

## **FIRST TOWN HALL ON THE TBA AQUIFER ALLENDE-PIEDRAS NEGRAS-MAVERICK (TBA APN-M)**

**Event:** The event was the first public hearing on groundwater within the TBA Allende-Piedras Negras Pilot program for generating knowledge, development, and management of shared aquifers, led by the Permanent Forum on Binational Waters.

**Date and time:** April 9, 2024, 9-11:30 (CST), virtual.

**Participants:** The event included representatives from various sectors, including private, federal and governments, academia, municipalities, non-governmental organizations, and groundwater conservation districts from both sides of the border.

**Objectives:** The main goal was to integrate stakeholders interested in addressing binational water issues, fostering open discussion, attracting stakeholders to this or similar projects, and identifying priorities and challenges.

Overall, it was emphasized the importance of addressing groundwater issues in the Mexico-US border region through collaborative efforts with remarks on the need of effective management and research to ensure sustainable water use for the future.

The event lasted two hours and a half divided into 3 Parts, which included power point presentations by the Director of the Forum, the lead of the Project, and two scientists who also collaborate in the Allendes Piedras Negras Transboundary Aquifer Project. To make the workshop more interactive and engage the audience, there was a series of different surveys (both in English and Spanish) for participants to express their opinions on transboundary aquifers, importance of groundwater, and perceptions of water scarcity. An outline of the AGENDA AND SURVEYS is presented at the end of this document.

### **FIRST PART**

#### **PRESENTATION OF the FORUM'S DIRECTOR, Dr. ROSARIO SANCHEZ**

The Permanent Forum on Binational Waters was introduced as an organization that comprises scientists, private sector representatives, and government officials from both sides of the border, aiming to facilitate effective communication, conduct binational research projects, and improve the lives of border communities.

Rosario highlighted that there are significant water challenges facing the Mexico-US border region, including population growth, trade dependence, climate change impacts, and over-allocated international basins.

Rosario explained the general objectives of APN-M TBA Project in a broad context, including some of its justifications, such as the lack of regulation and monitoring of groundwater use across the border, coupled with its strategic importance and resilience compared to surface water.

### **FIRST SURVEY**

Results showed that the majority of the attendees are aware of shared aquifers and consider groundwater crucial for their communities.

Most respondents believe water scarcity is either permanent or temporary, with no one denying that it represents an important issue.

Rosario Sanchez encouraged discussion and feedback in responses, emphasizing the importance of effective communication and education regarding water issues.

Questions were raised on why some people perceive water scarcity as temporary; and the importance of participation in the forum, emphasizing that it's not limited to educational institutions.

Updated responses indicated most participants are aware of shared aquifers, value groundwater highly, and see water scarcity as a significant and potentially permanent issue.

## **SECOND PART**

### **PRESENTATION OF APN-M TBA PROJECT LEAD, HYDROGEOLOGIST Dr. ALFONSO RIVERA**

The first part of Rivera's presentation described the APN-M project with an introduction, followed by a description of the methodology used in the study, context, objectives and phases. then the results obtained in relation to aquifers, groundwater, surface water and the environment.

This part included the aim of the Project of addressing challenges in managing shared groundwater resources and assess the Allende Piedras Negras Maverick aquifer system. Rivera explained that there are various scales of analysis, from regional to local, emphasizing the complexity of groundwater systems.

Likewise, he described the rationale behind choosing this Project, including the need for cooperation, data collection, regulatory frameworks for shared aquifers, scientific knowledge, fostering cooperation between stakeholders, and developing tools for groundwater management.

The Project timeline was explained divided into four phases: data collection and analysis, fieldwork, modeling, and socio-economic evaluation. Short-term goals involve defining the aquifer system's issues and identifying stakeholders' concerns, while long-term objectives focus on developing comprehensive management strategies.

Rivera emphasized the importance of transparency, stakeholder participation, and communication throughout the project, and highlighted the potential replication of the Project's approach in other shared aquifer systems globally.

## **SECOND SURVEY**

Second survey was about the APN-M aquifer, water management and sustainability, current situation, collaboration importance, sectors responsibilities, reasons for water scarcity, and challenges.

Survey results showed concerns about water management, climate change, and lack of regulation as significant issues, also the need of prioritization of challenges, such as access to clean water for human consumption and agricultural use.

During the Q&A, it was mentioned a network of automated monitoring points in the aquifer from 2002, with some technical discussion about its status. Stakeholders engagement was emphasized and information sharing for informed decision-making. The expectations from the Mexican National Water Commission and the International Boundary and Water Commission regarding project involvement and collaboration were briefly discussed.

Participants had time to ask questions or share comments.

### **THIRD BLOCK**

Dr. Rivera followed up with his first presentation showing preliminary results of the project.

Rivera described some of the most important preliminary results so far:

- Identification of recharge zones in the mountain ranges to the north and west of the study area.
- Detection of various groundwater flow systems with different time and space scales.
- Observation of numerous springs and artesian wells in the mountainous areas and on the plains.
- Predominant groundwater uses by agriculture, followed by industrial and public use, and then rural areas.
- Research gaps and needs: Several information and data gaps were noted, such as the lack of conceptual models in Mexico, the need to unify databases between both sides of the border, and the lack of information on the effects of pumping and groundwater levels.
- Surface Water and Environment Results: The lack of information on surface water flow at the local scale and the current availability of flow in rivers was highlighted. However, Rivera is mentioned that there is sufficient environmental information available in all the aquifers studied.

Rivera concluded that although there are gaps in information, the study clearly identifies additional research needs in relation to aquifers and surface water. More in-depth studies are recommended to complete the conceptual model of the area.

### **PRESENTATION OF ENVIRONMENTAL SCIENTIST MARUSIA RENTERIA**

Dr. Renteria discussed the evaluation of hydrogeological situation and water usage, emphasizing the need to consider multiple dimensions including social, environmental, economic, and legal aspects.

Emphasized that the evaluation of different aquifers should focus on their behavior in relation to water balance, environmental factors such as climate and vegetation, and current availability

and use of water. Additionally, Renteria mentioned the relevance of the social and economic aspects of water usage, particularly in the context of Coahuila, Mexico. She emphasized the contribution of different sectors to the GDP and evaluated social and economic indicators within the areas studied.

Renteria highlighted the projection and vulnerability of the region: Projections for population growth by 2050 and the corresponding vulnerabilities in environmental, social, and economic, stressing the need for sustainable management of water resources.

Additionally, it was pointed out the importance of policy frameworks and participatory governance in water management, considering existing federal and state legislation, application of policy instruments, and establishment of environmental management units.

Renteria addressed the challenges of the region, such as increasing industrial activity and population growth identified, with a focus on the need for conservation strategies, circular economy approaches, and cooperation in managing transboundary aquifers.

The presentation was concluded by stressing the importance of research and collaboration in achieving sustainable water management goals.

### **THIRD SURVEY**

The third part of the survey was a set of 7 questions, most of multiple choices. This survey was designed for assigning value to various productive activities based on the challenges and concerns faced by the community.

Meanwhile, one participant pointed out an important point: water scarcity in Piedras Negras already prevents the granting of new concessions from the APN TBA, and a deficit in aquifers is reported. This presents a significant challenge for the region.

Another attendee noted that it is crucial to consider ecological flows and conservation of water resources, especially the Rio Grande.

The event was concluded by the Director of the Forum, thanking the attendees for their interest and participation.

### **QUESTIONS AND COMMENTS BY ATTENDEES DURING THE EVENT:**

- Why do some think the water scarcity is temporary (referring to the results of the first survey)
- What is the importance of our participation in this Forum? Do I have to be from an educational institution?
- We have seen groundwater decreases!
- Will the above presentation be shareable, for dissemination of the objectives of the Project?
- A biodiversity issue is missing from these challenges.



- Was it possible to obtain information from the automated piezometric network that was carried out in 2002 in the Piedras Negras aquifer? Results of that study were offered by the attendee who made this question.
- Instrumentation for piezometric monitoring of the Allende aquifer Piedras Negras, Coahuila. This was done in 2004 in 28 wells.
- Will the issue of water quality be included (in this pilot project)?
- Have other states in Mexico approached the group of scientists with plans, or for advice on how to optimize and manage the pumping and storage of these transboundary aquifers?
- What is expected of CNA, IBWC and CILA within this project?
- It would be important to note that currently the Allende-Piedras Negras aquifer is no longer available for new concessions, and now operates with a deficit.
- Among the environmental challenges, we must add ecological flows, the conservation and restoration of rivers and streams, as well as the conservation of springs.
- It would be necessary to reconfigure the collection of fees (payment) for the exploitation of water, since there are very different charges between the industrial sector and that of domestic consumption.
- Thank you for taking us into account, we look forward to helping you in your task.

## OUTLINE OF THE WORKSHOP AND SURVEYS

### **Audiencia Pública sobre Aguas Subterráneas Compartidas**

Date: April 9, 2024

Hour: 9:00 to 11:30 am (CST)

Objective: Interest, Involvement = *buy-in approach*, generate knowledge, attraction to the project, attraction of financing (for other projects or similar)

#### **Speakers:**

Rosario Sánchez

Alfonso Rivera

Marusia Rentería

Saul Arciniega

#### **Agenda**

(Event in Spanish with simultaneous translation)

9:10 am Rosario: Introduction, Instructions and Welcome

Presentation of the Agenda

9:10- 9:25 Rosario PART 1

What and who is the Permanent Forum on Binational Waters?

Objectives

Descripción de la iniciativa

Objectives

Context of the U.S.-Mexico Border

9:30-9:45 Saul KEY QUESTIONS

(DISCUSSION: SAUL/ROSARIO)

9:45-10:00 Alfonso Rivera PART 2

Why the APN-Maverick

Objectives

Project Description/Phases/Scope

10:00-10:15 Saul KEY QUESTIONS

(DISCUSSION: SAUL/ALFONSO/ROSARIO)

10:15- 10:25 Alfonso Rivera PART 3

Preliminary results

Data Gap and Research Needs

10:25-10:35 Marusia Renteria State of Affairs APN aquifer

10.35-10:55 Saul KEY QUESTIONS (20 minutes)

(DISCUSSION: SAUL/ALFONSO/MARUSIA/ROSARIO)

#### TIME ADJUSTMENT

11:00 PART 4

11:00-11:10 Saul KEY QUESTIONS

11:15-11:30 FINAL THOUGHTS

Alfonso, Marusia, Rosario

#### **SURVEYS RESULTS**



**Audiencias públicas sobre aguas subterráneas compartidas**

Edwards - Trinity  
Edwards  
Carrizo  
Allende Piedras Negras  
Región Carbonífera  
Palestina  
Presas La Amistad  
Cerro Colorado - La Parida  
Serranía del Bujro

**PROGRAMA PILOTO**  
Generación de Conocimiento,  
Desarrollo y Gestión de  
ACUÍFEROS COMPARTIDOS

FORO PERMANENTE DE  
**AGUAS**  
BINACIONALES

Edwards - Trinity  
Edwards  
Carrizo  
Allende Piedras Negras  
Palestina

Foro virtual con usuarios del acuífero Allende Piedras Negras Maverick, entre México y los Estados Unidos de América. Abril 9, 2024.

**Notas:**

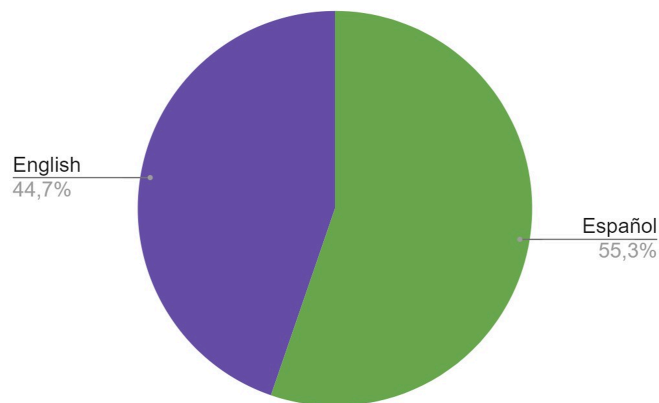
- Se aplicaron 3 formularios en español e inglés. Los resultados en español e inglés se analizaron de manera conjunta y se reportan las respuestas combinadas.
- Algunas de las respuestas fueron agrupadas en función de su similitud.

**Clarification:**

- 3 forms were applied in Spanish and English. The results in Spanish and English were analyzed together and the combined answers are reported.
- Some of the answers were grouped based on their similarity.

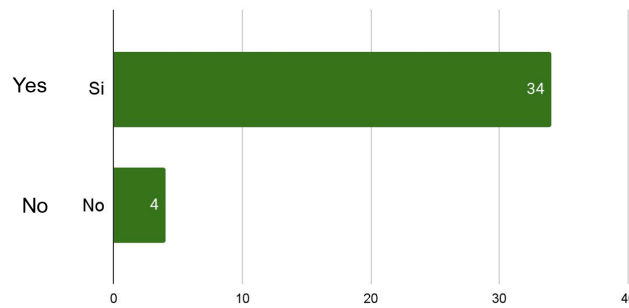
**Participación de la audiencia - Cuestionario de Opinión / Parte 1**

38 respuestas | answers



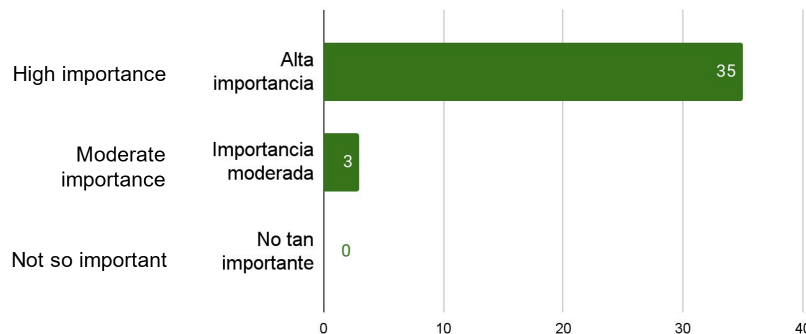
**Sabía usted que hay acuíferos que se comparten entre dos o más países (transfronterizos), como el caso del Acuífero Allende Piedras Negras/Maverick?**

**Did you know that there are aquifers that are shared between two or more (cross - border) countries, such as the Allende Piedras Negras/Maverick Aquifer?**



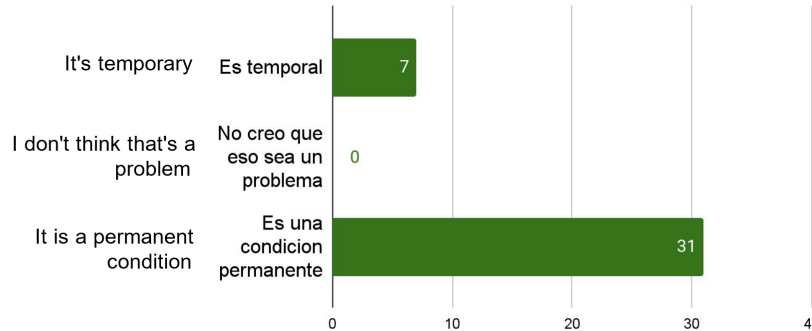
**¿Cuál es la importancia del agua subterránea para su comunidad, industria o sector? En otras palabras, que tanto depende del agua subterránea?**

**What is the importance of groundwater to your community, industry or sector? In other words, how much depends on groundwater?**

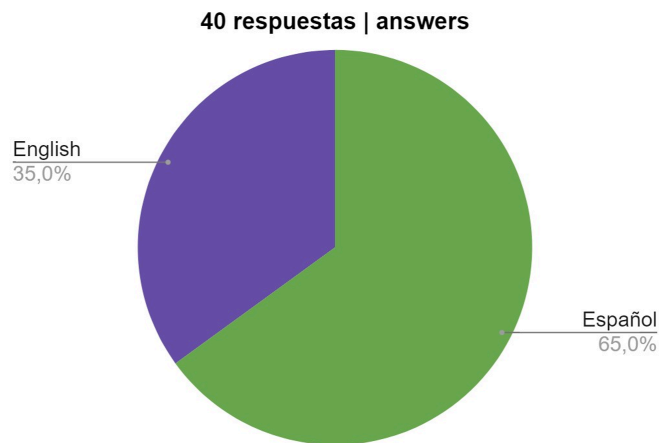


**¿Usted cree que estamos viviendo un periodo de escasez de agua temporal o piensa que será una condición permanente?**

**Do you believe we are experiencing a period of temporary water scarcity or do you think it will be a permanent condition?**

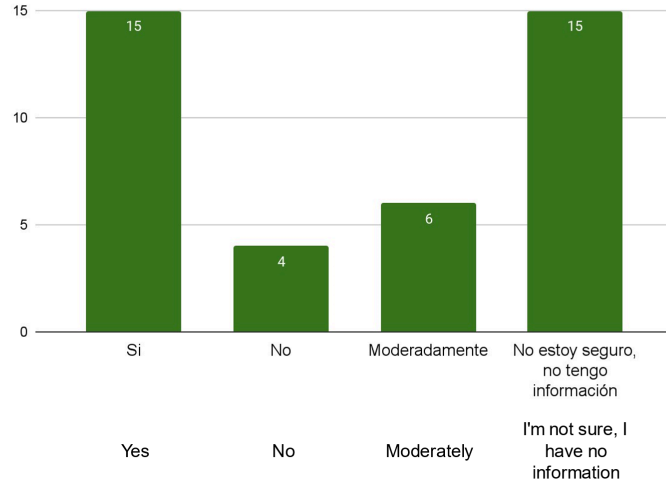


## Participación de la audiencia - Cuestionario de Opinión / Parte 2



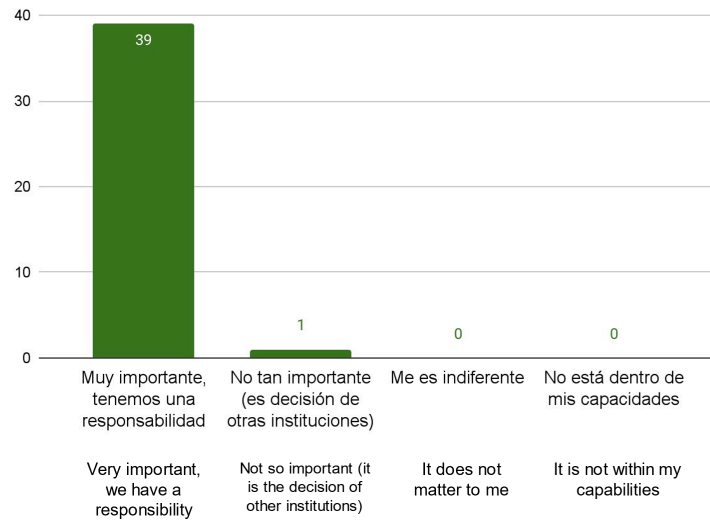
**¿Considera usted que el  
Acuífero Allende Piedras  
Negras/Maverick está  
sobreexplotado?**

**Do you consider that the  
Allende Piedras  
Negras/Maverick Aquifer  
is overexploited?**



**¿Usted considera  
importante trabajar en la  
comunicación con los  
diferentes sectores en  
ambos lados de la frontera  
en favor de la  
sustentabilidad del  
acuífero que comparten?**

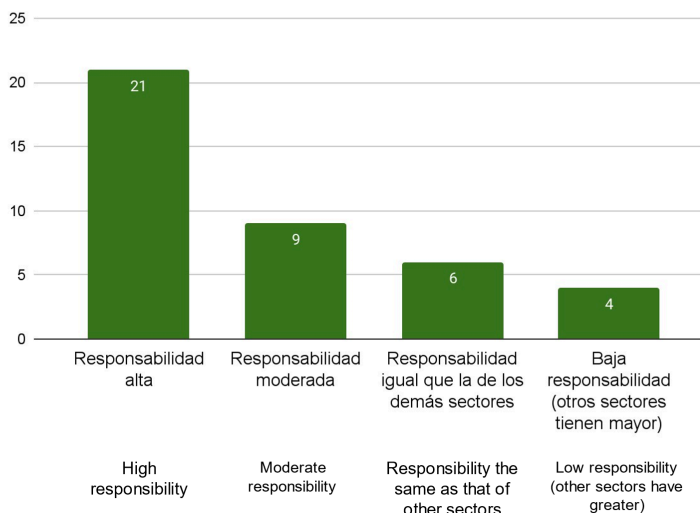
**Do you consider it  
important to work on  
communication with the  
different sectors on both  
sides of the border in  
favor of the  
sustainability of the  
aquifer you share?**





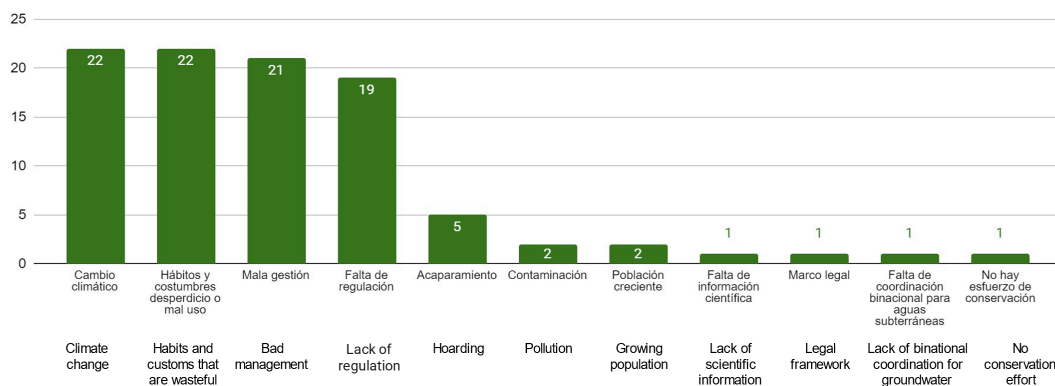
**¿Considera usted que el sector que usted representa tiene una responsabilidad en las acciones y estrategias para un uso sustentable del acuífero?**

**Do you consider that the sector you represent has a responsibility in the actions and strategies for sustainable use of the aquifer?**



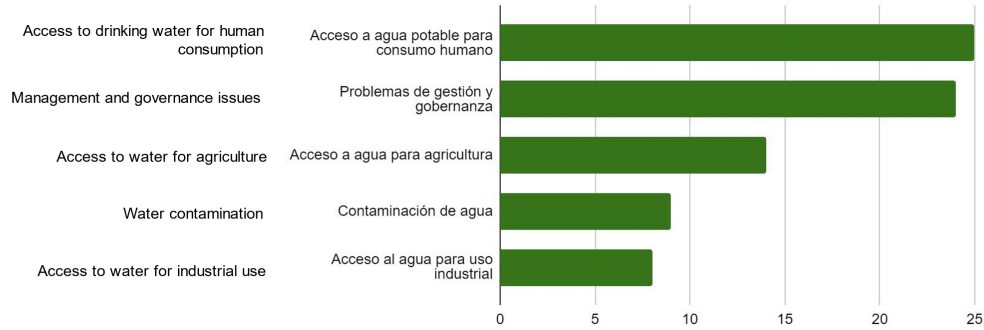
**En su opinión ¿Cuál es el o los motivos más importantes de la escasez de agua actual en su comunidad?**

**In your opinion, what is the most important reason(s) for the current water shortage in your community?**



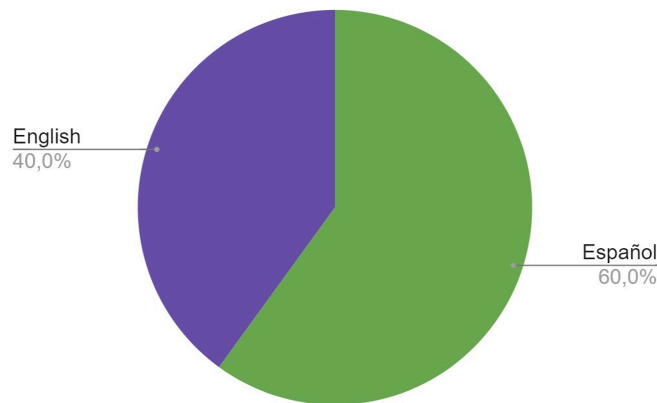
### ¿Cuáles son los principales desafíos que prevé su comunidad/sector en relación con el agua subterránea en los próximos años?

What are the main challenges your community/sector foresees regarding groundwater in the coming years?



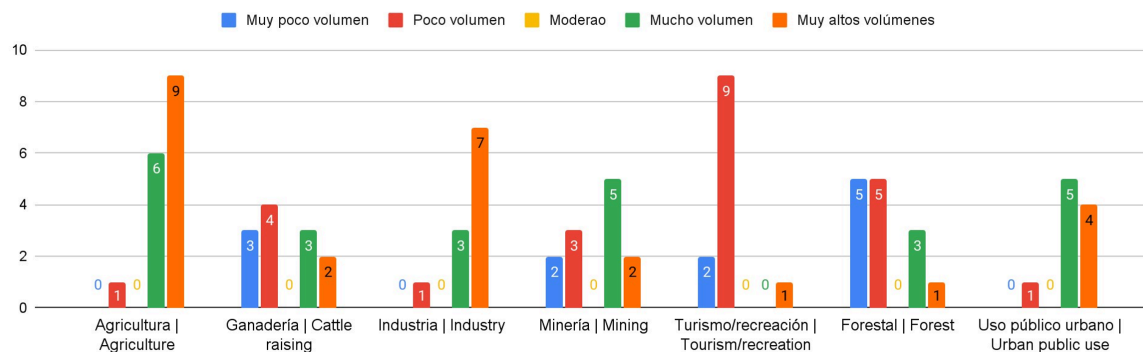
### Participación de la audiencia - Cuestionario de Opinión / Parte 3

30 respuestas | answers



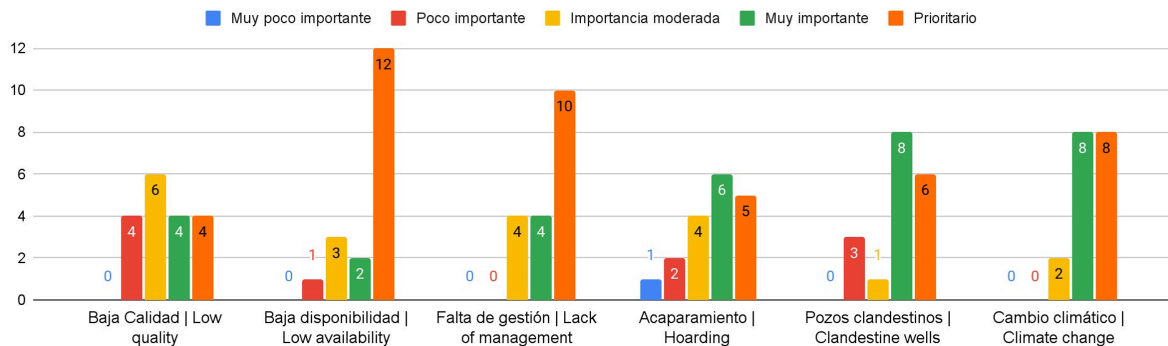
**En su experiencia ¿cuáles actividades productivas/económicas o culturales dependen de altos volúmenes de agua del acuífero Allende - Piedras Negras?**

**In your experience, which productive/economic or cultural activities depend on high volumes of water from the Allende -Piedras Negras aquifer?**



**¿Cuáles son los principales desafíos, necesidades o preocupaciones que enfrenta su comunidad en relación con el agua subterránea?**

**What are the main challenges, needs or concerns facing your community related to groundwater?**



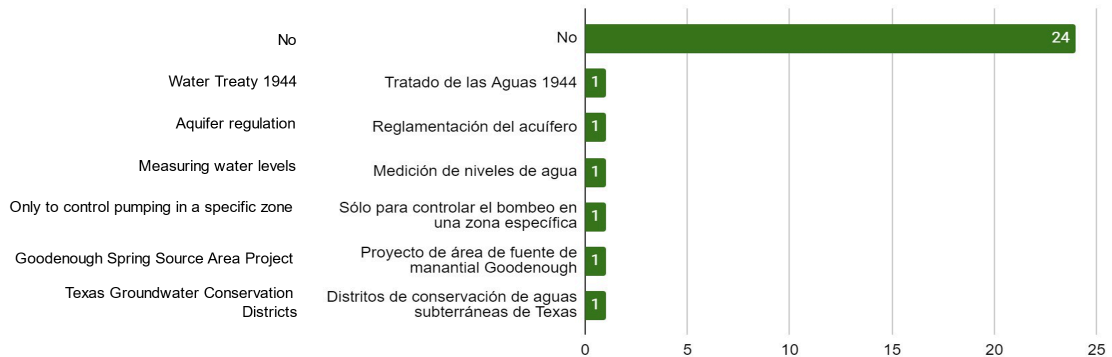
¿Cómo deberían gestionarse de manera efectiva los acuíferos que comparten frontera con otros países?

How should aquifers that share borders with other countries be effectively managed?



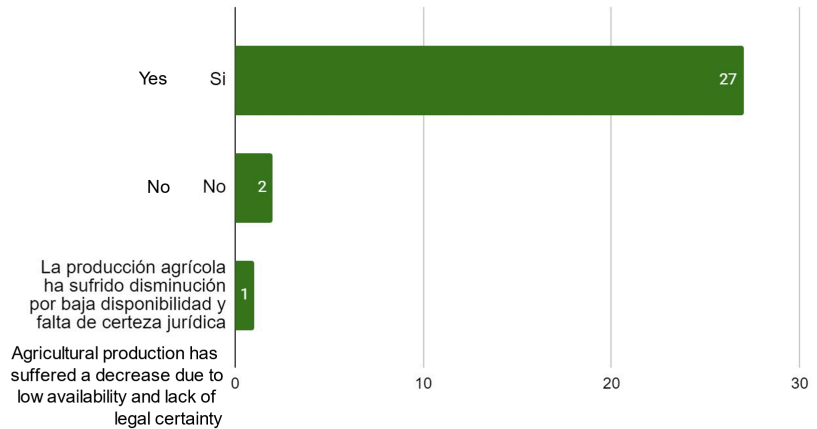
¿Conoce usted alguna iniciativa (programa, planes, propuestas, políticas públicas, etc) sobre colaboración o cooperación en su comunidad y vecinos (domésticos o internacionales para gestionar acuíferos de manera sostenible?

Do you know of any initiative (program, plans, proposals, public policies, etc.) on collaboration or cooperation in your community and neighbors (domestic or international to manage aquifers in a sustainable manner?



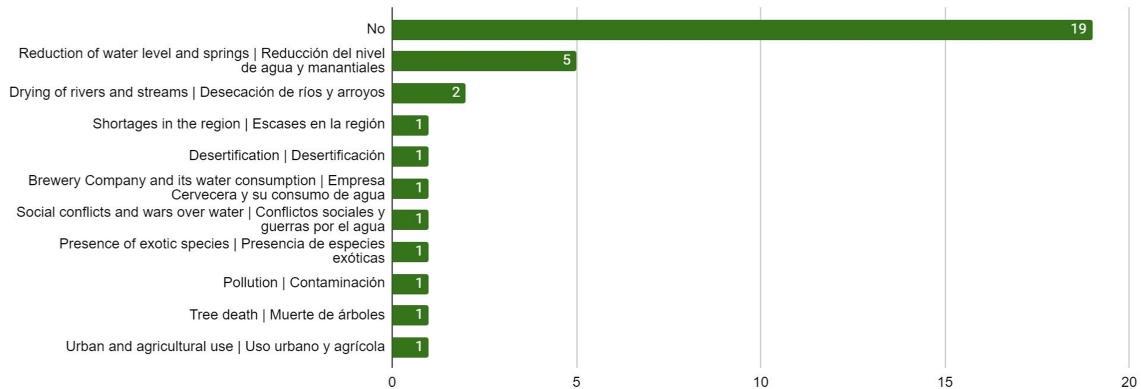
**¿Cree usted que se deben considerar las necesidades de los usuarios en el país vecino (MX o EUA) en la planeación de un acuífero compartido?**

**Do you think that the needs of users in the neighboring country (MX or USA) should be considered when planning a shared aquifer?**



**¿Ha notado algún tipo de impactos en el medio ambiente local o regional por la extracción de agua subterránea del acuífero Allende/Piedras Negras -Maverick?**

**Have you noticed any impacts on the local or regional environment from the extraction of groundwater from the Allende/Piedras Negras -Maverick aquifer?**



**¿Tiene usted conocimiento de las dependencias que administran y regulan el agua subterránea ya sea en México o Texas?**

**Are you aware of the agencies that manage and regulate groundwater in either Mexico or Texas?**

