirements for accessing subsidies than Law 142 of 1994; nevertheless, only aqueducts regulated and monitored by the Superintendency of Residential Public Services (SSPD) would benefit, totalling around only 1,600 of the more than 12,000 community organizations registered across the country.
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Members of the Vereda Platanito aqueduct (from Barbosa, Antioquia), Cascajo de Marinilla (Antioquia) and Resguardo de Bonza de Paipa (Boyacá) told us that, in general, the associates have continued their economic contributions at the same level and frequency as before the pandemic. Many aqueducts covered by our research are totally independent in terms of finances and cover all their costs without any external support. In the words of a member of the Veredal AQUA7 Aqueduct, from Acacias, department of Meta:

We had to disconnect because some properties were vacant, but the pandemic caused many people to return to settle back in the community, so we had to find a way to respond to those situations. Payment agreements were made with the returning water users, and we have the expectation that now that we are going to start billing them for the month of July they will begin to pay for the service. (Personal communication, August 3, 2020.)

Furthermore, due to the increase in people who returned to live in the countryside during the lockdown, as well as the internal population growth, many community organizations expanded the network by connecting new families through the granting of *derechos de agua* (water rights), as in the case of the Aqueduct of Nariño

and Palo de Agua, in Loricá, department of Córdoba. This type of agreement implies an economic contribution to the aqueduct made by a family that seeks to access the water network as a new user. It is a common practice in various regions of Latin America (Boelens 2009) based on the recognition of the historical work of the organization for the care of the water basin and the surrounding territory. As an associate of the El Encano (Nariño) explained to us:

Although the new people who arrive buy the land, they do not buy the rights that the community had acquired in previous years, because here we take care of the trees, so that the water does not run out. We plant, take care of reforestation... For us, water is sacred, so nobody can expect just to come here with money and buy something that has historically been cared for, during many years, by the community. (Personal communication, August 5, 2020.)

Socio-economic stratification and redistribution

The community aqueducts have in-depth knowledge about the needs and economic capacities of the inhabitants of each village, and in that sense they fulfil through their collective practices the objectives of solidarity and equity beyond the indicators of socio-economic stratification used by state agencies to guarantee the provision of water services. An illustrative case is the Asociación Vecinal de las Aguas de Caluce (ASOAVEAGUASCALUCE) aqueduct in Palmira, Valle del Cauca, which conducted a detailed economic analysis of the whole community in order to identify the most vulnerable families and waive their economic contributions during the pandemic. Likewise, in the aqueduct of Resguardo de Bonza, in Paipa (Boyacá), a similar survey was carried out to evaluate the possibility of granting a one-month grace period to those members of the organization who might request it, using indicators to measure economic stratification very different from those used by the government for the same purpose.

Unlike profit-oriented water companies – which ensure their financial sustainability by collecting a regulated fee that incorporates both fixed operating costs and consumption charges according to the amount of water consumed by the users – community aqueducts rely on the economic contributions of their members and beneficiaries.

One of the most common sources of income is the *cuota familiar* (family fee), with varying amounts and frequency of collection in each organization. The financial sustainability of the local aqueducts, however, does not depend exclusively on the households, but includes a series of collective and individual actions such as community work, fundraising rallies, voluntary or extraordinary contributions by its associates, private donations, etc. During the Covid-19 emergency, these schemes were also affected, as explained below.

The community aqueducts are aware of the impossibility of supplying free water services, considering the operating costs. Their definition of *cuota familiar* implies at least a minimal contribution from each member of the organization. As explained by a member of the Espinales-Cabrera Vereda Aguafría Aqueduct, from Ocamonte, department of Santander: “being a community-based association, we cannot afford to eliminate the family fee, even if it is collected only once a year and kept as low as possible, which sometimes it is not enough to cover all the water provision costs” (personal communication, August 3, 2020).

In many cases, the amount of the family contribution is fixed and is not based on consumption. This means that the aqueducts do not charge for water itself, but for the costs of delivery, the installed infrastructure, and the maintenance works. In this way, the fee reflects a commitment to the community organization and is not aimed to guarantee the economic sustainability of the aqueduct. In the face of the special circumstances that have arisen after the declaration of a national emergency due to the pandemic, some aqueducts had to adjust the amount of the family fee, request voluntary and extraordinary contributions, or introduce a temporary increase

to the regular fee, as explained by a member of an aqueduct from Encano, in the department of Nariño.

In addition to the extra resources contributed by the members of the aqueducts to cover operating costs, some community organizations have also requested subsidies entitled to them by law. Nevertheless, the different meanings and understandings of water charges – a *cuota familiar* in the case of the community-based organizations, and a *tarifa* (tariff) in the context of private and state-run water utilities – have complicated the interaction between aqueducts and the state. As a regulator, the state must ensure that water companies do not impose disproportionate charges to increase their profits. Such risk does not exist in the framework of community-based water providers, because they are not profit-oriented. However, in the absence of differential regulations, state entities condition the access to subsidies by forcing community aqueducts to make adjustments in the collection of economic contributions. The changes requested by the state often contradict the established managerial practices of community aqueducts, involve additional costs, and ignore intra-community agreements or the objective capacities of their members to make financial contributions, therefore hindering access to the subsidies.

Faced with the repeated denunciation of this situation, after the eruption of the pandemic, the Colombian government modified the regulatory framework to make access to subsidies more flexible for rural aqueducts, with the sole condition that they be registered with the Superintendency of Domiciliary Public Services (SSPD). As mentioned above (in Table 6.1) this measure would only benefit 1,200 community aqueducts, out of more than 12,000 officially registered and over 20,000 operating across the country, according to RNAC's calculations.

Since the onset of the Covid-19 emergency, the vast majority of community aqueducts have implemented different payment modalities of the family fee, either granting a longer term for payment, dividing the amount into smaller instalments, opening addi-

tional payment points to reduce territorial mobility, or absolving families with greater economic needs. The direct knowledge of the economic and social situation of each family within the community was of great importance, facilitating appropriate, equitable and fair decisions. For instance, in the case of the Cascajo de Marinilla (in Antioquia), the local organization consulted with its members and agreed to contemplate different family situations, while the ASOAVEAGUASCALUCE Aqueduct (from Palmira, Valle del Cauca) intensified its communication with families in the community and promoted greater co-responsibility.

Access to government subsidies

In the context of the pandemic, the deferral of members' economic contributions became more widespread, due both to the economic crisis caused by Covid-19 and the confusion generated by state programs and regulations launched during the national emergency to facilitate payments and access to subsidies. The governmental measures created the expectation that the state would pay to guarantee the provision of water. In particular, there was confusion around the scope of Decree 580, which gave local mayors the authority to subsidize the total costs of water supply; however, that norm was soon declared unenforceable by the judicial power due to legal defects caused by the lack of some ministerial signatures. Moreover, Decree 819, which created a new rural subsidy, would only benefit a few aqueducts – and temporarily at that, as explained above. Therefore, for example, in the cases of Cascajo de Marinilla (Antioquia) and Resguardo de Bonza de Paipa (Boyacá), the local aqueducts had to open ad-hoc information channels to explain the limitations of the government measures to their members.

Some aqueducts have been able to access municipal subsidies to guarantee water access for low-income families. This is an indirect subsidy regulated by Law 142 of 1994, which requires registering with the SSPD and being part of the *Sistema General de Participación* (General Participation System). Access to this subsidy often de-

depends on the political will of the local administration. Even when the aqueducts have access to such resources, they maintain the possibility of establishing flexible agreements to collect the unsubsidized percentage. More than collecting the money at a certain time, what matters when establishing payment agreements is the commitment and joint responsibility of the aqueduct and its members and beneficiaries.

For example, the aqueduct of Nariño and Palo de Agua in Lórica (Córdoba) receives a subsidy equivalent to 50% of the total family fee. However, despite receiving this support, the aqueduct has proposed deferring the fees to families as an alternative form of payment. Likewise, the AQUA7 community aqueduct from Acacias (Meta) uses the subsidy to provide a discount on the family fee. In any case, they also establish payment agreements that allow the fees to be more flexible, considering the commitment between the organization and its members.

The results of our research indicate that few community aqueducts can access subsidies due to the criteria and large number of requirements demanded by the state. Only 21% of the surveyed community aqueducts responded that they had accessed new forms of financing during the pandemic. Community organizations struggle to meet all the regulatory requirements, which often mean absurd burdens on them as well as dubious benefits for the community. First, they must carry out a rate study in accordance with Resolution 825 of 2017 and Resolution CRA 844 of 2018, which involves stratifying the local population, hiring an accountant with special knowledge of International Financial Reporting Standards (IFRS), reporting financial statements, preparing a users registry, as well as conforming to very strict monitoring and control procedures. Then, the water users must approve the established “rate”, which involves a very foreign discussion about the meaning of “fee” (which, as explained above, would contradict the community’s understanding of the *cuota familiar*, the most usual form of economic payment for water services). Then, they must register in the SSPD and comply

with other requirements such as having a web page where they can upload the financial statements. This list of bureaucratic requests does not take into consideration the limitations of Internet connectivity in rural areas and the more than 600 forms that they must also complete online. Quite often, the local authorities insert additional special conditions, such as submitting the application before a certain date. Many times, faced with the impossibility of accessing the subsidies granted by the state, the aqueducts themselves implement internal mechanisms for cross-subsidization, redistributing resources from those members who are in a better economic situation to those who are in more precarious conditions.

By virtue of Decree 580 (which the judiciary declared legally unsound), launched by the Colombian government in the framework of the national response to the pandemic, municipalities – in accordance with their political will and budgetary capacity – would guarantee the payment of water services for the low-income population. This measure could have benefited a small number of community aqueducts that met the norms for accessing indirect subsidies and which were already registered with the SSPD. However, as a member of the Vereda Platanito aqueduct from Barbosa (Antioquia) explained to us, “applying is not a option because they demand a number of documents, procedures of infrastructural conditions that we would never be able to comply with.”

The municipal aqueduct AQUA7, from the town of Acacias (Meta), was able to access this subsidy because it met the basic requirements and was registered with the SSPD, and therefore the local municipality had already agreed to subsidize it. However, after a more detailed evaluation of the scope of the grant, the members of the aqueduct decided that the bureaucratic process involved too much effort, resources and capacities. Another aqueduct that managed to access this emergency grant was Nariño y Palo de Agua, from Lorica, Córdoba. This aqueduct had already received the ordinary subsidy; therefore, during the months of May and June, the Lorica mayor’s office decided to cover the remaining payments with

the emergency grant. However, the members of the community thought that the government would continue to pay indefinitely for the water services, which created confusion in family contributions that have affected the financial viability of the aqueduct.

In the words of a member of the Bonza aqueduct, from Paipa, Boyacá: “The government misinforms the population by issuing decrees that do not take into account the particular profile of community aqueducts and which confuse users about the payment of fees.” A member from the Nariño and Palo de Agua stated, along the same lines, that “these measures are good only for larger aqueducts; but for us, being a small organization, it has been detrimental, because it forces us to guarantee the service while relying only on the economic contributions of our members.”

The pandemic also triggered the launch of a new subsidy specifically aimed at rural water providers via Decree Law 819. In Colombia, there were no subsidies for rural aqueducts. According to the government, it was conceived as a “pilot test.” The intentions are good, but the barriers to accessing the subsidy remain. There is an increasing pressure for the aqueducts to register with the SSPD. The registration entails a large number of requirements, procedures and bureaucratic costs, as well the strengthening of a model of water management and provision based on market logic, subsuming the communal nature of the aqueducts to a commercial and bureaucratic ethos. Among other conditions, they are forced to adopt the methodology to calculate the tariff defined by the state under business-as-usual parameters, as well as a series of administrative expenses and very high cost overruns that also go against the principles of reciprocity and solidarity.

COMMUNITY WATER PROVISION DURING THE PANDEMIC

Ensuring access and quality of water services has always been a concern of community aqueducts. According to their capacities and particularities, they have implemented appropriate technologies

and strategies to manage and protect hydrographic micro-basins. Recently, in times of Covid-19, the network of aqueducts published a report entitled *General Recommendations for Responding to the Pandemic* with community-based water provision practices, which proposes concrete measures for the safe provision of water using both centralized chlorination systems and decentralized methods of disinfection for households (RNAC 2020b).

Measures to guarantee water access and quality

Even though the bibliography consulted by RNAC acknowledged that there was no evidence of the survival of the Covid-19 virus in drinking water (CDC 2019, MSPS 2020, WHO 2020), community aqueducts called on themselves to implement additional protocols for cleaning and treating water. With the novel coronavirus being an unknown and poorly studied pathogen, the community aqueducts were concerned about the way the virus could spread through the water services. Guided by precautionary principles, the RNAC promoted behavioural changes on its own.

According to our survey, 94% of the participating organizations have taken additional measures on water quality, while the remaining 6% considered this unnecessary. Among the additional actions implemented, the following stand out: the intensification of monitoring and community work, additional upkeep of the environmental conditions of hydrographic micro-basins, infrastructural improvements, and the design and implementation of additional protocols for the treatment and purification of water.

Monitoring and community work

Among the actions launched during the pandemic, RNAC representatives stated that local communities have intensified their efforts to monitor the proper functioning of local water systems and repair any damage. Mutual aid or intra-communal cooperation through mingas and voluntary workdays have been dedicated to build, repair and maintain local aqueducts in times of Covid-19. Even though

local assemblies or other meetings of large groups could not be organized, the distribution of tasks and the rotation of responsibilities among community members have continued,

In the case of an aqueduct run by an indigenous community in the municipality of Pasto-Nariño, “when we face any problem with the infrastructure, such as when a hosepipe breaks down or gets clogged, the community gathers and one of us goes up to the mountain to fix it without any additional help”, as one of its members told us in an interview.

These emergency response actions have generally been accompanied by innovative communication strategies. In the case of the aqueduct run by Asociación Vecinal de las Aguas de Caluce (ASOAVEAGUASCALUCE), a plumber and a local female leader have assumed the main responsibility of monitoring the water system on a daily basis, but the community relies on an early warning system that involves all its members. This organizational structure facilitates communication about damages, fires, or any other problem or risk in the micro-basin, and is supported by a WhatsApp group to ensure rapid response.

Safeguarding of the micro-basin

“The quality of the water is a reflection of the state of the micro-basin.” This is the slogan of many community-run aqueducts. The rigorous and constant community work to secure the conservation of the water basin is based on the coordination of multiple efforts, such as participatory restoration processes, educational campaigns for children, donation rallies and communal pressure on environmental authorities to protect water sources and the local environment.

In general, these are practices that were already in place prior to the declaration of a national emergency in response to Covid-19. One such example is the purchase of land to reforest the micro-basin decided by the Acueducto Ojo de Agua de Palmarito. However, by focusing on ecological restoration, these actions highlight the

capacity of these organizations to serve their communities in the midst of a crisis. The capacity to react during emergencies became clear when an aqueduct in the department of Santander was able to cover the needs inhabitants of a neighbouring village badly affected by the summer drought and facing a water shortage.

According to a member of the Platanito village aqueduct, from Barbosa, the community is in a constant struggle to protect “*la piel de la microcuenca*” (“the skin of the micro-basin”). This is to avoid “the loss of vegetation cover, which makes the water hit the ground too hard and washes the dirt into the intake, contaminating the community’s water” (personal communication, August 18, 2020).

Another best practice originates in an aqueduct from the municipality of Palmira, in the department of Valle del Cauca, where the community aqueduct is today widely acknowledged as a leading environmental and social organization. Such recognition has been the outcome of more than 15 years of work in defence of the territory and for the restoration of the Los Naranjos micro-basin to which the community belongs.

This process began with a participatory diagnosis of the local ecosystem. The environmental restoration included actions such as planting native trees, isolating core areas, community monitoring, and organizing waste collection days as *mingas* with the help of forest rangers from a neighbouring community. In addition, the members of the local aqueduct have built strong alliances with external actors, such as the Palmira branch of the National University of Colombia and the University del Valle, with whom they have been working for over a decade.

Among the achievements highlighted by local community leaders is the recovery of forests in the borders of reclaimed areas, in collaboration with the farms located near the water sources. Initially, the farmers had agreed to respect a protected area of a maximum of 30 metres from the source, but today there are some extending to 100 metres or more. These protected areas, as reported by a local community leader whom we interviewed, have allowed nature to

recover and become active biological corridors that guarantee that the water remains in the micro-basin longer and that it is good quality water (personal communication, August 12, 2020).

Another best practice centred on the preservation of the micro-basin has been the work carried out by an aqueduct from the municipality of Acacias, in Meta, which emphasizes the importance of environmental pedagogy. The local community implemented information and awareness-raising campaigns aimed at reducing household water consumption and the proper discharge of domestic liquid waste, as well as an initiative with children from local schools, in which each child became responsible for a plant, took care of it for six months and then re-planted it near the water intake.

The work around liquid waste is very important because the local community has been applying appropriate technologies in areas unreachable by the municipal sewage system, due to topographic barriers and the long distance between houses. Rural households separate the waters that contain excrement from the “grey waters,” which refer to those generated by the kitchen, laundry, shower and sink. For the treatment of the former, the rural population use septic tanks.

For the latter, they use bio-planters, a technology that simulates the natural processes of decomposition of organic matter that occur in nature; also referred to as artificial wetlands, these mechanisms consist of a simple gravel and stone filter upon which semi-aquatic plants are grown.

This basic technology removes pollution through a recycling sequence and prevents surface and underground water sources from being contaminated by untreated wastewater discharges. Technologies like this are very important, since the World Health Organization has reaffirmed the need to keep the water consumed by households as clean as possible (WHO 2020). In consideration of these practices, we can assert that the water supplied by many rural aqueducts has not been polluted and therefore reduces the risk of transmission of Covid-19 or other pathogens.

Infrastructural improvements

Another strategy widely adopted by the community aqueducts during the pandemic was to improve their local infrastructure. For example, the Resguardo de Bonza Regional Aqueduct in Paipa, Boyacá, changed the filter beds to improve the efficiency in the retention of suspended material (less turbidity). Likewise, other aqueducts renovated or expanded their systems to reduce the amount of solids present in the water. In the town of Acacias, in Meta, the community installed a new intake in an alternate water source after the river from which they used to get the water was found to carry a large quantity of suspended solids during the rainy season, making its treatment very difficult.

Other aqueducts repaired their storage tanks to avoid infiltrations that could cause the deterioration of water quality. In other locations, local communities replaced the pipe networks to prevent microbiological contamination of water. Some aqueducts also addressed the challenges posed by the increase of water users, since in some locations – such as in Las Ánimas-Piedrahita or in Cascajo, in the department Antioquia – more families have moved to the countryside. On the other hand, in rural territories more dependent on tourism, such as El Encano, in the department of Nariño, water consumption has decreased since the pandemic erupted.

Water treatment, purification and cleaning protocols

During the pandemic, the measures taken by community aqueducts have included: increasing the frequency and intensity of cleaning and disinfecting their facilities, treatment plants and storage tanks; pre-chlorinating intake water; disinfecting surfaces; and cleaning household filters and storage units. They also extended the water boiling times and the exposure to solar radiation, among other actions.

Members of the Acueducto Regional Resguardo de Bonza in Paipa, Boyacá, informed us that the treatment plant installations are being cleaned and disinfected more often, with emphasis on wash-

ing the filters and the storage tank (personal communication, August 10, 2020). Similar practices were reported by members of an aqueduct in Palmira, Valle del Cauca, which managed to improve their water quality standards, even though before the Covid-19 emergency they were already complying with current regulations in terms of water quality.

In some cases, in addition to the cleaning tasks, the use of chlorine as a disinfectant was introduced or expanded. Its use in rural areas has been the subject of great debate due to the multiple uses of water in the Colombian countryside. In rural areas, water is used for human consumption, cleaning homes, watering the garden, feeding domestic animals, sustaining agriculture and livestock, etc. These diverse uses have led some community aqueducts to consider that it does not make sense to chlorinate water as part of conventional centralized treatment methods, which is why they have favoured the adoption of domestic treatment systems and safe storage of water for consumption as alternatives. This political stance is not the only reason why there are cases in which there is no centralized system to treat the water and supply raw water to the fields. Other reasons that explain such an absence are the topography of the land, the types of supplying sources (surface or underground), the distance between farms, cultural aspects, other understandings of development and a lack of money.

However, the commitment to guaranteeing safe water and the prevention and control of contagious diseases such as the Covid-19 virus have also been fundamental for the aqueducts that have continued to operate during the emergency. Some aqueducts have, for example, organized campaigns so that households become more aware of the importance of water purification. An aqueduct from Ocamonte, in Santander, has held awareness days where they emphasize the importance of purifying water for household consumption either by boiling it or by using individual filters. A member of another aqueduct from Páramo, also in Santander, told us that their historical solution had been to buy “clay filters for each house to

ensure that everyone has access to drinking water” (personal communication, August 3, 2020).

In summary, there is not a “single” option for the treatment or purification of water, as intended by the regulations stipulated in Resolution 2115 of 2007 of Colombia’s Ministry of the Environment, Housing and Territorial Development, which refers to the *Índice de Riesgo de la Calidad del Agua para Consumo Humano* (Risk Index for Water Quality for Human Consumption, IRCA) as the basic instrument. To calculate this indicator, the ministry assigns a risk score of 15 points to the *cloro residual libre* (free residual chlorine) parameter, which affects any aqueduct that does not use chlorine as a disinfectant but maintains it as a residual: even if they comply with the other required parameters (there are 20 of them) they will be marked as a risk to public health, meaning that the water they supply will be considered not suitable for human consumption.

CONCLUSION

Community aqueducts are governed by customary rules. They carry out public works and deliver services that do not depend on the state. Moreover, they tend to view the state with distrust and concern, being conscious of their subordinate relationship with the government and the imposition of measures that, instead of strengthening the community organizations, have ignored them. However, there are also many aqueducts that want to change the way they relate to the state in terms of what they believe the notion of *Estado Social de Derecho* (enshrined in the Colombian constitution) should really mean: the state ensuring the rule of law, equity and the social wellbeing of every citizen.

Community aqueducts are understood as heritage, sovereignty, peasant and indigenous identity and self-management. They are important because they are the social mirror of the territory and the guarantors of the human right to water. Without their existence, many communities would not have water. They are also a successful

community alternative for managing collective needs and strengthening local ties and networks from the grassroots.

As was explained to us by water activist from the ASOAVEAGUAS-CALUCE aqueduct:

We are the life of our community because a territory without water would die, and therefore we represent the future of our descendants. We are the ones who really love this water, because we do not see it from the capitalist point of view, but from the social and community point of view. And because we have a sense of belonging and love for our community we must continue to rely on ourselves, to move on, to support the processes that we have built for so many years and which were initiated by our grandparents, our uncles and our neighbours, protecting this great inheritance for our children and grandchildren.

Likewise, in the words of another water activist, from the neighbourhood aqueduct AQUA7 (from Acacias, Meta):

This means everything to us. We have been building AQUA7 for 48 years, and only once have we had to request external engineering services. Every other time, all the works that the aqueduct has demanded have been carried out by our community and by professionals who have come from the same community. For us, that is important, because it is a process of defending our identity. Our people get to build and operate the water network, so we only need to bring the materials we might need from outside, carrying them on the back of a mule. And all that leads to our people falling in love with the aqueduct. If someone is linked at some point with our association, all his or her life will remain linked to it, and the other way around. Our grandparents built this and we are now the generation of their grandchildren, so what better way to

move forward than strengthening this process, and now with more structured and better designed knowledge, relying on the empirical knowledge of our communities, which is also quite extensive.

At the beginning of the pandemic there were many constraints, such as those resulting from the impossibility of meetings to manage or operate the aqueduct. Several activities that community organizations had programmed had to be postponed or cancelled. The relationship of many aqueducts with public administration during the pandemic has also changed. This is because the emergency coincided with the beginning of new local and regional governments, and with the start of the implementation of the multi-year *Plan de Desarrollo Municipal* (Municipal Development Plan). In several localities, the aqueducts were not taken into account when preparing the local plans, and municipalities are not convening community organizations to participate in local decision-making structures and processes.

In a broader sense, the relationship with the state in general has been problematic. The connection with the SSPD is also detached. The community aqueducts do not see viable scenarios of dialogue with the institution because their surveillance and control objectives contradict the aqueducts' practices and principles of solidarity. There are cases of aqueducts that signed agreements with the SSPD and ended up losing their autonomy and organizational profile, transforming their community practices into those that are typical of a business-driven organization. A rural aqueduct cannot conceive of its own existence without having its autonomy and community organization guaranteed.

The economic impacts will be seen more clearly in 2021, since the budget will be reduced, affecting the capacity to improve the network or fix damages to the water system. The economic requirements of the SSPD are very high for community aqueducts: in addition to imposing a changed rate structure, the requirements

also include mandatory contributions to support state institutions (including interest on arrears in which the charges had been suspended by agreement between the SSPD and the community organizations). These costs are compounded by the annual registration fee with the Chamber of Commerce, a private institution on which the recognition of the legal status of community organizations depends. Although the very existence of community aqueducts implies a commitment to community beyond a purely instrumental logic and appeals to social bonds and local solidarity, there is increasing uncertainty about their future and the survival of community-based water organizations in rural and urban territories.

In environmental terms, they face new challenges related to water scarcity, due to the lack of reforestation in the upper segments of the water sources caused by the lack of commitment of public authorities. One solution would be for the state or the aqueduct to acquire the land surrounding water sources and enable reforestation with the participation of the community. There is a clear need to extend current initiatives in the area of environmental awareness for the conservation and proper use of shared water resources.

Another challenge is the management of wastewater, which is polluting the land and ends up in rivers. Likewise, there are threats to territories posed by extractive mining, monoculture, agribusiness, large-scale cattle ranching and outsized energy projects. For example, ongoing energy projects throughout the Andes Mountains risk destroying entire native forests.

The crisis prompted by this pandemic has demonstrated the power of community-based water resource management founded on the principles of solidarity economy. This reaffirmed consciousness drives the need for the state to recognize and reaffirm community-based management as its own legitimate form of maintaining and ensuring the conservation, restoration and protection of micro-basins and water springs, thus guaranteeing the wellbeing of local communities. The RNAC network has been supporting initiatives aimed at defending local community organizations, including

the elaboration of new legal mechanisms that acknowledge the importance and particularities of community-based water provision. This also means a reconsideration of the right to water by taking into account its diverse components: an individual dimension (water for human consumption), a collective dimension (protection of water basins) and a community dimension (the legal recognition of community-based water provision). This approach has not yet been fully incorporated into national laws, but it has become a collective roadmap for local advocacy and further engagement in national and international processes.

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