

2021-2022 Colonias Report

Current and Future Needs in Colonias and
Recent Work on the Ground by RCAP



November 2022

Authors

Lena Schlichting, Laura Landes, Sarah Buck

Acknowledgments

Thank you to all those who provided time and expertise to make this report possible, including gathering data, providing context and background, reviewing the content, and designing the report. Thank you in particular to the following colleagues.

Rural Community Assistance Corporation: Allison Jermain, Karl Pennock, Mario Casillas, Ramon Lucero, Raul Vazquez.

Communities Unlimited: Cesario Vela, Griffin Todd, Harold Hunter, Lupita Ortega, Kurt Grant, Oliver De La Garza, Raul Gonzalez, Ramon Rosales, Sergio Salazar, Tommy Ricks.

Rural Community Assistance Partnership: Andrew Nordbye, Coye Gerald, Olga Morales-Pate, Seth Johnson.

University of Arkansas, Center for Advanced Spatial Technologies: Brian Culpepper

Cover photo courtesy of Kathryn Lucero of Communities Unlimited.

Support

The USDA Rural Utilities Service awarded financial support for the Technical Assistance and Training Grant Program to RCAP for the Technitrain Colonias project for the period of September 1, 2021 to August 31, 2022.

Introduction

The U.S. Department of Housing and Urban Development (HUD) defines Colonias as rural communities near the U.S.-Mexico border that lack access to the basics, like water and sewer services. Colonias are predominantly low-income communities, often unincorporated along the U.S.-Mexico border with mainly Latino residents who are mostly U.S. citizens.

There are varying definitions of “Colonias” for different state and federal funding programs and jurisdictions. Colonias emerged in the 1970s and 1980s and often started as settlements for immigrant farmworkers due to a lack of affordable housing. Intensification of trade along the southern U.S. border prompted migration to this area and created one of the poorest regions in the nation. Colonias developed through an absence of regulations, high housing demand from low-income earners, and a low supply of available housing combined with a high supply of low-cost land. The over 2,000 Colonias are often substandard housing developments. Many are small and can be remote; these communities are typically defined by the lack of basic services and necessities such as safe drinking water, effective sewer systems, paved roads (e.g. Wutich et al., 2022), and electricity. Often times these services were promised as “coming soon” when land was sold to residents. Varying definitions for Colonias across state and federal governments combined with scarce socioeconomic data pose a challenge for securing funding for infrastructure improvements in this region. Political exclusion combined with systematic exclusion from municipal incorporation and water quality monitoring issues led to water insecurity in Colonias, resulting in risks to physical and mental health (Wutich et al., 2022). Poor economic controls and structural racism also lowered the adaptability of Colonias to the current climate crisis.

In 2015, RCAP built upon a 2013 USDA and EPA Phase I Assessment that reviewed 2,177 Colonias in 35 border counties and assigned priority levels to them. The USDA/EPA Phase I report is available [online](#). Of Colonias reviewed, RCAP identified 130 Priority 1 and 474 Priority 2 Colonias, which are collectively the 604 high needs Colonias (Colonias by Priority in Appendix B). The combined population of these high needs Colonias was an estimated 134,419 residents. The majority of residents in the high needs Colonias are unserved or underserved by drinking water and/or wastewater services. These communities are among the lowest in income in the U.S. (at the time of the assessment more than half of the 130 Priority 1 Colonias also had $\geq 20\%$ of their population living in poverty) and are characterized by a lack of adequate, safe water and/or wastewater services and substandard housing. The RCAP Phase II Assessment Report is available [online](#).

Technical assistance for Colonias from the Rural Community Assistance Partnership (RCAP)

RCAP’s work with Colonias is primarily funded by the USDA Rural Development Technical Assistance and Training (TAT) grant program under RCAP’s Colonias project and is implemented on the ground by two of RCAP’s regional partners, Communities Unlimited (CU), which serves Texas, and the Rural Community Assistance Corporation (RCAC) which serves Arizona, California and New Mexico. About eleven technical assistance providers (TAPs) regularly work with Colonias communities on the ground, providing training and technical assistance to help them access funding resources and increasing capacity to help move toward long-term sustainability. RCAP’s efforts also include the identification and evaluation of water and wastewater access (or lack thereof) and issues generally impacting the Colonias thanks to TAPs’ close work with communities over long periods of time and the subsequent trust that has been built. During the 2021-2022 Colonias Technitrain grant year, RCAP provided technical assistance through 44 technical assistance projects, which served 114 Colonias that started out the grant year at a high priority level. RCAP helped to leverage \$80 million in funds through 27 funding applications, of which \$61 million were grants and \$19 million were loans.

RCAP’s technical assistance for Colonias encompasses the following topics:

- Financial analysis
- Regulatory compliance
- Five-year operational budgets
- Rate studies
- Leadership and Community development
- Funding applications
- Project Management
- Facility Development
- Asset Management Plans
- Regionalization Facilitation
- and more

Another unique form of technical assistance RCAP has been able to help with previously is to help communities create a legal entity or designation that helps communities organize and opens up the door to access additional resources. RCAP has occasionally assisted a community, when requested by the community, with the legal process to become designated as a Colonia. In RCAP's experience, being organized enough to reach out to RCAP for assistance with the process says a lot about the community's existing level of capacity. It generally means that the community is self-organized and motivated. The Colonia designation is important because it helps a community access technical assistance and infrastructure funding.

Technical Assistance Provider survey results

RCAP TAPs working in Colonias collected updated information about these communities through a survey in order to gather information about ongoing and new concerns as well as the current situation, especially as the U.S. emerges from the COVID-19 pandemic. For this project specifically, 251 Colonias were sampled in the four border states. The efforts by TAPs to gather and record this information also improves their ability to serve the Colonias communities that need it the most with a clear understanding of the most pressing issues, and to help educate more broadly on the specific need for technical assistance and infrastructure dollars for this historically un/underserved region.

Figure 1 shows the four states along the US-Mexico border, highlighting all known Colonia locations according to RCAP's database which was established during a joined initiative between the USDA, the Environmental Protection Agency (EPA) and RCAP in 2015, and also the number of Colonias sampled in each state through this most recent survey effort.

of Colonias communities sampled; all community locations

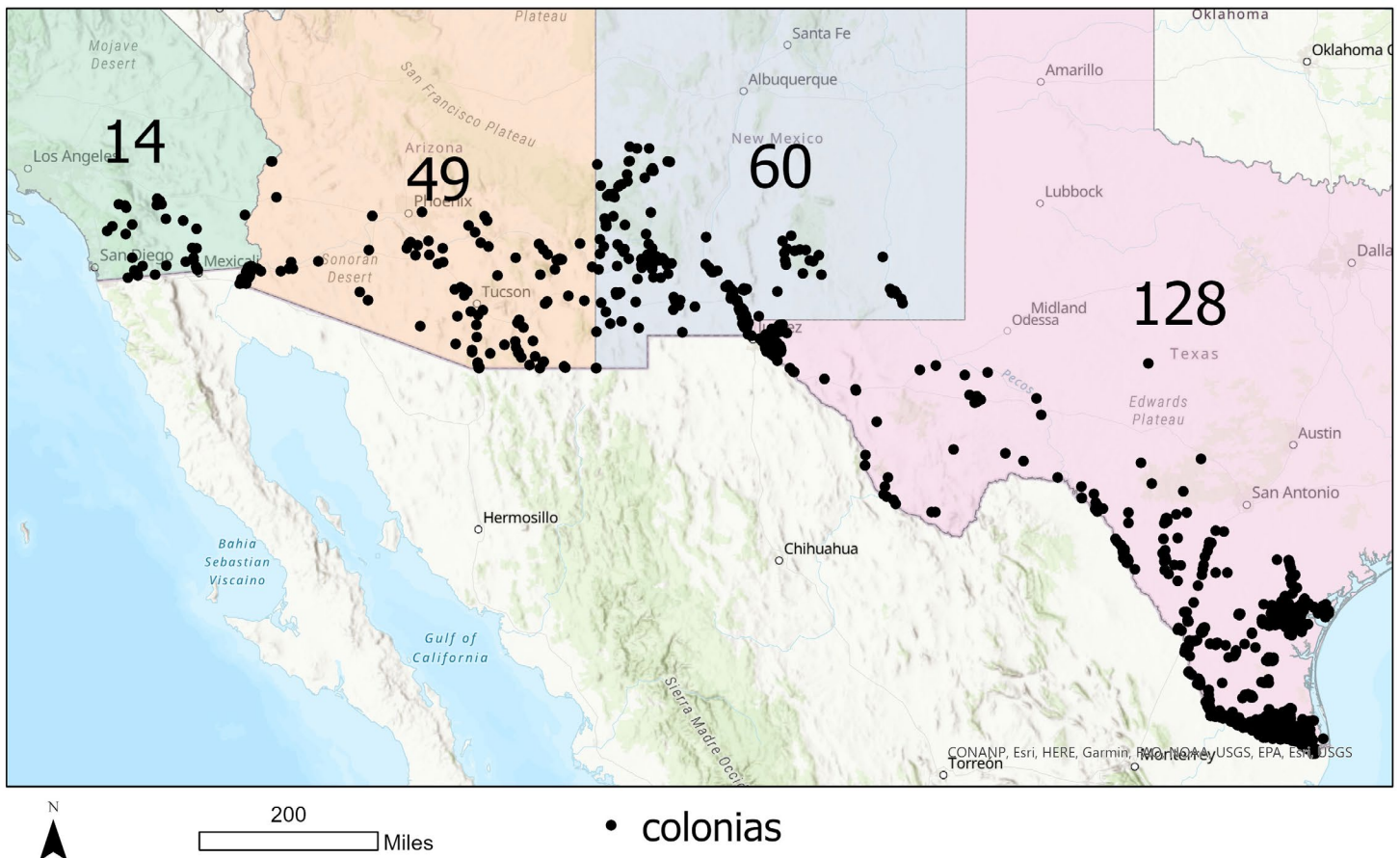


Figure 1. Points show all known Colonia locations, numbers show the sampled Colonias in each state.

Survey results for drinking water and wastewater concerns

TAPs were asked “What Colonia areas do you specifically have most concern for lack of adequate or safe drinking water services?” and “What Colonia areas do you specifically have most concern for lack of adequate or safe wastewater services?” The survey responses around these questions are summarized and split by drinking water and wastewater in Table 1. TAPs recorded concerns about quality and/or quantity of drinking water services for nearly half of all sampled Colonias. While the majority of sampled Colonias in Arizona, California and New Mexico were listed under concerns about drinking water, only 17% of sampled Colonias in Texas were listed under this concern.

Colonias where TAPs have **concerns about drinking water:**

Total: 120 (48% of sampled Colonias)

Colonias where TAPs have **concerns about wastewater:**

Total: 88 (35% of sampled Colonias)

| State | # Listed | % of Sampled |
|-------|----------|--------------|
| AZ | 32 | 65% |
| CA | 14 | 100% |
| NM | 51 | 85% |
| TX | 23 | 17% |

| State | # Listed | % of Sampled |
|-------|----------|--------------|
| AZ | 23 | 47% |
| CA | 9 | 64% |
| NM | 27 | 45% |
| TX | 29 | 23% |

Table 1. Results from the TAP survey listing Colonias with major concerns about drinking water and wastewater services.

TAPs recorded concerns about a lack of adequate wastewater services for about a third of sampled Colonias. A greater percentage of sampled Colonias in Texas were listed among those of concern for wastewater access than for drinking water access. It is important to note that these are all Colonias that have or have had access to RCAP technical assistance, so Colonias without access to this kind of support may have significantly more pressing concerns and needs for these services.

The survey also asked where people go for help with solving water problems such as water quality concerns, high bills, and water shutoffs. Results show that most go to their county commissioners, county and city officials, and/or their water utility company for assistance with water problems.

Survey results regarding barriers

Most people in the sampled Colonias get running water from the tap for drinking and other household uses and always have water and wastewater services available in their homes. This sample is skewed by design to those communities which have worked with TAPs and therefore likely paints a rosier picture compared to the communities that have not had access to technical assistance. However, affordability is still a major challenge, and water and wastewater services are difficult to afford for many Colonia community members. One TAP summarized the challenges: “For most it is not [affordable], but they have no choice but to pay.” This means that residents have to make difficult decisions about where else to cut down their budget in order to afford their water and/or wastewater service. Since the COVID-19 pandemic, it has become even more challenging to pay for these services, especially due to job losses and inflation and rising prices across the country. Even some communities that successfully built up their technical, managerial and financial capacity in the past are now experiencing infrastructure vulnerabilities due to the passage of time, without having been able to set funds aside from rates into much needed reserves. This has set them back to their past financial challenges.

Survey results regarding the impact of the COVID-19 pandemic

While the COVID-19 pandemic affected all of society, its impact on Colonia communities was especially harsh. The pandemic exacerbated many challenges that Colonias already face, since already disadvantaged communities had fewer resources available to adapt to lockdowns, job losses and the shift to a virtual environment for work and school (along with others in some situations, such as social connections and access to healthcare). The survey showed that in many communities, children had to stop going to school and social distancing requirements negatively affected social relationships. In many situations it simply was not realistic or a possibility for people to work remotely. Those jobs either

continued in person at the risk of becoming sick or spreading COVID-19 or may have been lost, either temporarily or permanently.

Loss of work was listed in the survey as a factor that worsened water and wastewater affordability problems. It was also challenging to switch to a virtual environment for the meetings between TAPs and communities, especially because many communities lack adequate broadband access. While the shift to a virtual environment was doable, it took time, and valuable technical assistance for communities was lost or delayed during this time.

Updates to priority rankings

In the 2015 assessment report, Colonias were assigned a priority score between 1 and 5 as listed in Table 2 by highest to lowest order of need.

| | |
|-------------------|---|
| PRIORITY 1 | <p>Communities NOT served by a public water and/or wastewater facility AND A health hazard is (or may) be present</p> |
| PRIORITY 2 | <p>Colonia residents are NOT served by a public water system — no health hazard indicated OR Colonia residents are NOT served by a publicly owned wastewater disposal system, and existing onsite wastewater treatment system is not adequate— no health hazard indicated OR Colonia residents ARE served by publicly owned water and wastewater facilities but one or both are in serious violation of regulations</p> |
| PRIORITY 3 | <p>Some residents are NOT served by a publicly owned water AND/OR Some residents do NOT have access to wastewater service AND Plans are in development and proceeding for financing new water or wastewater services to all areas affected or are currently under construction</p> |
| PRIORITY 4 | <p>Residents ARE served by public water facilities AND Residents are NOT served by public wastewater service, BUT Individual onsite wastewater disposal systems appear to be adequate OR Residents ARE served by BOTH public water service and publicly owned wastewater facilities</p> |
| PRIORITY 5 | <p>The identified Colonia does not have any occupied residences, i.e. there are no inhabitants</p> |

Table 2. Priority score definitions in highest to lowest order of need.

Figure 2 shows all Colonias in RCAPs database classified by their priority score in the four border states.

Colonias priority ranking

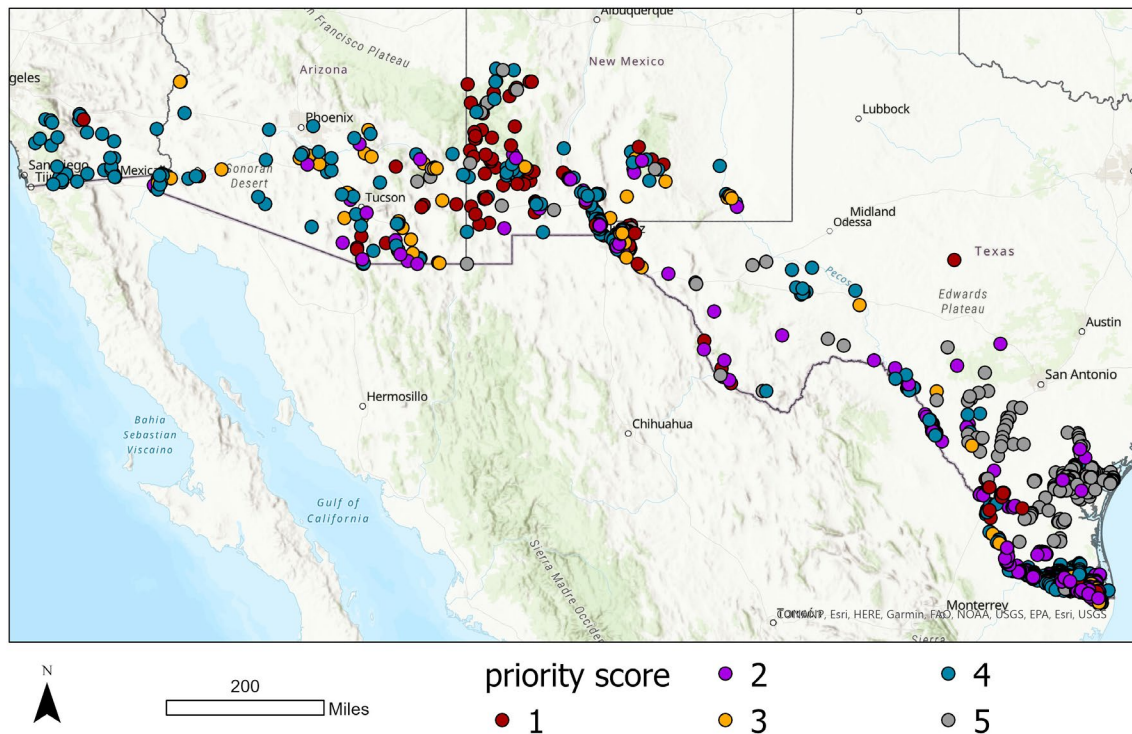


Figure 2. Colonias location symbolized by priority score, ranking from 1 (highest priority) to 5 (lowest priority or uninhabited).

68 communities have been updated with new priority scores under the 2021-2022 Colonias Technitrain grant year due to assessments by TAPs. Some communities assessed by TAPs remain at the same priority level. The new updates to Colonias priority ranking are listed in Table 3 and help RCAP to measure the progress of assistance for Colonias and understand Colonias priorities for current and future assistance.

A large number of communities have not been analyzed for a revised priority level yet, and TAPs are aware that in some, residents are living without basic infrastructure and must purchase bottled water to have any water to drink, meaning there is greater need than is identified in the updated rankings.

| Colonia Name | Colonia ID | State | County | Old Priority | New Priority | Priority Change |
|--------------------------------|------------|-------|------------|--------------|--------------|-----------------|
| Alma | P1R350001 | NM | Catron | 2 | 1 | -1 |
| Apache Creek | P1R350022 | NM | Grant | 2 | 1 | -1 |
| Beaverhead | P1R350005 | NM | Catron | 2 | 1 | -1 |
| Bent | P1R350094 | NM | Otero | 2 | 1 | -1 |
| Buckhorn | P1R350025 | NM | Grant | 2 | 1 | -1 |
| Candelaria | P1R481477 | TX | Presidio | 3 | 1 | -2 |
| Carmen | P1R040064 | AZ | Santa Cruz | 2 | 1 | -1 |
| Catfish Cove | P2R350032 | NM | Luna | 2 | 1 | -1 |
| Chaparral | P1R350030 | NM | Dona Ana | 1 | 3 | 2 |
| Cruzville | P1R350006 | NM | Catron | 2 | 1 | -1 |
| Datil | P2R350001 | NM | Catron | 2 | 1 | -1 |
| Drysdale | P1R040081 | AZ | Yuma | 2 | 1 | -1 |
| Dwyer | P1R350035 | NM | Grant | 2 | 1 | -1 |
| El Gato | P1R480744 | TX | Hidalgo | 4 | 2 | -2 |
| El Sol | P2R350023 | NM | Hidalgo | 1 | 4 | 3 |
| Elephant Head, Community of | P1R040034 | AZ | Pima | 2 | 1 | -1 |
| Elgin | P1R040066 | AZ | Santa Cruz | 2 | 1 | -1 |
| Encinal* | P3R480073 | TX | La Salle | 5 | 2 | -3 |
| Faywood | P1R350038 | NM | Grant | 2 | 1 | -1 |
| Fierro | P1R350039 | NM | Grant | 2 | 1 | -1 |
| Firestone Gar- dens | P1R040067 | AZ | Santa Cruz | 2 | 1 | -1 |
| Five Bar Ranch | P1R350007 | NM | Catron | 2 | 1 | -1 |
| Garfield | P1R350041 | NM | Dona Ana | 2 | 1 | -1 |
| Gila Hot Springs | P1R350043 | NM | Grant | 2 | 1 | -1 |
| Glen Acres | P2R350024 | NM | Hidalgo | 1 | 3 | 2 |
| Horse Peek Ranch | P2R350004 | NM | Catron | 2 | 1 | -1 |
| Horse Springs | P1R350009 | NM | Catron | 2 | 1 | -1 |
| Keeler Farm | P2R350036 | NM | Luna | 2 | 1 | -1 |
| Klondike | P1R040018 | AZ | Graham | 2 | 1 | -1 |
| Lost Cabin | P2R350005 | NM | Catron | 2 | 1 | -1 |
| Lower Frisco | P1R350010 | NM | Catron | 2 | 1 | -1 |
| Luna | P1R350011 | NM | Catron | 2 | 1 | -1 |
| Mangas | P1R350052 | NM | Grant | 2 | 1 | -1 |
| Marathon* | P3R480006 | TX | Brewster | 5 | 2 | -3 |
| Maricopa Mountain DWID | P1R040055 | AZ | Pinal | 2 | 1 | -1 |
| Mayhill | P1R350101 | NM | Otero | 2 | 1 | -1 |
| Middle Frisco | P1R350012 | NM | Catron | 2 | 1 | -1 |
| Mimbres | P1R350054 | NM | Grant | 2 | 3 | 1 |

| Colonia Name | Colonia ID | State | County | Old Priority | New Priority | Priority Change |
|----------------------|------------|-------|------------|--------------|--------------|-----------------|
| Mongollon | P1R350013 | NM | Catron | 2 | 1 | -1 |
| Mule Creek | P1R350059 | NM | Grant | 2 | 1 | -1 |
| Old Thomas Place | P2R350006 | NM | Catron | 2 | 1 | -1 |
| Pie Town | P2R350008 | NM | Catron | 2 | 1 | -1 |
| Pirtleville | P1R040088 | AZ | Cochise | 2 | 1 | -1 |
| Pleasanton | P1R350014 | NM | Catron | 2 | 1 | -1 |
| Rancho Grande | P1R350015 | NM | Catron | 1 | 4 | 3 |
| Redford | P1R481481 | TX | Presidio | 3 | 1 | -2 |
| Redrock | P1R350067 | NM | Grant | 2 | 1 | -1 |
| Riverside | P1R350069 | NM | Grant | 2 | 1 | -1 |
| Salem | P1R350072 | NM | Dona Ana | 2 | 1 | -1 |
| San Juan | P1R350073 | NM | Grant | 2 | 1 | -1 |
| San Lorenzo | P1R350074 | NM | Grant | 2 | 1 | -1 |
| San Miguel | P1R350075 | NM | Dona Ana | 2 | 1 | -1 |
| San Simon | P1R040008 | AZ | Cochise | 2 | 1 | -1 |
| Shady Grove | P2R350028 | NM | Hidalgo | 2 | 1 | -1 |
| Sherman | P1R350081 | NM | Grant | 2 | 1 | -1 |
| Smith Way - Somerton | P1R040094 | AZ | Yuma | 2 | 1 | -1 |
| Sunshine | P2R350039 | NM | Luna | 2 | 1 | -1 |
| Tacna | P1R040100 | AZ | Yuma | 2 | 1 | -1 |
| The Homestead | P2R350013 | NM | Catron | 2 | 1 | -1 |
| The Last Frontier | P2R350014 | NM | Catron | 2 | 1 | -1 |
| Tumacacori | P1R040073 | AZ | Santa Cruz | 2 | 1 | -1 |
| Turnerville | P1R350085 | NM | Grant | 2 | 1 | -1 |
| Twin Forks | P1R350107 | NM | Otero | 2 | 1 | -1 |
| White Signal | P1R350088 | NM | Grant | 2 | 1 | -1 |
| Whitewater | P1R350089 | NM | Grant | 2 | 1 | -1 |
| Willcox | P1R040104 | AZ | Cochise | 3 | 1 | -2 |
| Willow Creek | P1R350018 | NM | Catron | 2 | 1 | -1 |

Table 3. Colonias with assessed changes in priority rankings. The column “priority change” indicates for orange fields a change towards increased priority, green fields indicate a change towards less urgent priority.

***Changed from uninhabited (priority 5) to inhabited.**

Of the updated priority rankings, 63 Colonias increased in priority, meaning they are classified as having greater need now than in 2015 (this could partially be due to increased knowledge of the community’s situation), and 5 Colonias decreased in priority. About 90% of the Colonias that increased in priority only changed by one level. This change was often due to new water quality violations (which can be caused by changes to source water quality, struggles to keep up with operations and maintenance needs, or other challenges), the lack or loss of capacity to react to administrative compliance orders or complete funding applications, change of the water supply from a community water system to private wells, or simply ageing infrastructure. As described above, the COVID-19 pandemic exacerbated many challenges in Colonia communities as well. RCAP’s TAPs are currently working with many of these communities to help them overcome these issues. Working in communities is

an iterative process, with progress happening over time, and new challenges coming up constantly. RCAP is committed to being there for communities through changes and challenges, though RCAP TAPs can only work with a limited number of communities at any given time, and projects are sometimes focused on one or two main challenges at a time.

Four of the five Colonias that decreased in priority decreased by more than one level, which marks a significant change in their need classification in an encouraging direction due to infrastructure development that was recently completed or is near completion.

The 2015 report from RCAP listed the 25 Colonias with highest concern, which were all located in Texas (this may have been because most Colonias that exist are in Texas). In the recent TAP survey, one Colonia from that list was named as having received new drinking water and/or wastewater services. One Colonia from that list was reported as still having concerns around both drinking water and wastewater services. Only two Colonias from that list were still listed by TAPs in the recent survey as communities about which they have water and/or wastewater concerns.

Current and future community needs

A lack of capacity is often the main challenge for Colonias. This is compounded with a complex regulatory and infrastructure funding process that is hard to navigate without technical assistance.

The research showed clearly that the affordability of water and wastewater services is a major concern in Colonias. Asset management is a very useful tool to help address the challenge of affordability through better inventory of assets and planning for replacement and could help utilities proactively prepare for the future. The concepts of asset management help a community understand an overview of their assets, manage the risk of asset breakdown, anticipate upcoming costs, and measure asset performance such as nonrevenue water.

Monitoring poses a challenge as well, as it is often difficult for Colonias to find the resources to hire a certified operator. With challenges like the extended drought in the Southwestern U.S., a drinking water well can suddenly and unexpectedly run dry without regular monitoring.

While Colonias are often very quick at repairing issues like a broken pump or leak, they frequently have limited capacity to proactively operate and manage utilities for the future. Tasks like data management and collection can be difficult due to the inability to hire operators and manage data while often lacking a stable broadband connection. Online reporting is required by most government agencies, but a lack of recorded data and bad internet connectivity can lead to reporting issues, which can easily accumulate and cause issues of noncompliance.

Colonias, like many other disadvantaged communities, qualify for funding under the Bipartisan Infrastructure Law (BIL). Forty-nine percent of the State Revolving Loan Funds (SRF) (administered by states) under BIL are allocated to go to disadvantaged communities. While the criteria for disadvantaged communities vary by state, Colonias will often qualify for funding and can reach out to the state agency that administers SRF funding for more information. However, Colonias frequently lack the capacity to apply and compete for this funding on their own and require access to information to be aware of this funding opportunity in the first place and how to access it. The technical assistance RCAP provides is critical to assist communities with navigation of these kinds of programs and opportunities.

Impacts from climate change and extreme weather

The majority of the Southwestern U.S. has experienced drought conditions since the year 2000. The last twenty years were the driest period in the last 1,500 years due to high temperatures and low precipitation levels (Williams et al., 2022). The effects of climate change in the Southwest include more days with extreme heat, decreased water supply, reduced soil moisture, increased frequency and intensity of wildfires and a higher competition and demand for water resources (New Mexico Bureau of Geology and Mineral Resources, 2022) and hence increased cost. These changes are projected to lead to various environmental, social and economic vulnerability issues for the region (GNEB, 2016).

Drought conditions (June 2018)

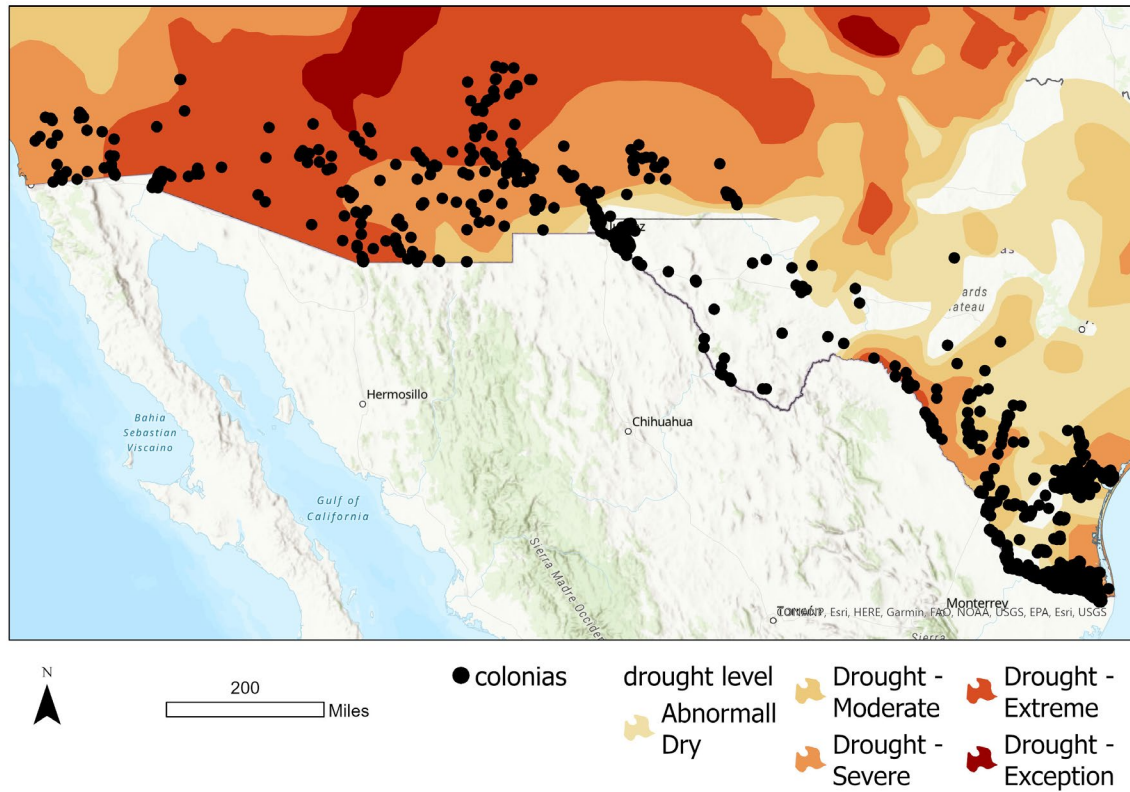


Figure 3. Colonias locations overlaid on drought conditions from the National Drought Mitigation Center (NDMC), the U.S. Department of Agriculture (USDA) and the National Oceanic and Atmospheric Administration (NOAA).

TAPs reported in the survey that the Colonias they work with have been impacted by severe weather events, especially the major freeze of 2021. Three severe winter storms led to the worst energy infrastructure failure in the history of Texas, which caused shortages of water, food, and heat. The other extreme weather effect called out by TAPs was the heat of summer 2022 and an increase in extreme heat days in general, which are especially tough for those Colonia residents who do not have air conditioning. Extreme weather events are predicted to increase due to climate change and disproportionately threaten health and well-being of vulnerable populations (e.g. Gonzales et al., 2018).

Increasing temperatures and extended periods of drought also lead to an increase in the frequency, severity and extent of wildfires. Wildfires can burn a utilities' infrastructure, disrupt water services and can have devastating impacts on downstream communities through upstream ash, debris and heavy metals. Scientists have found extremely high levels of toxic chemicals in tap water after devastation from fire, making emergency water plans even more critical.

As water sources become less reliable due to a declining groundwater table and reduced surface water flow, it has become critical to diversify water sources to ensure sustainable water service for communities. While existing challenges in Colonias need to be addressed, planning for climate adaptation is rare due to a lack of resources and staff capacity. Drought and climate change are therefore major vulnerabilities. Colonias need assistance to move from the reactive mode of working only on acute issues to expand capacity and proactively plan for changing conditions in the future. Many impacts from the extended drought will not be readily visible until it is too late, and water sources that have been reliable for many decades will be suddenly dried up.

Summary

The TAP Survey recorded that nearly half of the sampled Colonias have drinking water conditions which are of concern, and a third of sampled Colonias have wastewater conditions which are of concern. Colonias without access to technical assistance are likely to have more pressing concerns regarding drinking water and wastewater services. Even when these services exist, affordability is a major challenge, which was exacerbated by the economic impacts of the COVID-19 pandemic. The pandemic also posed a challenge to technical assistance, as switching to a virtual environment while frequently facing broadband access issues was difficult and time consuming.

Altogether 68 Colonia communities received updated priority scores as classified by TAPs, among which over 90% are now in a higher priority class, requiring more urgent assistance to ensure safe drinking water and reliable wastewater services.

Aside from affordability, monitoring and asset management are frequently a challenge and are crucial to the long-term sustainability of communities. With technical and financial assistance, enhanced monitoring and asset management plans would alleviate at least some of the existing affordability issues and improve drinking water and wastewater access. Additionally, persistent drought and extreme weather have presented major challenges to Colonias, and this trend is expected to worsen. TAPs have reported that severe weather events and extreme heat days are already hard on these communities. Drought planning and climate change adaptation are difficult to address for Colonias, as they are frequently working in a reactive mode on acute issues, leaving them without the capacity or financial ability to work on climate change mitigation and resilience planning. Colonias are experiencing continuous challenges due to historical underfunding and climate change is making matters worse. Continued technical assistance and funding are critical to improve and maintain water services in the Colonias in order to help protect public and environmental health and increase the quality of life in these communities.

Literature references

- Gonzalez, P., Garfin, G., Breshears, D., Brooks, K., Elias, E., Huntly, N., ... & Udall, B. (2018). The fourth national climate assessment, Chapter 25: Southwest.
- Good Neighbor Environmental Board (GNEB), 2016: Climate Change and Resilient Communities Along the U.S.-Mexico Border: The Role of Federal Agencies. EPA 202-R-16-001.
- New Mexico Bureau of Geology and Mineral Resources, 2022, Climate change in New Mexico over the next 50 years: Impacts on water resources: New Mexico Bureau of Geology and Mineral Resources, Bulletin 164.
- Williams, A.P., Cook, B.I. & Smerdon, J.E. Rapid intensification of the emerging southwestern North American megadrought in 2020–2021. *Nat. Clim. Chang.* 12, 232–234 (2022). <https://doi.org/10.1038/s41558-022-01290-z>
- Wutich, A., Jepson, W., Velasco, C., Roque, A., Gu, Z., Hanemann, M., ... & Westerhoff, P. (2022). Water insecurity in the Global North: A review of experiences in US colonias communities along the Mexico border. *Wiley Interdisciplinary Reviews: Water*, e1595.