

A Case study of WASH on COVID-19 response

Scoping study 2020



A Case study of WASH on COVID-19 response: Scoping study 2020

Fundación Cántaro Azul, A.C.

Calle Franz Bloom #4, Barrio de Cuxtitali, C.P. 29230

San Cristóbal de Las Casas, Chiapas, México

+52 (967) 631 58 17

mas@cantaroazul.org

www.cantaroazul.org

Mexico, October 2020

This study was funded by the Ulster University and prepared by Fundación Cántaro Azul, A.C.

The interventions described in this document were carried out thanks to the support of the following institutions:

W.K. Kellogg Foundation

Fundación Gonzalo Río Arronte

UNICEF

Amigos de San Cristóbal

Creative Learning

Centro de Investigaciones en Salud de Comitán

Municipio de Berriozábal

Municipio de Chanal

Municipio de San Cristóbal de Las Casas

Boehringer Ingelheim México

Rotoplas

Zucarmex

Clarimex

Photo credit:

Cántaro Azul team: Cover, p. 2, 3, 5, 19, 23, 25.

Community Monitors: p. 14, 15.

Illustrations and designs credits:

Cántaro Azul: p.1, 5, 22.

©Tequio: p. 10.



This document is the original work of Fundación Cántaro Azul, A.C. and is licensed under a Creative Commons Attribution-Non-Commercial-ShareAlike 4.0 International license (CC BY-NC-SA 4.0).

<https://creativecommons.org/licenses/by-nc-sa/4.0/deed.es>

This license allows copying, redistribution and construction of the original material as long as the original content is appropriately credited, its use is non-profit and any derivations are shared under the same original license.

A Case study of WASH on COVID-19 response

Scoping study 2020

Contents

| | |
|---|----|
| Introduction | 1 |
| Response in Communities | 2 |
| Distribution of hand sanitizer gel and information..... | 3 |
| Hand hygiene stations in public spaces..... | 11 |
| Response in Schools | 19 |
| Health in your Hands..... | 20 |
| Hand hygiene stations in schools..... | 23 |
| Challenges & lessons learned | 26 |

Introduction

The coronavirus disease 2019 (COVID-19) in the Americas region, as of September 24th 2020, accumulates 15 872 421 cases, including 536 948 deaths, representing 50% of the total confirmed cases and 55% of the total deaths worldwide ¹. On the same date, Mexico reported, 710 049 confirmed cases and 74 949 deaths ².

Mexico's Ministry of Health chose to use the sentinel model, a model adopted by Mexico since 2006, as a strategy for the evaluation and epidemiological surveillance of COVID-19. As of March 23th 2020, school activities were suspended ³ and as of March 30th, only activities considered essential were allowed ⁴. The Mexican government asked the general population to stay in their homes as long as possible, but no general mandatory confinement was declared, nor were air or land borders closed. The country's socioeconomic characteristics make strict and generalized confinement measures somewhat complicated to implement and sustain.

In addition, the lack of access to adequate conditions for Water, Sanitation and Hygiene (WASH) and the necessary supplies for hygiene (such as soap or alcohol gel), means that many localities and states in the country are in a situation of disadvantage in the prevention and control of the epidemic. Many places continue to be crowded and, therefore, are potential sources of transmission where it is required to take extreme preventive measures. The provision of safe water, sanitization and waste management and hygiene conditions is essential for the preventing and protecting human health during any infectious disease outbreak, including COVID-19.

Cántaro Azul, as a Mexican non-profit organization, works in the Water, Sanitation and Hygiene (WASH) sector since 2006. During these 14 years, Mexico has faced various emergency situations in which Cántaro Azul's participation has contributed to facilitating access to decent WASH conditions in different establishments (schools, health centers, shelters, households, and communities). Committed to our mission and having experience in response to similar emergencies, particularly during the pandemic caused by influenza A (H1N1) in 2009, we decided to engage in alliance with other institutions and communities designing, implementing and evaluating solutions that contribute to the prevention of the transmission of COVID-19.

Cántaro Azul works in rural communities mainly with two direct partners: school communities and community authorities responsible for water and sanitation management. This collaboration is carried out through two programs, Safe Water in Schools and Our Water Community Management. The interventions that were designed in response to the COVID-19 emergency took into consideration the particular needs of each of the direct partners and were intended to respond mainly to two objectives:

1. Enable correct and frequent hand hygiene.
2. Provide adequate and contextualized information on the COVID-19: transmission routes, prevention measures, symptoms, and actions to be taken in case of identifying suspected cases.

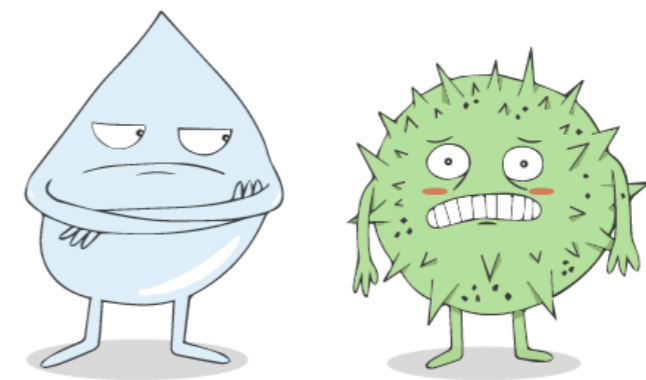
1 WHO Coronavirus Disease (COVID-19) Dashboard. <https://covid19.who.int/>

2 CONACYT general data dashboard on COVID-19. Government of Mexico. <https://coronavirus.gob.mx/datos/>

3 DOF: 16/03/2020. https://www.dof.gob.mx/nota_detalle.php?codigo=5589479&fecha=16/03/2020

4 DOF: 21/04/2020. https://dof.gob.mx/nota_detalle.php?codigo=5592067&fecha=21/04/2020

5 Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19. Interim guidance. 29 July 2020





Response in Communities

Within the framework of the Our Water Community Management Program, a strategy called "**Community Strategy against COVID-19**" was designed, which was made up of two sub-strategies:

- 1. Distribution of hand sanitizer gel and information on COVID-19.**
- 2. Installation of hand hygiene stations in public spaces.**

Approach

Setting and selection: we parted from the analysis of the baseline information of the program, which allowed us to understand the water, sanitation and hygiene conditions of the communities where we advocate to strengthen community water management capacities and provide basic sanitation. From a list of 93 communities, 70 were selected in seven municipalities (Chenalhó, Pantelhó, San Juan Cancuc, Sitalá, La Trinitaria, Tenejapa and Berriozábal). To this set, 27 medical units, 69 midwives and 63 health promoters were also added. For the selection, the only criterion used was the lack of access to water for adequate hygiene practices; that is, we included those communities where the resource is scarce, a situation that worsens in the dry season –April and May-, which coincided with the intervention period.

Intervention: Activities began on May 11th, 2020 in the municipality of La Trinitaria and concluded on June 3rd of the same year. A total of 13 people, with defined routes, and constant monitoring, distributed the hand sanitizer gel for approximately 17 days. In the first communications with the community authorities, the need to provide adequate information and for this information to be presented in the local language was evidenced, since it was identified that they were receiving false information about the nature of COVID-19, its implications and the recommendations to follow. From this identified need, information was generated about What is COVID-19? How do we wash our hands with soap and water? And what is hand sanitizer gel and how can we use it? The information was shared through canvases and brochures in Spanish, Tselal and Tsotsil that were delivered along with the hand sanitizer gel.

Once in the localities, Cántaro Azul delivered hand sanitizer gel and informative materials to community authorities such as committees, boards and municipal agents, who in turn were in charge of direct distribution to families. The visit to each community was short the time necessary to deliver the materials and explain the strategy. The Cántaro Azul team used masks at all times and kept social distance.

As a consequence of the COVID-19 emergency, Chiapas suffered a rapid shortage of hygiene supplies such as hand sanitizer gel. Cántaro Azul took the decision to open Tequio, a production plant for this and other hygiene supplies, to face this situation (for more on the Tequio experience turn to page 10). Hand sanitizer gel distribution was possible once Tequio began operating. Coordination between both teams was constant to ensure that the necessary volume of hand sanitizer gel was available for distribution.

Data collection: Telephone and face-to-face communication with the community and municipal authorities allowed an exploratory study to be carried out and results to be obtained in relation to the way in which the communities were facing the health emergency and first-hand reports of their real needs. Data was obtained through structured face-to-face or telephone interviews with local and municipal authorities, and direct observation in the field. The structure of the interview had five open questions. After the intervention, information reported by some localities about the use of the gel by families was obtained.

Information analysis: Content analysis was used to organize and analyze the information. Based on the open questions from the interview, four categories of analysis were established: reactions, attitudes, basic needs, strategies and actions (coming from the municipality). For each category, their respective sub-categories were established from the content of the text of the interviews. To quantify the weight of the categories, a frequency count was made for each of them. At the end, a frequency table was prepared for the elaboration of the graphs.



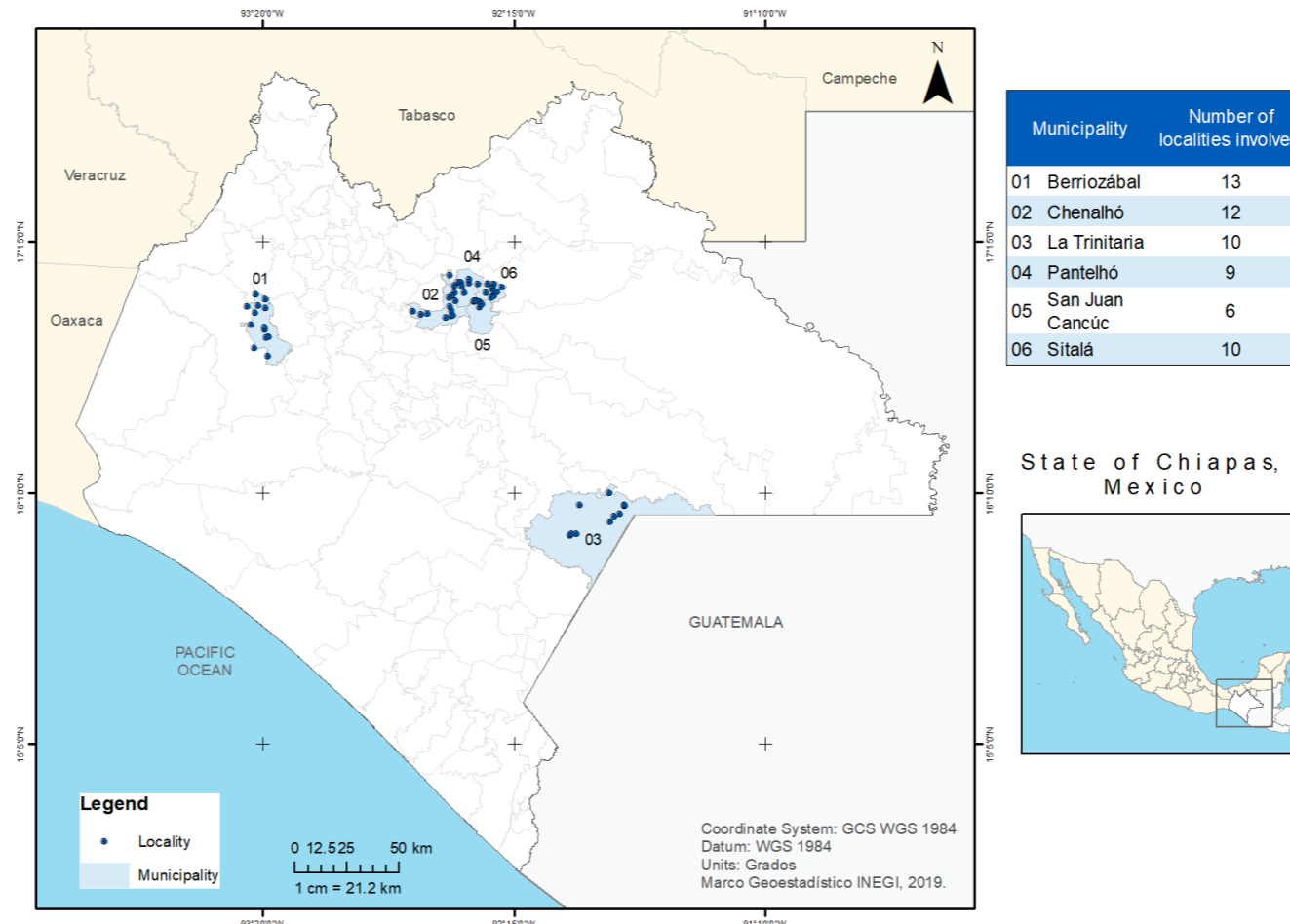
Activity for the delivery of the hand sanitizer gel and information about COVID-19

Coverage

Coverage: The hand sanitizer gel was delivered in six of the seven municipalities considered, 60 of the 70 communities. In these localities and municipalities, the hand sanitizer gel was well received, and the presence of the Cántaro Azul team was generally accepted. In Tenejapa, the last municipality scheduled for intervention, the response was very different. Despite having an agreement with the municipal authorities, the localities did not accept the hand sanitizer gel nor the printed information. This was a consequence of the existing mistrust of interventions in response to “the new disease” (COVID-19) by the government and civil society organizations.

In total, 7 611 liters of hand sanitizer gel were distributed in six municipalities, in a total of 60 locations. Of these, 444 liters were delivered to 38 medical units, and one liter to each of the 37 midwives and 33 health assistants. In addition, 7167 brochures and 60 canvases were delivered in Spanish, Tzeltal and Tsotsil (original languages of the region). During the distribution period in the 60 localities, 101 authorities and 14 members of the water board were interacted with.

Geographic coverage of the COVID-19 hand sanitizer gel and information distribution intervention Figure 1



Results: reactions and attitudes

Community reactions and attitudes in face of the COVID-19

contingency: To the question of what the community's reaction to COVID-19 had been, we differentiated between reactions and attitudes. We understood reactions as the emotions and beliefs that arose upon the news of the new disease and attitudes as the community's position towards the situation. Four main reactions were identified. The most frequent (58% of the communities) was maintaining a general state of tranquility *. Much less frequently, some communities reported having reacted with concern (5%), disbelief (3%), or indifference (3%).

The attitude of the majority of the communities (75%) was to take some kind of preventive measure. Even so, 67% of the communities commented that they carried on with their regular activities on a daily basis, both at home and in the field. Prevention measures were more linked to activities carried out outside the community.

* Understanding tranquility as a state of absent preoccupations, fears or anxiety



Activity for the delivery of the hand sanitizer gel and information about COVID-19

Figure 2 Informative material delivered to the communities

En nuestra comunidad nos cuidamos del Coronavirus COVID-19

¿Qué es el coronavirus COVID 19?
Es una enfermedad nueva que se presenta como un resfriado común. **Sus principales síntomas son:**
• Fiebre • Tos seca • Dolor de cabeza
Otros síntomas son: cansancio, dolor o ardor de garganta, ojos rojos, dolor en los músculos o articulaciones y dificultades para respirar (en casos graves)

¿Cómo podemos prevenir el contagio?
• Lavándonos las manos frecuentemente.
• Tapándonos con el antebrazo al toser y estornudar.
• No tocándonos los ojos, nariz y boca.
• Utilizando nuestro pañuelo como cubrebocas.
• No saliendo a lugares donde haya mucha gente. En caso de ser necesario, tener los cuidados pertinentes.

¿Cómo lavarnos correctamente las manos con agua y jabón?
1 Humedece tus manos con agua. 2 Enjabónalas. 3 Frota las palmas de tus manos. 4 Frota el dorso de tus manos. 5 Frota entre tus dedos. 6 Frota tus muñecas. 7 Enjuaga tus manos. 8 Seca tus manos al aire o con una toalla limpia.

¿Qué es el alcohol en gel y cómo podemos usarlo?
Es una manera de desinfectar las manos cuando no hay agua y jabón. El alcohol en gel también ayuda a prevenir el contagio del virus.
1 Aplicarse una pequeña cantidad sobre las manos. 2 Frotar ambos lados. 3 Distribuyendo de manera uniforme por 30 segundos. 4 Dejar secar al aire.

¿Y si tengo síntomas?
Acudo al centro de salud más cercano o llamo a la línea telefónica:
Atención estatal: 800 772 2020 (responden las 24 horas)

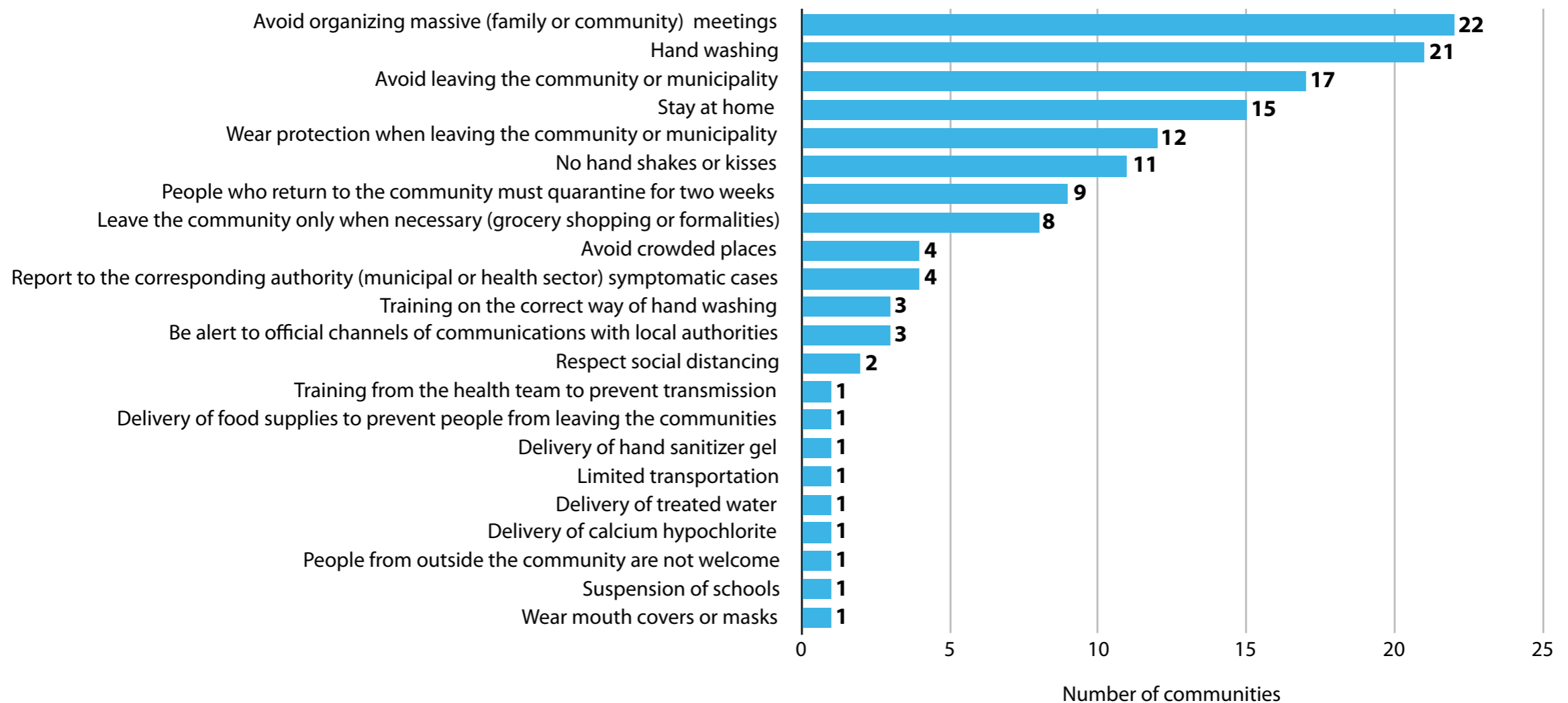
Con el apoyo de la Fundación W.K. Kellogg, la Fundación Gonzalo Río Arronte y Boehringer Ingelheim. cántaro azul

Results: strategies

Community strategies to face the pandemic situation: 15 communities reported not having taken any preventive action. In the other 45 communities, a total of 22 different strategies for disease prevention were identified. The most frequent measures were to avoid organizing massive gatherings (neither with family nor the community), to wash their hands, and to avoid leaving the community and/or the municipality. At least three prevention measures were reported in each municipality. On average, seven measures were implemented per municipality.

Figure 3

Community strategies to face the pandemic situation and percentage of communities that adopted each of them.



Results: municipal authorities

Information and prevention actions carried out by the municipal authorities, and the support received: The municipalities and community authorities reported a series of implemented actions recommended to their communities. The most recurring cited actions were to avoid leaving the community and/or municipality, to avoid organizing mass meetings (family or community), and not to shake hands. It should be noted that one of the most frequent measures promoted by the municipal authorities was to continue with daily activities in a normal way as long as they did not involve leaving the community. That could have influenced one of the main attitudes of the community, which was to continue normally with their daily activities, especially at home and in the fields, spaces that the authorities identified as low-risk places.

Figure 4

Actions recommended and implemented by municipal authorities and percentage of communities reported.

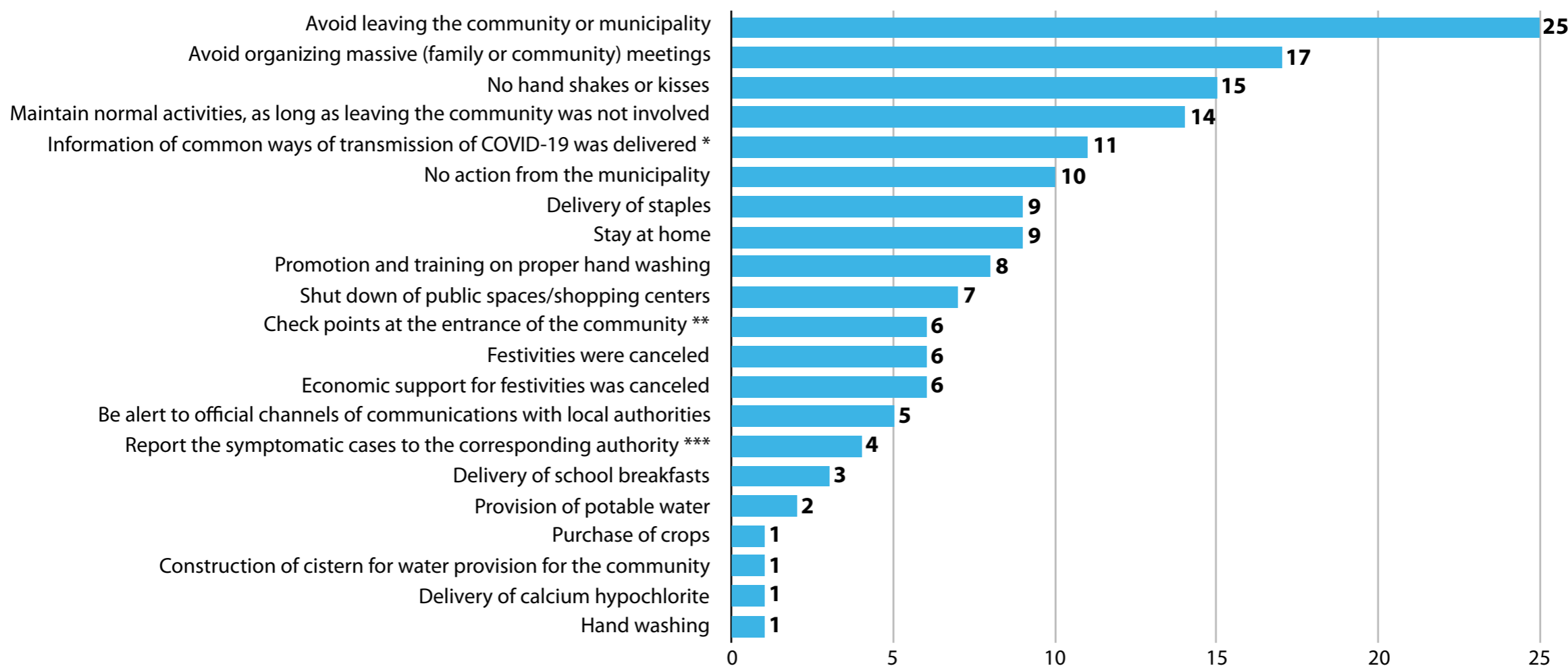


Chart notes: * Information on the common routes of transmission, symptoms and prevention measures / ** Temperature measurement and distribution of alcohol gel / *** To the municipal authorities or the health sector

Results: main needs

Needs identified by the population in the contingency period:

The population identified a rise in prices of some staples such as corn, beans, oil, sugar, and salt. However, they expressed that at the time the information was collected, prices had been regulated. Another recurring situation related to the previous one is the shortage of basic products such as foodstuffs, medicine, soap, or toilet paper in the communities themselves. This situation forced the inhabitants to leave their communities. All the communities visited were selected because they lacked access to water, but even so, only 11 of them reported the lack of access to water as one of the main perceived needs in this health emergency situation. Five communities identified the need for information on this new virus and expressed not knowing the ways of transmission, symptoms and effective prevention measures; while four communities reported the need for supplies such as alcohol gel, foodstuffs and water chlorinators.

Community health services: 12 communities reported the lack of a nearby health facility and, therefore, they would have to travel to other locations in order to receive some type of medical attention. On the other hand, in six communities, the existing health facility lacks the medical supplies necessary to treat common diseases in the region. In 15 communities, the presence of at least one midwife was reported, while 51 communities reported the presence of more than one. Midwives are recognized figures in the community because they provide a basic maternal health services. Given these conditions, the main concern expressed by local authorities was the transport of people who might be infected with COVID-19 to one of the closest cities, such as San Cristóbal de Las Casas, Comitán, Ocosingo or Tuxtla Gutiérrez.

Figure 5

Main needs identified by the communities, percentage of communities that reported them.

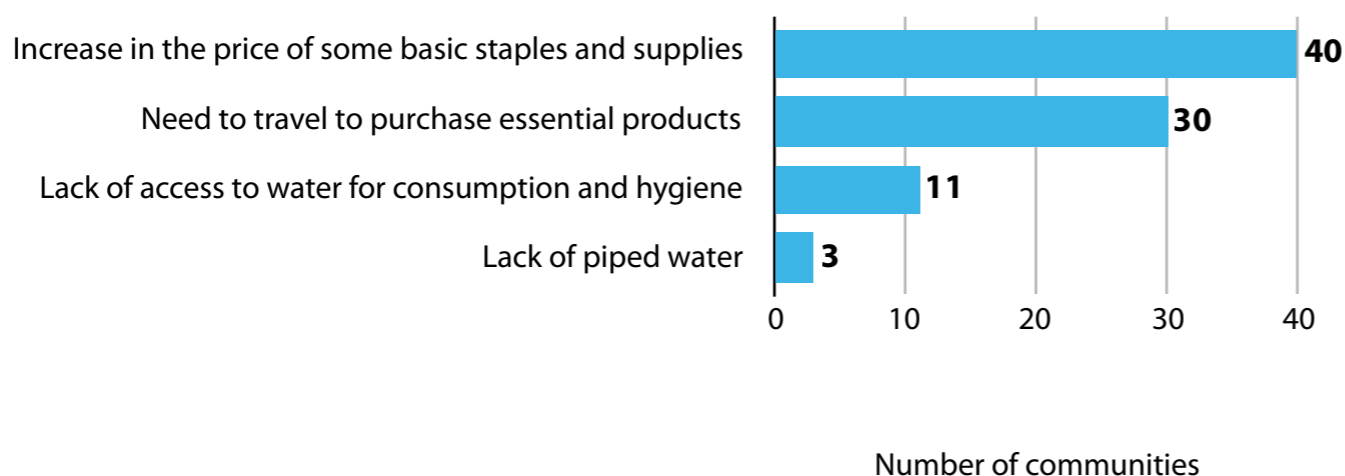


Table 1

Number of communities with health service providers

| Type of health service provider | Number of communities |
|---------------------------------|-----------------------|
| Midwives | 66 |
| Health assistant | 15 |
| Health committee | 13 |
| Health promoters | 11 |

Results: use of hand sanitizer gel

Fear and misinformation: The information collected via telephone prior to the visits to the communities changed significantly during the month of May. In Chiapas, messages were distributed through different channels (mainly social networks) with false information about the disease, its transmission, and the epidemiological measurements that the government was taking, which generated fear and mistrust in rural communities. This mistrust mainly provoked the rejection of suggestions from civil society organizations and the health ministry regarding prevention and care actions to avoid contagion. Around this time, we visited the selected communities in the municipality of Tenejapa. They rejected hand sanitizer gel and hand hygiene stations. In addition, the organization was fined for coming into the villages. We had a prior agreement with the municipality and with some authorities, but we lacked a general consent of the population. The villagers argued that Cántaro Azul wanted to deliver something even more dangerous for their health, that their locality was disease-free and therefore our "help" was unnecessary. They insisted we represented a risk for them, and that the organization had to stand back and take whatever was brought away. The reasons for this reaction can be diverse and cannot be judged from the outside; however, what we could observe is that there is misinformation, on the one hand, and fear and mistrust, on the other.

In some municipalities, fears also arose concerning community water sources, such as the idea that springs or wells were being contaminated. In these towns they told us that they were organizing shifts to monitor the water sources 24 hours a day.

Use of hand sanitizer gel in the communities. We were able to obtain information on the distribution of the gel and its use in 58% of the communities. In 91% of these, authorities reported delivering to the entire community and commented that the gel was received and used by the families. Three communities contacted us to report different situations. In a community in the municipality of La Trinitaria, some of the families rejected the hand sanitizer gel due to distrust and threw it away. In one of the communities of Sitalá, some families sold the gel. Finally, in a community in Chenalhó the hand sanitizer gel was delivered together with merchandising from a political party, and they were told that it was all a gift from Cántaro Azul. This fact raised suspicions about the link between Cántaro Azul with a political party and the families rejected the product.

Table 2

Number of communities that reported using hand sanitizer gel

| | Number of communities where hand sanitizer gel was delivered | Number of communities that reported results | Number of communities that reported using hand sanitizer gel |
|-----------------|--|---|--|
| Berriozábal | 13 | 13 | 13 |
| Chenalhó | 12 | 6 | 5 |
| Trinitaria | 10 | 1 | 0 |
| Pantelhó | 9 | 4 | 4 |
| San Juan Cancuc | 6 | 1 | 1 |
| Sitalá | 10 | 10 | 9 |
| TOTAL | 60 | 35 | 32 |

Description of Tequio experience

Tequio

Tequio means unpaid collective work, and it is an ancestral community practice in Mexico. Tequio is also an initiative by Cántaro Azul, which seeks to be a line of products with a cause. The initiative emerged in March 2020.

Given the shortage of hand sanitizer gel identified in the region as a consequence of the COVID-19 emergency, Cántaro Azul reviewed the feasibility among allies to start an hand sanitizer gel production plant. The following explains how this initiative has evolved, which puts the organization before a new paradigm with the production of hygiene supplies.

Until now, it has been possible to generate basic processes for production that allow a minimum production of 4 000 liters of hand sanitizer gel per week, with equipment that facilitates and improves the filling, labeling, and sealing processes. Tequio achieved enough production for Cántaro Azul to make a donation of over 11,000 liters to families in rural communities, hospitals, health centers, midwives and other allies.



Timeline

March 2020

- Search for input providers
- Find an available place and set it up.
- Operation notice to start plant activities
- Team with capacities to experiment.
- First tests of the formula in the laboratory

April 2020

- First inputs were received
- Polymer research for organic alcohol gel
- Contact with multiple suppliers of basic inputs for production and packaging
- Securing a rent contract of space and equipment for at least 3 months.
- Define an identity - Tequio.

First lot of hand sanitizer gel produced, organic and classic

May 2020

- Production of more than 10 000 liters for families in rural communities begins.
- Constant provision of supplies ensures a sustained production.
- The team with experience to improve the product is strengthened.

June-July 2020

- The commercial area of the project is strengthened.
- Research and testing begin to improve the quality of the alcohol.
- Acquisition of equipment to improve the packaging process.
- The labeling process is semi-automated.
- Boxes with the image of Tequio.

Approach

Setting and selection: The selection of localities and spaces for the installation of the hand hygiene stations (HHS) was carried out in two phases. In the first one, there was a direct request from three municipalities (Berriozábal, San Cristóbal de Las Casas and Tuxtla Gutiérrez) to Cántaro Azul regarding the need to urgently implement water stations for hand washing in public spaces. A financing scheme was used in which the municipalities, Cántaro Azul and Rotoplas contributed to the investment. In a second phase, the city councils of seven municipalities where Cántaro Azul works (Sitalá, San Juan Cancuc, Pantelhó, Chenalhó, Tenejapa, Chanal and Trinitaria) were contacted to offer full financing of the HHS, including materials, transportation, and installation. They were asked to commit to collaborate during the installation, maintenance and monitoring of the infrastructure. The selection of the final location of the installation spaces was indicated by the municipal authorities.

All stations were remotely monitor. In addition, five HHS were randomly selected in the town of San Cristóbal de Las Casas for direct evaluation.

Intervention: In the first phase, between April 9th to 16th, a first prototype was designed, and 18 stations were implemented in three locations (Berriozabal, San Cristóbal de Las Casas, and Tuxtla Gutiérrez). The design of the HHS for hand washing complied with the features set by WHO. Two strategies were used to supply water to the stations: direct connection to the public water distribution network or filling the tanks through a tanker. The gray waters were channeled to the municipal sewage system or through the construction of infiltration wells. Signs were also designed and attached to the water tank in order to show the steps to follow in the correct hand washing technique and warn that the quality of the water was not suitable for human consumption. Being an emergency facility, the municipal authorities were accompanied in identifying the needs to be taken into account to ensure the maintenance and correct use of the infrastructure.

In the second phase, from June 2nd to August 3rd, the technology design was improved, incorporating a pedal to reduce the risk of transmission of the SARS-CoV-2 virus. A first visit was made to the municipal capitals that accepted the intervention to confirm the commitment to install and maintain the stations, as well as to evaluate the technical viability of the site chosen to locate the stations.

Data collection: The main evaluated aspects were: the maintenance and use of the stations. To evaluate maintenance, the following results were analyzed: presence of water, presence of soap, general condition of the infrastructure, hygiene of the infrastructure. The interaction or use of the stations has been evaluated based on the following results: use of soap to wash hands, amount of water used, other user's practices in the stations in addition to hand washing.

Due to the protection and prevention measures during the emergency, such as social distancing and the recommendation to stay at home as long as possible, a strategy for data collection was designed that involved the participation of volunteers who had easy and frequent access to the stations. In this way, the presence of the Cántaro Azul team was reduced only to installation. The people who occupied this role were called Community Monitors. In addition, in the towns of San Cristóbal de Las Casas and Tuxtla Gutiérrez a water flow meter was installed at the hygiene stations. This strategy made it possible to monitor the use and maintenance of the stations remotely. Communication and reporting with the Community Monitors was mainly through WhatsApp and Kobo Collect.

In the five stations selected for direct evaluation, in addition, trained staff were positioned at discrete locations near the stations to conduct structured observations of hand washing practices and other practices carried out by users or by infrastructure maintenance staff. Each observation period lasted four hours. Two different observation times were established during the day. The first from 8:30 to 12:30 and the second, from 12:30 to 16:30. The observations were structured so that each of these five stations had a total of 8 hours of observation spread over different days of the week.

Information analysis: The information reported by the community monitors was recorded in a standardized Excel spreadsheet for the stations after each communication. The rates of correct operation of the facility, and the availability of soap and water were calculated. Structured direct observations were recorded in the Kobo Collect app and downloaded from the Kobo Toolbox platform to an Excel spreadsheet for analysis. The rates of water and soap availability, as well as hand washing with soap rate were calculated. This was used to estimate the number of people who washed their hands at each station. Furthermore, a qualitative analysis of use and maintenance was carried out using the records from the community monitors and the direct structured observations.

Coverage

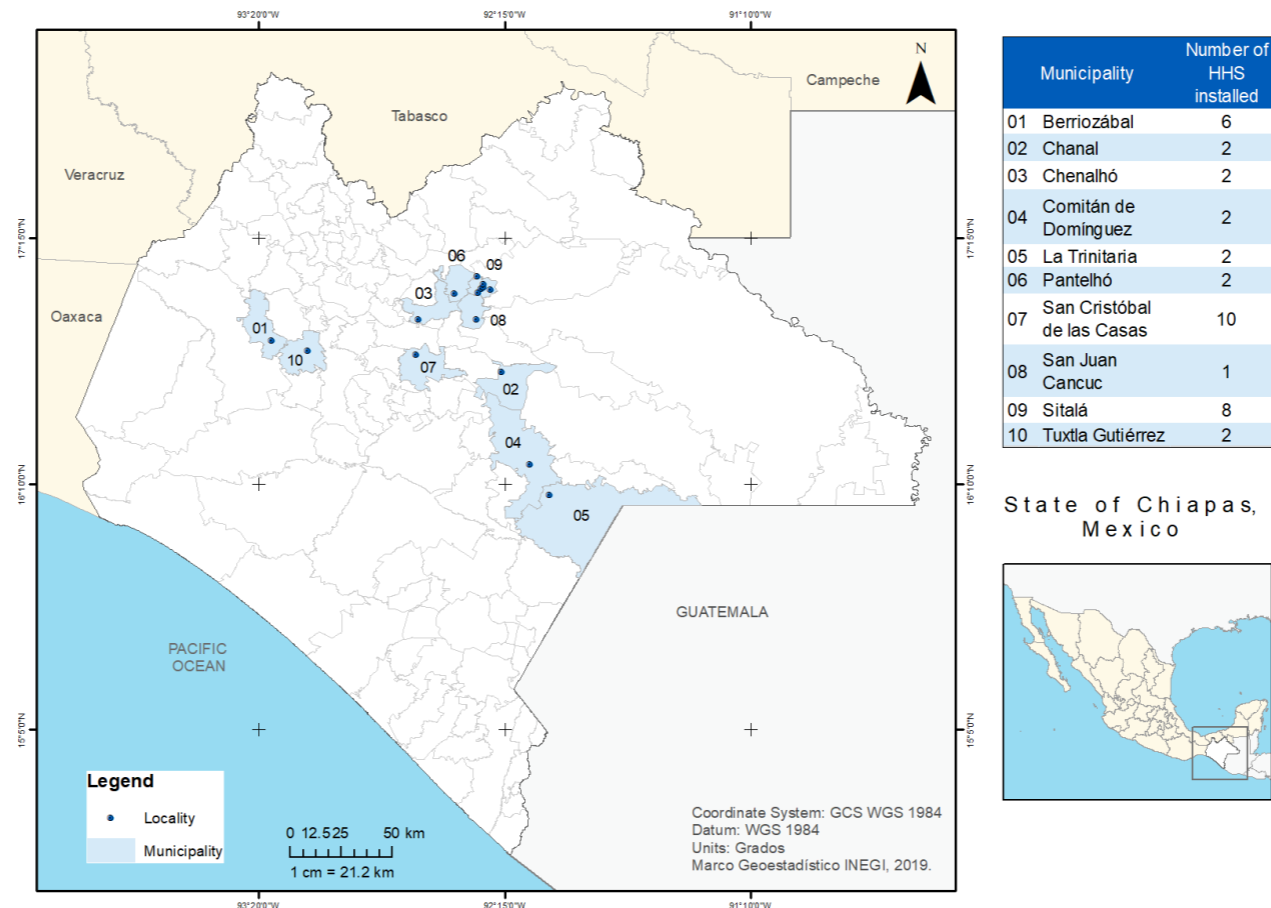
Coverage: 37 hand washing stations were installed, 14 of which are in urban contexts (Tuxtla Gutiérrez, San Cristóbal de las Casas and Comitán) and 23 in rural contexts (Berriozábal, Trinitaria, Pantelhó, Chenalhó, Sitalá y San Juan Cancuc). In the urban contexts, most of the stations (57%) were placed in markets, while in the rural contexts, most of them (39%) were placed in the health facilities.

Table 2 Percentage of HHS installed by type of site and context

| Type of site | Rural | | Urban | | Total | |
|--------------------------------------|-----------|-------------|-----------|-------------|-----------|-------------|
| | N | % | N | % | N | % |
| Health facilities | 9 | 39% | 5 | 36% | 14 | 38% |
| Public administration establishments | 3 | 13% | 0 | 0% | 3 | 8% |
| Public Parks and squares | 4 | 17% | 1 | 7% | 5 | 14% |
| Markets | 4 | 17% | 8 | 57% | 12 | 32% |
| Public transportation | 2 | 9% | 0 | 0% | 2 | 5% |
| Religious establishments | 1 | 5% | 0 | 0% | 1 | 3% |
| Total | 23 | 100% | 14 | 100% | 37 | 100% |

Geographic coverage of the Hand Hygiene Station installation intervention

Figure 6



Results: Community Monitors

Participation of Community Monitors: The Cántaro Azul team was in contact and obtained records from five community monitors from urban sites and fifteen from rural sites in total.


Active participation by community monitors was only accomplished in the cities of San Cristóbal de Las Casas and Tuxtla Gutiérrez, particularly during the first monthly follow-up. The participation of Community Monitors in rural sites was complicated, the Cántaro Azul team had to contact the monitors via telephone, and this was limited to reports of malfunctioning infrastructure or lack of supplies (water, soap).

We had the opportunity to visit all the stations and we found that one of the stations, in the Chenalhó municipality center was abandoned, even though the Community Monitor reported it to be functioning correctly. We have not identified the reason why the actual status of the station was not reported, but we consider that remote follow-up should include photographs of the equipment. Furthermore, mechanisms to retain participation interest by Community Monitors, whose participation is voluntary, should be designed.

Instructions delivered to the community monitors for the HHS follow-up

Figure 7

Hand Hygiene Stations Follow up



If you have this instruction in your hands, it is because you have agreed to follow up on one of the stations that we have installed to increase hand washing and combat the transmission of COVID-19.

For that, and first of all, we want to **thank you!**

You have just joined the team of community monitors at these facilities.

Some of our team members will take your data and we will contact you to obtain the information you collect. Your data will only be used for the purpose of monitoring this hand washing station.

We ask you to take the following steps so that we can receive your information as often as we agree to.

- 1 Wait for us to contact you by **WhatsApp**.
- 2 Send us a photo of the water flow meter, where the numbers can be read.
- 3 Answer the following questions, and send them to us by **WhatsApp** in the same order, indicating the number of the question at the beginning of your answer.
 1. Is the system working properly?
 2. Is there water in the system?
 3. Is there soap in the dispenser?
 4. Is the hand hygiene station being used?
 5. In your opinion, is the hand washing station being used correctly?
 6. Comments: This space is for you to make any comments that you think may be interesting.
- 4 We would love to receive photos of the use that is being made of the system. One or two photos are enough.
- 5 We will send you a message to confirm that we received your information. That easy.
Thank you!

Results: maintenance

Station Maintenance: to date, all the installed stations except for one are functioning. Thanks to the community monitors, needed repairs have been identified. The most frequent among these, have been the repair of soap dispensers and the pedal to activate the water faucet.

In all stations observed in San Cristobal de Las Casas, the presence of municipality representatives responsible for filling up the soap dispensers, cleaning the stations and, occasionally, sanitizing them, was observed. The sanitization frequency varied between half an hour and two hours. 83% of the stations in San Cristóbal de Las Casas and Tuxtla Gutiérrez had water in every account by the community screeners; meanwhile, only 33% of the stations were reported to have soap in every account.



Photo sent by a Community Monitor showing that the soap dispenser is empty. San Cristóbal de Las Casas.

HHS status as reported by Community Monitors, by station

Table 3

| | Number of records | Working correctly | With water | With soap |
|-----------------------------------|-------------------|-------------------|------------|------------|
| San Cristóbal de Las Casas | | | | |
| Downtown | 11 | 100% | 100% | 82% |
| Hospital | 9 | 100% | 89% | 100% |
| Market 1 (1) | 4 | 100% | 100% | 25% |
| Market 1 (2) | 6 | 67% | 100% | 67% |
| Market 1 (3) | 6 | 83% | 100% | 67% |
| Market 2 | 6 | 100% | 100% | 83% |
| Market 3 (1) | 4 | 75% | 100% | 25% |
| Market 3 (2) | 5 | 80% | 100% | 60% |
| Market 4 (1) | 4 | 75% | 100% | 25% |
| Market 4 (2) | 5 | 60% | 80% | 100% |
| Tuxtla Gutiérrez | | | | |
| Hospital (1) | 4 | 100% | 100% | 100% |
| Hospital (2) | 4 | 100% | 100% | 100% |
| Total | 68 | 88% | 97% | 74% |

Results: behaviors

Behaviors identified in HHS users: the data collection to analyze the behavior of the stations' users was challenging. The results that are reported here are mostly from stations set up in San Cristóbal de Las Casas, which contained water flow meters and were subject to direct structured observations. We also obtained specific information from the stations in Tuxtla Gutiérrez.

Table 4 shows the data from accounts by community monitors regarding the use of stations. In all the other stations and throughout the follow-up process the population was reported to use the infrastructure. In 50% of them, a constant appropriate use was reported. In the rest, there were deviations from the correct use in 25% to 83% of the records.

Community monitors did not go into detail regarding inadequate use of the stations. The most frequent comments were associated to stolen soap or the use of the stations for purposes other than hand washing. Reports by community monitors also allow for the identification of the stations that were being underused because of their location. Thanks to this information, the municipality decided to change their location.

Table 4

Use of the HHS per station, as reported by community monitors

| | Number of records | People using the infrastructure | Correct use |
|-----------------------------------|-------------------|---------------------------------|-------------|
| San Cristóbal de Las Casas | | | |
| Downtown | 11 | 100% | 100% |
| Hospital | 9 | 100% | 100% |
| Market 1 (1) | 4 | 100% | 25% |
| Market 1 (2) | 6 | 100% | 100% |
| Market 1 (3) | 6 | 100% | 83% |
| Market 2 | 6 | 100% | 100% |
| Market 3 (1) | 4 | 100% | 75% |
| Market 3 (2) | 5 | 100% | 40% |
| Market 4 (1) | 4 | 100% | 50% |
| Market 4 (2) | 5 | 100% | 80% |
| Tuxtla Gutiérrez | | | |
| Hospital (1) | 4 | 100% | 100% |
| Hospital (2) | 4 | 100% | 100% |
| Total | 68 | 100% | 81% |



Photos sent by Community Monitors showing the use of HHS. Left photo in San Cristóbal de Las Casas, right photo in Tuxtla Gutiérrez



Photo sent by a community monitor showing how the municipality changed the station of place. San Cristóbal de Las Casas.

Results: behaviors

Structured observations were carried out on five of the stations, allowing to identify other practices and uses apart from hand washing. The city of San Cristóbal de Las Casas, as is the case for the rest of the cities in this state, lacks public water fountains. Because of this, the HHS provided free water access in public spaces. The main use they were given has fulfilled their purpose. Even so, the population has also given them different uses common to public fountains. In table 5 we provide a list of the practices observed in the five evaluated stations.

As part of a new hand hygiene campaign, WHO recommends providing universal access to hand hygiene stations in front of all public buildings and transportation centers⁶. Our results inform on the need to comply with this official recommendation. Water in public spaces is clearly a need.

Since they were new infrastructures in the public way and containing attractive supplies, such as soap, the stations are susceptible to vandalism. These were observed only in moments in which no tenders from the local authorities were present. The most frequent action was the subtraction of soap. This was accomplished by breaking the dispenser and other parts of the infrastructure in some stations. Table 6 lists acts that were observed in the 12 evaluated stations in localities within San Cristóbal de Las Casas and Tuxtla Gutiérrez.

⁵ Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19 . Interim guidance. 29 July 2020

Table 5 List of practices observed in the population regarding the use of the HHS in San Cristóbal de Las Casas.

| Other practices observed in users |
|--|
| <ul style="list-style-type: none">● Face washing● Soaking hair● Rinsing mouth● Washing food (fruits, vegetables)● Washing toys● Soaking rags to clean other surfaces● Hydrating flowers for sale.● Playing (e.g. filling up water guns)● Filling up bottles● Giving water to pets |

Table 6 Acts of vandalism observed in the HHS in San Cristóbal de Las Casas.

| Observed acts of vandalism |
|---|
| <ul style="list-style-type: none">● Soap theft (frequently in all the stations)● Breaking the soap dispenser in several stations● Water faucet theft● Disconnection of pipes |

Results: water and soap

Use of water and soap for hand washing: there are studies associating the amount of water used to the reduction of viral contamination on hands ⁷. Reported quantities of water used for handwashing that have enabled reduction of faecal contamination ranges from 0.5-2 litres per person, per handwashing session ⁸. Recent field experiences suggest that 0.2 liters may be enough for a hand washing session ⁹. This fact is highly dependent on the efficiency of the hand washing technique and whether water saving is practiced by opening the tap exclusively to soak the hands initially and rinse them, keeping it closed throughout the rest of the process. According to observations from the HHS the median amount of water employed by hand washing session was 0.3 liters per person, with a range between <0.1 and 2 liters. This result was similar in all of the analyzed stations (see table 7).

During the observations, all the stations always had water and soap. Even so, 29% of the people who washed their hands did not use soap. The percentage of people who did use soap to wash their hands varied notably between locations. In markets 1 and 2, 58% and 50% of the people respectively, washed their hands with soap. These differences appear to be unrelated to the presence of health promoters from city hall. In two instances, the use of soap with no water was observed, as if it were hand sanitizer gel.

7 Mattioli MC, Boehm AB, Davis J, Harris AR, Mrisho M, Pickering AJ. Enteric pathogens in stored drinking water and on caregiver's hands in Tanzanian households with and without reported cases of child diarrhea. Plos One. 2014; 9(1), e84939.

8 Hoque BA. Handwashing practices and challenges in Bangladesh. Int J Environ Health Res. 2003;13 Suppl 1:S81-7.

9 PAHO. Handwashing while conserving water. 2020. <https://www.paho.org/en/news/12-5-2020-video-paho-barbados-psa-handwashing-and-saving-water-during-covid-19-pandemic>

Table 7 Estimated amount of water employed per hand washing event and percentage of soap use, per station.

| | Days elapsed from the installation to the last follow-up | Accumulated water consumption (L) | Average daily water consumption | Median amount of water used to wash hands (L/ hand washing session) | Average daily hand washing sessions | % of people who used soap to wash their hands |
|--------------|--|-----------------------------------|---------------------------------|---|-------------------------------------|---|
| Downtown | 125 | 7,840 | 63 | 0.3 | 209 | 77% |
| Market 1 (2) | 114 | 9,340 | 82 | 0.4 | 205 | 58% |
| Market 2 | 122 | 5,060 | 41 | 0.25 | 166 | 75% |
| Market 3 (1) | 115 | 9,070 | 79 | 0.3 | 263 | 88% |
| Market 4 (2) | 115 | 6,380 | 55 | 0.3 | 185 | 50% |
| Average | 118 | 7538 | 64 | 0.3 | 206 | 71% |

Results: hand washing

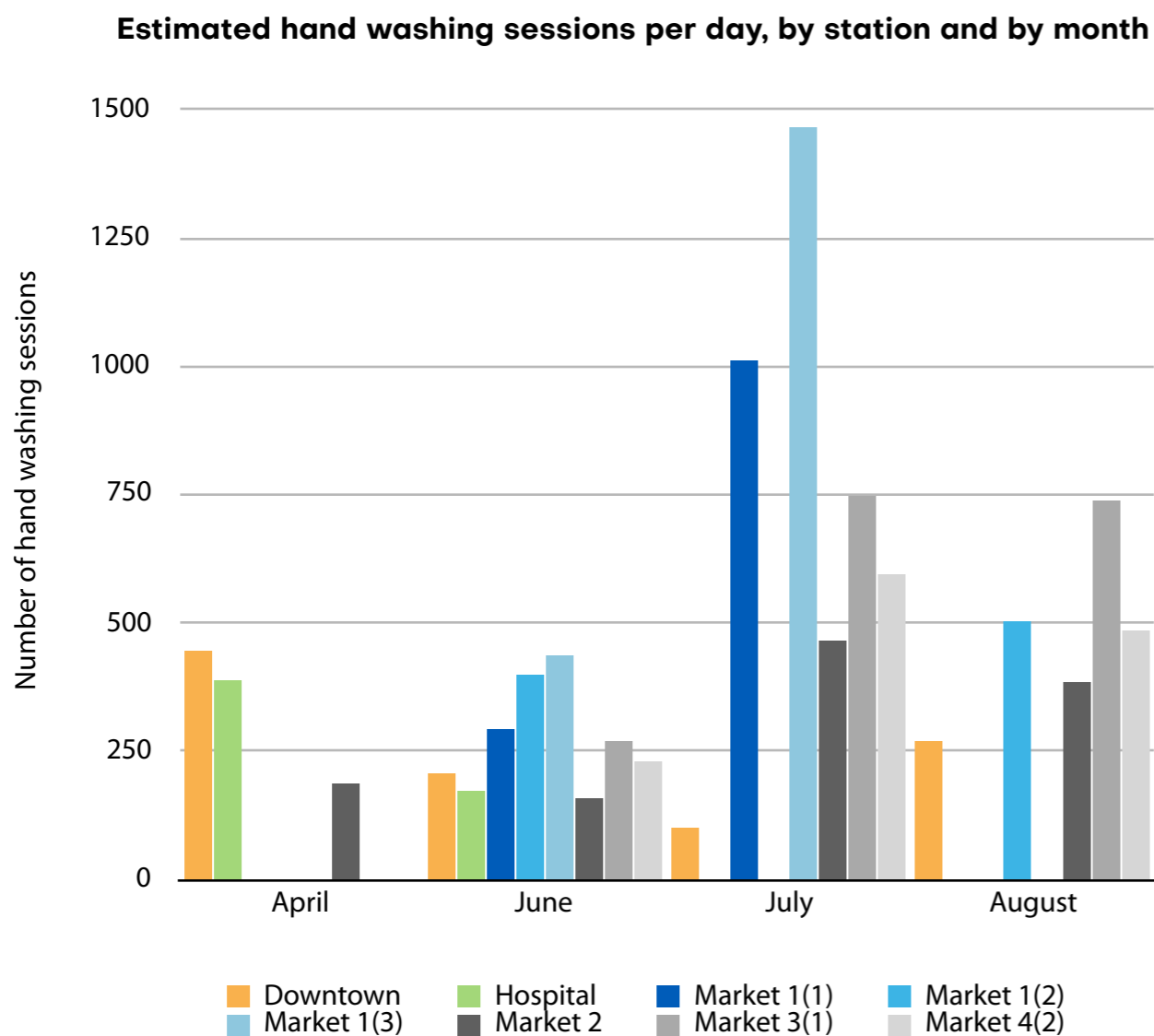


Figure 8

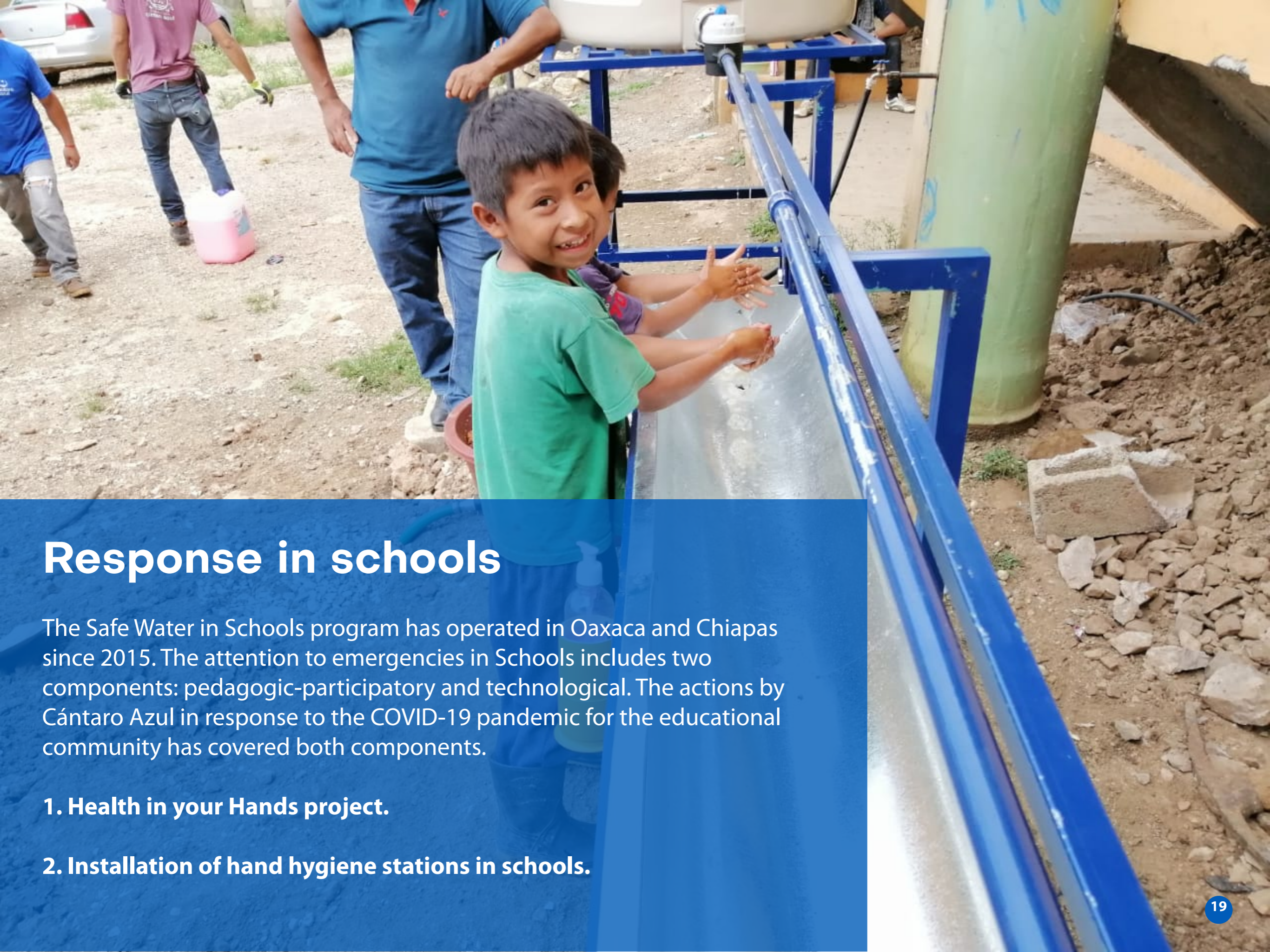
Chart notes: To estimate the number of had washing sessions, we calculated the average liters consumed each month per station and divided it by the median liters calculated from the observational data (0.3 liters/person)

In the five observed stations, the estimated average daily hand washing sessions did not greatly vary. The difference between the most and least used stations was 97 hand washing sessions (table 7). Analyzing the same result per month, we observed that the use of stations varied much more (figure 8). The lack of data for some of the stations in certain months does not allow us to analyze the use patterns throughout the observed period. Regardless, the obtained data leads us to conclude that the stations in the markets were used more often. It is relevant to point out that it is precisely in these spaces that more water was employed with other purposes, particularly to wash fruits and vegetables. This fact may cause us to overestimate the number of hand washing sessions in the markets. Out of the four markets, Market 1 was the one where the stations were most used, especially since July.

HHS Design: this exploratory study also taught us about adaptations that could be incorporated to the infrastructure and the implementation to improve its operation and maintenance. The most exposed spaces, such as markets or town squares, require the stations to have a more robust design to avoid damage to the infrastructure. We consider the current design to be appropriate for spaces with some degree of vigilance and care.

Thanks to the observations, we were able to identify that the infrastructure may not be adapted to all needs. Children were observed using boxes to reach the sink. In San Cristóbal de Las Casas there are many children who are vendors or street walking workers who move around the public space unaccompanied by adults. The installations should be adapted to satisfy everyone's needs.

We identified that, in the Sitalá and Chanal municipalities, in which the installation of the stations was in charge of the authorities, there was a bigger commitment to their maintenance and care. The installation of technology should be hand in hand with a strategy for its operation and maintenance. We consider that municipal authorities, who are responsible for providing access to water, should be involved throughout the process to guarantee their commitment.



Response in schools

The Safe Water in Schools program has operated in Oaxaca and Chiapas since 2015. The attention to emergencies in Schools includes two components: pedagogic-participatory and technological. The actions by Cántaro Azul in response to the COVID-19 pandemic for the educational community has covered both components.

1. Health in your Hands project.

2. Installation of hand hygiene stations in schools.

Approach

Cántaro Azul, collaborating with UNICEF Mexico, has launched **“Salud en tus Manos” (Health in your Hands)**, an initiative directed at educational communities to reduce the impact of COVID-19 in school environments by generating useful information for children, teenagers, and teachers.

Health in your Hands was first designed in April 2020. Initially, a diagnostic assessment was conducted to understand the general overview of the communication and socialization strategies regarding the COVID-19 pandemic employed by elementary schools. The study included the participation of 40 schools in the state of Chiapas, most of which are in rural settings. This study provided information about the needs of schools in face of the contingency and allowed a better planning process for the actions to carry out within Health in your Hands.

The objective of Health in your Hands is to offer specific strategies to reduce the risk in face of the COVID-19 pandemic within and outside of school settings and to generate continued and sustained hygiene habits. These habits are part of the protection measures for the educational communities to face COVID-19 in rural and indigenous contexts in which frequent hand hygiene is unviable because of lack of water and appropriate facilities.

Health in your Hands was designed to directly impact 45 000 children and teenagers in basic education (elementary and middle school) in five priority states: Chiapas, Oaxaca, Michoacán, Guerrero, and Hidalgo. Furthermore, both the pedagogic and audiovisual materials are being distributed digitally to all the other states in the republic.

Geographic coverage of the Health in your Hands intervention

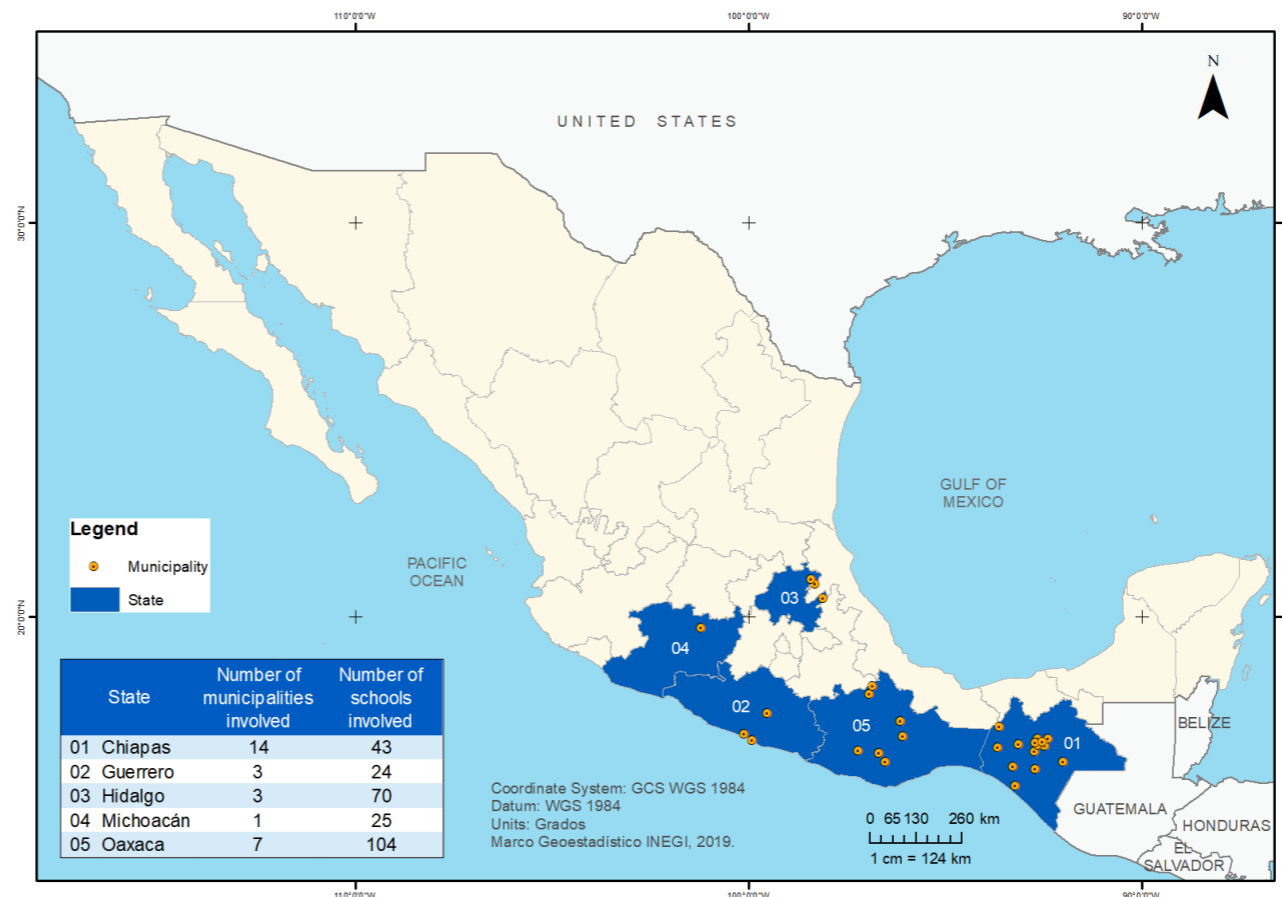


Figure 9

Approach

The intervention includes:

1. A **media campaign** with messages directed at elementary and middle school students, their families, teachers, and the general population.

We worked in a series of key messages directed at school communities at the basic level (elementary and middle school) based on relevant and necessary actions to reduce risk of contagion from COVID-19 focusing on water and hygiene. To date, we have designed 6 capsules, done in collaboration with the National Water Commission (CONAGUA) and an additional one will be developed along with the Helvex Foundation about hydro-sanitary facility supervision to guarantee preparedness in schools. These messages will be launched at the offset of virtual classes in the Aprende en Casa (Learn from Home) platform generated by the Public Education Ministry, scheduled for August.

2. **Pedagogic material package** made up of:

- Activity Guide for children, teenagers, and teachers to work within and outside the classrooms. It is a work tool for students and teachers at the elementary and middle school levels that includes activities, infographics, games, and useful information to work specifically in the prevention of COVID-19 in educational environments. It allows teachers to work on key aspects with children within classrooms or in a remote education format.
- Education of Educators booklet. Built so that supervisors and principal's offices have elements to build capacities with their teachers and other school authorities in the use of the Activity Guide. Along with the strategy of Educating Educators, several supporting documents, audiovisual material and pedagogic material was produced

- Information materials for schools. These are posters and canvasses with summarized fundamental health and hygiene measures to return to classes. Their objective is to disseminate and sensitize the educational community about the recommendations for schools to follow. This information is divided in:

- *General prevention measures at school.

- *School safety protocols.

- *Prevention measures for students and teachers.

This pedagogical proposal is being disseminated through formation spaces organized by Cántaro Azul, UNICEF Mexico, the Basic Education Ministry and State sub-Ministries in the priority states. Through virtual media, personnel responsible for school zones in different states is being trained, so that they can be trainers for Health in Your Hands. They will be in charge of transmitting the information to each of the schools. Cántaro Azul and UNICEF Mexico are providing specific follow-up for needs, questions, and observations regarding the pedagogic proposal.

3. **Distribution of hygiene supplies for educational communities** (bar soap, hand sanitizer gel, masks, and paper towels) in 280 basic level schools (elementary and middle school) in priority states Cántaro Azul is in charge of the distribution of alcohol gel for schools lacking water (within the aforementioned 280 schools), while UNICEF is sending towels, masks, and soap bars to each of the priority states.

First Impressions

As part of our results, using all the produced materials, both pedagogic-educational and informative, Health in your Hands is offering schools the tools to meet the specific needs of these times.

One of the main challenges has been the amount of information, as well as the confusion and lack of trust in information sources. This has led children and teens to require clear messaging, developed using direct language and adapted to them so they can be co-responsible for the care our society currently needs to protect ourselves from COVID-19 and prevent its transmission.

Likewise, educational communities face enormous challenges upon returning to classes, the reality of the end of the last school term was quite different and had to be quickly adapted to the needs created by COVID-19 to society in general.

Currently, Cántaro Azul is carrying out training in each of the states with school authorities. Health in your Hands is being adopted as a strategy that can be a relevant support for schools. Trainers in different states now have the chance to share these materials with many schools and teachers so that the activities, dynamics, games, and proposals aimed at preventing COVID-19 will become a part of everyday teaching activities.

Cover of the training handbook for trainers, aimed at teachers and educational authorities.



Approach

Because of the necessity to increase the practice of hand hygiene in schools, as well as the instructions expressed by Mexico's Education Minister, asking schools to improve the mechanisms to encourage frequent hand washing, and as a response to the COVID-19 pandemic, Cántaro Azul designed two hand hygiene station prototypes for schools.

The stations aim at working as sanitary filters to prevent and decrease transmission of COVID-19 within school communities and they should be implemented in rural schools before returning to classes.

The following criteria were followed for its design: simple design, user-centered, focused on hygiene, lightweight structure, modular design, low maintenance, easy installation, compact so that transportation will be easy, low water consumption, and durable.

Furthermore, UNICEF's "three star" conceptual framework for hand washing was considered, as were the Mexican norms and those of the National Institute of Educational Physical Infrastructure (INIFED).

The advantages of these systems are: low water consumption, prefabricated components, no special abilities necessary for their installation, light and easily transported, replicable with local materials, and low cost. The limitations may include some of the components being unavailable in certain communities, in which case it would be necessary to purchase them in the closest urban centers.

We seek to involve school communities in the installation, the embellishment, daily cleaning, water supply, and regular maintenance of the stations.

Linear Hygiene Station. It has a 450 L storage capacity, allowing 10 students to use the station simultaneously



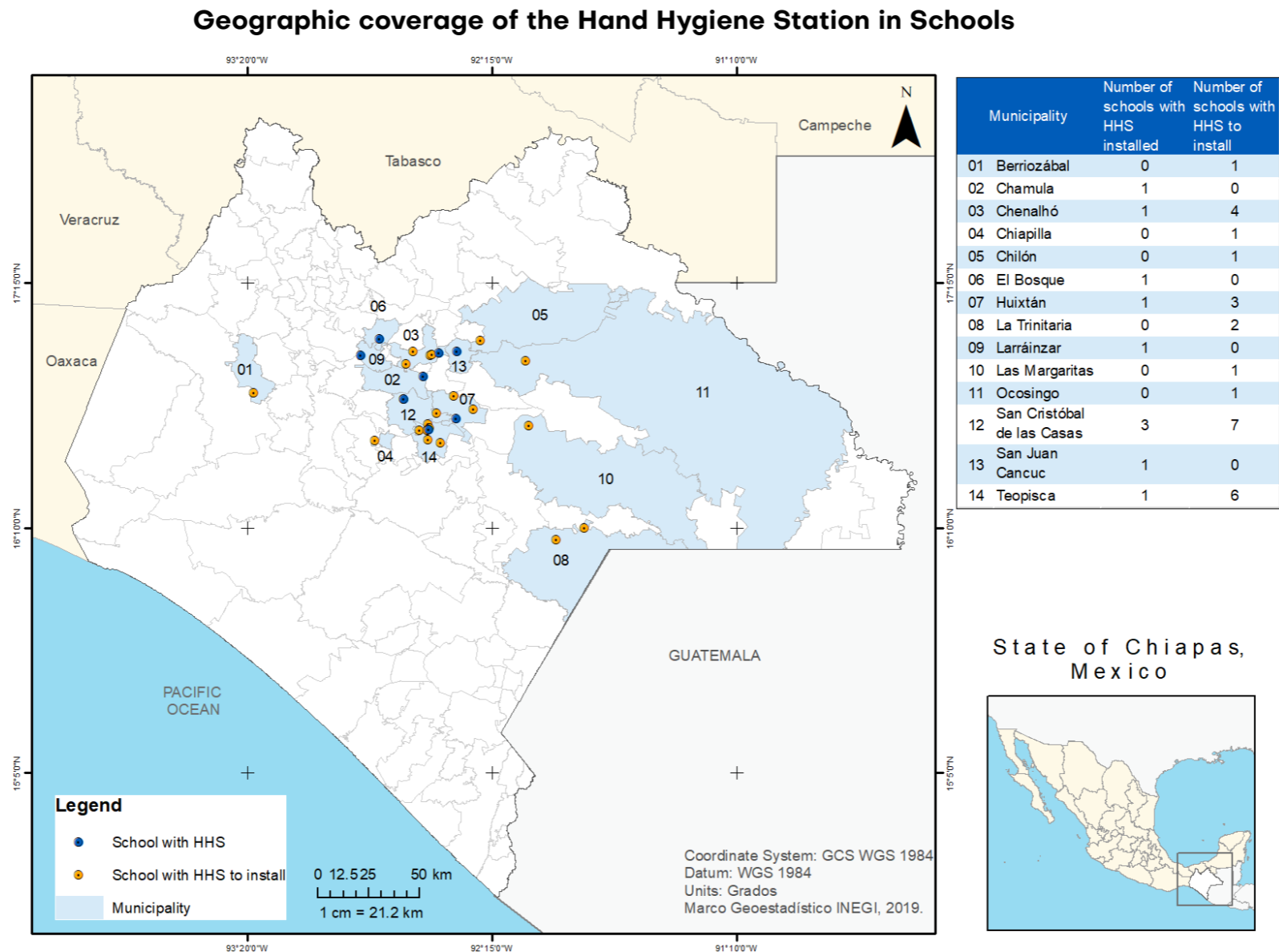
Circular Hygiene Station. It has a 250 L storage capacity, allowing 4 students to use the station simultaneously



Coverage

This hand hygiene facilities will be implemented in 35 schools with which Cántaro Azul has formerly worked. So far, the design phase is complete, as is the testing of the prototypes and the installation in the first ten schools, with the help of the local organization "Amigos de San Cristóbal" (Friends of San Cristobal).

Figure 10



First Impressions

During the implementation of the first 10 stations, there was a positive response by the educational community. They mentioned that they are useful to promote hygiene habits. The hardware implementation (hand hygiene stations) will be supplemented by a software component, which will be implemented when the children return to school. Furthermore, follow-up and evaluation visits will be carried out to observe the use of the stations and hand hygiene habits in schools.

Installation of the first HHS in schools



Challenges & lessons learned

While the WASH interventions in response to the COVID-19 health emergency had positive results, they also encountered some hurdles. Some key challenges and lessons learned include:

- **It is paramount to ensure a strategy for the correct operation and maintenance (O&M) of the WASH infrastructure before its installation.** During the first phase, one of the city halls that requested hand washing stations lacked an internal articulation to guarantee maintenance and the supply of water and soap. The infrastructure should always be accompanied by a O&M strategy from the start and commitment of the involved authorities should be secured.
- **The Community Monitors role has great potential for remote follow-up of the WASH facilities.** Social participation in the follow-up of the hand hygiene stations allowed us to identify maintenance needs and to evaluate the behavior of their users. However, keeping up the commitment of monitors is challenging. We consider that incentives may help keep sustained interest. Furthermore, photographs informing on the state of the installations should be included to validate monitors reports.
- **It is complicated to build confidence in communities in emergency situations.** Because of the historic and systemic oppression indigenous peoples have suffered, in the Highlands of Chiapas there is a prevalent mistrust of the government and civil society organizations. The emergency caused by COVID-19 has made communities' disbelief towards government's or NGOs' messages of protection, prevention, and health promotion more visible. The communities that have formerly collaborated with us took the supplies and listened to the information.
- **Follow-up and recognition of the impact of the gel distribution strategy was challenging.** Cántaro Azul's difficulty to visit the communities to provide follow-up to this strategy made it impossible to observe whether the gel was distributed as per our agreement with the authorities. Nor could we evaluate the in situ use of gel by families. Thanks to the relationship we have with the communities, some information reported by the authorities was obtained and, in some instances, by allied organizations. However, we consider all the interventions should have had a remote follow-up system in place.
- **Any intervention and/or humanitarian help should respond to the community's perceived needs.** Approaching communities has allowed us to understand the perceptions and actions they have taken in face of the sanitary emergency caused by COVID-19. In this way, we can affirm that it is paramount to know the perceived and manifested needs of communities in order to respond to these and secure an appropriate collaboration.
- **The adaptation of WASH facilities in schools has a potential to impact the avoidance of transmission of other infectious diseases in schools.** It is well known that educational communities in Mexico are vulnerable because school facilities do not meet the minimum WASH requirements. Emergency situations, such as the COVID-19 pandemic, bring to light the unprotected conditions of spaces inhabited by children in Mexico, particularly in rural areas.
- **The impact of access to hand washing installations as a health promotion intervention.** Universal access to hand washing stations in public spaces has an obvious impact on health, but in this region, where both hand washing habits and techniques are not the general rule, we believe that it can be an interesting intervention for promotion and training.

