TABLE OF CONTENTS

INTRODUCTION

The Mancos Conservation District proposed two projects that will promote well-informed community discourse regrading balanced water solutions statewide. The first project is the Mancos Watershed Outreach and Data Project (MWOD) which addresses priorities identified in the Colorado Water Plan and Colorado Water's Values. As the plan suggest, MWOD will provide an opportunity to support water awareness education that creates a productive, vibrant economy in the Town of Mancos, viable and productive agriculture, efficient and effective water infrastructure promoting smart land use; and a strong environment that includes healthy watershed, rivers and stream and wildlife.

GOALS & OBJECTIVES

MWOD will:

I. Increase knowledge of the CWP, BIP and water issues and concerns in the Mancos Watershed through stakeholder outreach and education with our Mancos River Resilience Report
II. Increase awareness to the agricultural community and watershed partners on past reports. Educate on scientific data, gaps concerns that need to be addressed.
III. Increase awareness of MCD as a source of education and information for conservation, environmental concerns and best practices for a healthy watershed.

SOLL will:

I. Increase awareness of K-8th grade students of water conservation, environment, gardens, food production
II. Offer hands-on learning opportunities for regional youth at 4 Corners Ag Expo and C.A.L.F
III. Offer new teaching materials and awareness to regional teachers using drought resilient manuals and other curriculum materials though a two-day training.

TASK 1- CONDUCT OUTREACH AND EDUCATION EVENTS

MWOD will hold a publicly advertised stakeholder meetings, convene and advisory committee, hold outreach and educational events, one-on-one outreach and education from our Outreach Coordinator and our District Conservation Technicians and include the use of social media and our local

newspaper to support water awareness education. MCD's board is well educated in the subjects we are tackling, but we also partner with strategic local, state and federal agencies and experts to best inform our public about previously collected data, water issues and the future plans for water in the State of Colorado. MWOD targets local MCD members, the Mancos Valley Watershed Group and partners in a watershed approach to concerns gathering outreach, and at increasing local support for and involvement in implementation actions to improve water quality. MCD is certain that the landowners and other stakeholders impacted by a watershed plan must included in the process and given the opportunity to help identify the practices for implementation. In order to involve Mancos Valley landowners and other community members in planning for the Mancos River and watershed health, MCD plans to implement an intensive outreach initiative. Attendance and participation of landowners and community members in educational efforts and actions aimed at improving watershed health and resilience can only be achieved if they are aware of the problems and if they feel included to join in efforts to address issues that they care about. We are working to find people who are passionate about specific concerns and then harness their energy and ideas to guide out action to address those concerns.

Deliverable

1. Mancos River Resiliency Report (Appendixes I)
2. Summery of Concerns for Mancos Watershed Stakeholders from Task 2

Final

All task completed and the final Summary of Concerns is attached.

TASK 2- COLLECT DATA AND CREATE A SUMMARY OF CONCERNS REPORT

The information we gather from stakeholders will be useful only when you put it into a format that allows us to analyze it. Looking at the information as a while will allow us to see trends for all stakeholder groups and compare the perspectives of different groups. For example, we may learn that there are significant discrepancies between the perceptions of stakeholder's groups. When compiling the information, we have gathers we will use different spreadsheets for quantitative and qualitative information. For individual respondents, we will be sure to include personal information on each, such as which education and outreach events we received their feedback form. We will use the same format or the same questions for surveys and interviews to collect consistent information from the different stakeholders, groups and events.

Deliverable

1. Mancos River Resiliency Report
2. Summary of Concerns for Mancos Watershed Stakeholders form Task 2
3. Attendance at a CWCB board meeting to present these reports

Final

All tasks completed and summary of concerns is attached. Attended the SWBR meeting and presented on results.

TASK 3- TARGET K-8TH GRADE STUDENTS IN MONTEZUAM COUNTY TO RECIVE EXPERIENTAIL LEARNING OF OUTDOOR GARDENING, WATER CONSERVATION ALGINED WITH COLORADO SCHOOL STANDARDS

MSTFP will schedule regular classes for K-8th grades in 6 school throughout the school year, including outdoor learning as well as classroom time. Also, the utilization of Drought Resilient Manuals to teach youth.

Deliverable

1. MSTFP will provide documentation of number of students served, hours instruction, and feedback form surveys on knowledge levels gained.

Final

All tasks completed and an additional survey is currently being conducted.

TASK 4- HOLD ANNUAL TEACHER TRAINING USING SOLL MATERIALS

MSTFP will hold a two-day teacher training using standards-aligned materials. Teachers, approximately 25+, from the 4 Corners area will attend and learn about teaching materials and methods for SOLL activities.

Deliverables

1. MSTFP will provide feedback from two-day training gathered via surveys and feedback forms.
2. MSTFP will document increased awareness and new methods of teaching.

Final

All tasks completed.

TASK 5- FACILITATE AND ORGANIZE YOUTH COMPONENT OF AG EXPO/ C.A.L.F

MSTFP has facilitated and organized the youth component of the 4 Corners AG Expo the past two years. MSTFP will organize 12 learning stations for youth over 3 days. C.A.L.F- stand for Children's Agriculture Learning Facility. Approximately 500 youth will visit C.A.L.F. over the 3 days, including student field trips form local schools.

Deliverables

1. MSTFP will provide documentation of numbers served, survey results focusing on awareness raised.

Final

All Tasks completed.

CONCERN GATHERING REPORT

The 2018 drought year brought drought and other concerns into sharp focus in the Mancos Valley. In order to better understand the specifics of stakeholders values and the nuance of individual concerns, the Mancos Conservation District interviewed landowners, water managers, and stakeholders to articulate shared, forward-looking drought contingency goals for people and conservation within the Mancos Watershed.

Prepared December 2019 for the
Mancos Conservation District

TABLE OF CONTENTS

INTRODUCTION

Since the 1930's when the Mancos Conservation District (then the Soil Conservation District) was formed in response to the Dust Bowl, the District (MCD) has provided information, technical and engineering support, and access to government cost-share programs that deal with the improvement of water distribution, on-farm irrigation systems, noxious weed control, rehabilitation of disturbed areas, and other conservation related activities. The MCD has established a principal goal of increasing the efficiency of water delivery from the Mancos River and its tributaries;

- To the livestock and crops of the Mancos Valley's nearly 400 landowners with water rights;
- To wildlife;
- To support restoration of the river channel.

These goals are part of the Mancos Valley Water Conservation Project. As part of the project and in recognition of increasing and changing pressures on individual and community resources within the Mancos Watershed and specifically in the Mancos Valley, the MCD undertook extensive concern gathering efforts to strategically and comprehensively assess and summarize concerns within the Valley. Concern gathering efforts began in 2017 and occurred before, during, and immediately following one of the most severe droughts to occur in recent history in the region. Beginning in October of 2017 and extending well into the summer of 2018, drought conditions ushered in less than 25-50% of normal moisture alongside temperatures that were, on average, 2-4 degrees above normal. The price of hay doubled, ranchers sold their cattle, and farmers let their fields wither and fallow.

The 2018 drought year brought climate and other concerns into sharp focus, and tensions into high gear. In order to better understand the specifics of stakeholder values and the nuance of individual concerns, MCD set to concern gathering with the goal of working with landowners, water managers, and stakeholders to articulate shared, forward looking drought contingency goals for people and conservation within the Mancos Watershed. This effort furthers the Mancos Valley Water Conservation Project and provides critical feedback from stakeholders to inform a drought contingency plan that can both help prevent water crisis locally, and respond to water crisis on a larger scale. In the Mancos Watershed specifically, a drought contingency plan is a proactive step to protect water users and ensure or promote long-term viability of multiple uses under increasing pressure on limited resources.

This report highlights the primary concerns under each question, offering a summary of observations and concerns, along with specific anecdotes from interview subjects. The conclusion offers high-level observations of stakeholder concerns, as well as outlines some potential next steps for how the findings of this effort can inform and guide future planning efforts, including a drought contingency plan.

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METHODS

Beginning in 2017, the Mancos Conservation District had one intern who conducted concern gathering interviews. Between 2017 and spring of 2018, he conducted a total of 20 interviews.

During the summer of 2018, Sophia Cinnamon, an intern with The Nature Conservancy, (herein referred to as TNC intern) also supported concern gathering efforts and conducted 13 interviews. While the questions asked during concern gathering were similar, there was slight variation. The latter were developed in coordination with a Bureau of Reclamation (BOR) Grant Team as part of their efforts to inform and develop a decision framework for drought resilience strategies in the Mancos Watershed. Together with the MCD, they collectively developed and refined a short list of questions to best identify

water-related values and concerns among stakeholders. Inspired by the Kettering Foundation's "Developing Materials for Deliberate Forums", the final set of questions allows for stakeholders to identify and articulate issues, values, and options in their own words.

In each case, once the set of questions was finalized, stakeholders were contacted via phone and email to schedule one-on-one interviews. The stakeholder list was provided by MCD. Valuable recommendations and additions to the list were also made by stakeholders during the interview process. Depending upon stakeholder preference, interviews were conducted at kitchen tables, library meetings spaces, offices, and at a local bakery. For many ranchers and farmers, time was limited and they appreciated a home visit and were happy to oblige in a tour. Interviews were recorded and took anywhere from 1-4 hours. Interviews were anonymous, so all summary audio and text documents are coded to protect anonymity.

TNC intern created an interview report for each stakeholder interview, using a format that succinctly highlights values, concerns, solutions, quotes, and other relevant information. Because MCD surveys were also part of a concern gathering effort about food supplies and producers in the Valley, the questions did not always pair up exactly. Table 1 below attempts to reconcile the distinctions in those questions by establishing parallels between the content gathered in response. Both set of questions are provided in the appendix, MCD questions as Exhibit A and TNC Intern questions as Exhibit B.

Table 1: Question Conversions/Equivalencies

TNC intern Question #		MCD Question #
1	=	1
2	=	2
3	=	4,1,11
4	=	5,9
5	=	3,2,11
6	=	2,11
7	=	11
8	=	0

Because of the dynamic nature of these conversations, answers to questions were often provided as part of an ongoing dialogue, rather than a specific response. As such, this report attempted best as possible to place answers where they belong in relation to questions, without taking answers out of context.

The "summary" section under each detail finding examines the nuance of specific responses and explains how certain concerns vary in context from question to question. I.e, the "conflict" category under question 3: "What concerns you most?" differs greatly from "conflict" under number 4: "Do you have ideas for how best to address this issue in the community?". As such, the predominant themes and words are captured in the pie charts, while the summary and specific stakeholder quotes/anecdotes work to elucidate the nuanced meanings from question to question.

***

SUMMARY OF FINDINGS

In many ways, it was no surprise to find that the range of responses and concerns is as diverse as the community itself. That being said, the distinctions often come down to specific language or experiences, but there are definitely trends: people who live in the Mancos Watershed are concerned about water supplies, the impacts of development on those supplies, the role that misinformation and lack of education play in exacerbating water shortages and conflicts, the impacts of current and future drought, climate change, and a changing culture in the Mancos Valley away from agriculture, or at least agriculture as it has existed in the past.

Some interview subjects offered a very, "it will be what it will be" approach to the challenges at hand, while others expressed concern verging on panic. Nearly universally, subjects had thought both about ways to improve their own situations and come up with ideas to help the community address the issues they saw it facing.

Whether as a concern or a solution, education rose again and again to the top of the list. Educational priorities include:

- Debunking "myths" around Colorado Water Law, specifically "Use it or Lose it"
- Educating real estate agents and future/new buyers on water rights
- Coming together for community dialogue around conservation measures
- Specific irrigation methods that are, according to interview subjects, more efficient
- Opportunities to be more drought resilient through crop switch or diversification
- Municipal conservation measures
- Understanding impacts of a compact call
- Educating upstream users on cultural and ecological impacts of dewatering (which occurs frequently downstream)

Additionally, stakeholders called for increased dialogue, community engagement, and planning. While individuals likely, if not assuredly, have distinct visions for what specific planning efforts may look like, numerous subjects mentioned the following for potential plans:

- Drought resilience strategies
- Water conservation
- Water sharing
- Increased storage
- Improved infrastructure

***

DETAIL FINDINGS

Question 1. What water supply issues are of critical importance to our community?

The 2018 drought year brought previous drought years into sharp focus. The drought from 2002 was referenced a number of times.

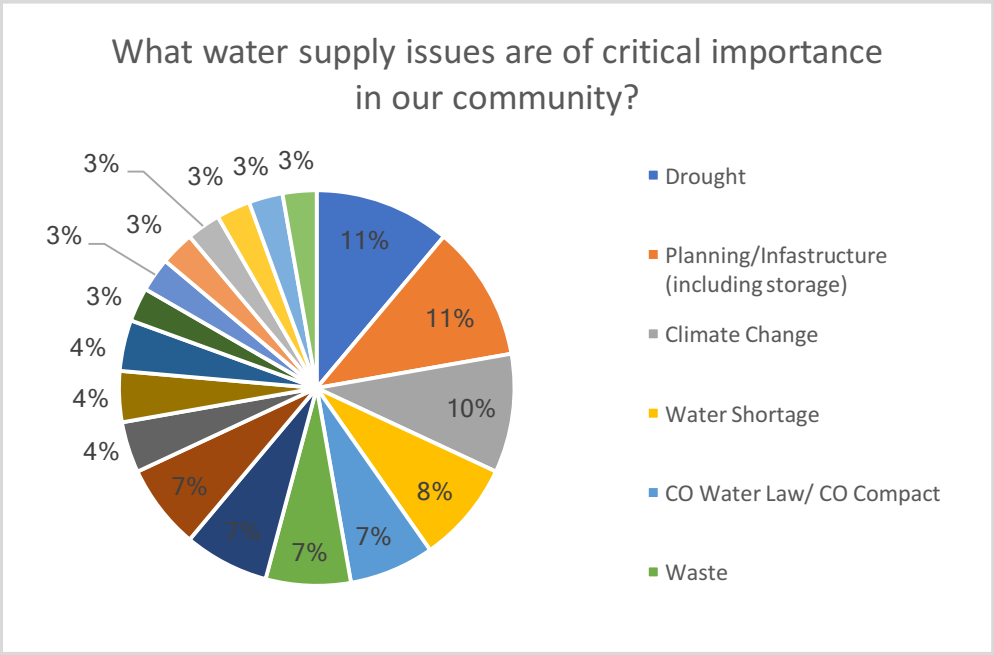


Figure 1: Summary of responses to question #1

1A. Concern #1,3: Drought (11%), Climate Change (10%)

A number of concerns fall under this category and were primarily focused on: groundwater supply; potential impacts on the economy (specifically the vulnerability of agricultural livelihoods); the potential for negative impacts for in-stream flows for fish, the environment, and downstream users; the potential implications of CO Water Law on the community's ability to share or facilitate creative use of water during drought years; increase in wildlife activity due to temperatures and drought, and the subsequent impacts of sedimentation in the Mancos River; a shrinking or changing snowpack; inadequate supply; water restrictions or lack of availability due to drought; vulnerability of municipal water supply; and the impacts to forests, rangelands, and riparian ecosystems. Climate change was a close second at 10%, and was often linked with statements about future drought and other unplanned, unknown changes to water supply, specifically snowpack.

> **Stakeholder A:** *Change in climate is probably the largest concern because there doesn't seem to be anything tangible we can do about it in our time, it's out of our hands.*
>
> **Stakeholder B:** *This year, the shortage. A lot of the new people just don't know what's going on with it.*
>
> **Stakeholder C:** *I think about irrigation water. I think about snowpack. And maybe I think about how that's associated with the agricultural heritage and character of the Mancos Valley. The concern would be having water. Without irrigation water, this valley's done.*

Stakeholder D: *Period drought is characteristic of the Colorado Plateau, but we do know that temperatures are higher than normal in our mean quarter and mean month. We're in the 98th percentile."*

Stakeholder E: *There are mental health issues in the agricultural community arising from stress related to drought impacts on operations. "This is currently happening due to the economic crisis agriculture is faces.*

1.B. Concern #2 (11%): Planning & infrastructure (including storage)

Concerns about infrastructure and storage centered primarily around a lack of sufficient infrastructure and aging infrastructure. Interview subjects had wide ranging ideas about ways to mitigate or solve storage capacity, including through the expansion of Jackson Reservoir, better monitoring through the use of measurement devises throughout the watershed that both resource managers and landowners could rely on, and updating and replacing infrastructure. The term "infrastructure" is used to discuss piping, diversions, head gates, reservoirs, and other water storage and delivery mechanisms.

Stakeholder A: *There's a lot of failing infrastructure. I'm not sure that it is measured correctly in a lot of places and I see it being wasted by junior water users. I see them not understanding, particularly how water works.*

Stakeholder B: *Putting the Weber into pipe would conserve a lot of water. One of the challenges is the price tag, another is the loss of cottonwoods along the open ditch, but someday I think that should happen.*

Stakeholder C: *The water system was built for large infrastructure not smaller family homes and ranches.*

Stakeholder D: *The lack of water. On a year like this and the wasteage, we could, a lot of these guys could get by with a whole lot less if managed properly.*

Additional Concerns:

Additional concerns included just about everything that people value in the watershed. Concerns about waste and shortage were linked closely with conflicts, specifically around whose water is whose, and what CO Water Rights really entitle people to. Further, a number of both concerns and solutions were expressed regarding current use of wasteful irrigation practices, and opportunities for more efficient ones. The concerns that participants voiced about conflicts surrounding water extended from different values, to specific encounters on the ditch banks. Often, interview subjects attributed conflicts to a lack of education (see below) or distinct values and forces from "above", specifically in regard to impacts of the Colorado Water Compact, or potential listing of specific fish species.

Stakeholder A: *Conflicts are caused by a lack of adequate infrastructure; people don't know whose water is whose.*

Stakeholder B: *Colorado water law impedes a community's approach to water use/sharing during drought years.*

Stakeholder C: *If the government keeps changing the rules, I have to turn off my irrigation water so the fish can get a drink, which they haven't had for years.*

Further, stakeholders expressed concerns about lack of water education, a lack of communication, and harmful misinformation that fed these conflicts and exacerbated already stretched water resources and supplies.

Stakeholder A: *We've had people that move in. We had a guy move in and he was from back East and had pretty good water rights and sold them all because he didn't understand why he would need them. He dried the land up. He just wanted water coming out of his tap*

Stakeholder B: *As far as lack of education, oh, people using water when they're not supposed to. This year, they might have the sheriff show up.*

Stakeholder C: *One of the issues is a lack of education on water conservation, which is being improved slowly. There's a lot of information out there to build a water conservation plan, it's just not very prevalent.*

Stakeholder D*: I think it's just going to get worse and worse. I've already heard farmers talking about how if this [drought] keeps happening you're not going to have any farmers left. You can have one bad year, but once you start talking 2-3 years with limited water you can't really survive.*

While in lesser numbers, stakeholders expressed concern about a number of ecological impacts of over-appropriation and dewatering, specifically on fish and wildlife species. They also highlighted the vulnerability, specifically under future climate scenarios, of the headwaters of the Mancos to wildfire.

Stakeholder A: *In 2002 and 2018, the river dried up at times. It no longer supports the species who need perennial water year-round.*

Stakeholder B: *The Mancos is the only perennial stream in Mesa Verde National Park and provides important habitat for fish and wildlife.*

Stakeholder C: *A fire would be devastating for the watershed. A debris flow could create a dam and damage downstream properties.*

Finally, though certainly not of least importance, stakeholders expressed concerns about the limited water supply and the impacts on multiple cultural values. Some stakeholders expressed concern about the impacts to the agricultural way of life in the Mancos Valley, while others expressed concern for downstream users and the cultural values of the river and water to the Ute Mountain Ute Tribe. Additionally, stakeholders identified both existing value of the river for the community in Mancos, as well as future opportunities to improve community relations and use of the river through various forms of recreation and interaction.

Stakeholder A: *The Mancos is literally dry before it hits the Ute Mountain Ute Reservation.*

Stakeholder B: *I care about open spaces and agriculture as a lifestyle and how that ties to our community*

Stakeholder C: *Town stretch of river is trashed and not utilized.*

Stakeholder D: *River clean-up could boost the economy*

***

Question 2. Which one of these issues would you most want to discuss with others? Why?

The goal of this question was to identify opportunities for dialogue or education, or particularly prevalent or pressing issues for participants. As a note, this question was rarely answered as it was asked. Rather than respond to what they wanted to discuss with others, most participants continued to flag areas of interest or concern to them personally.

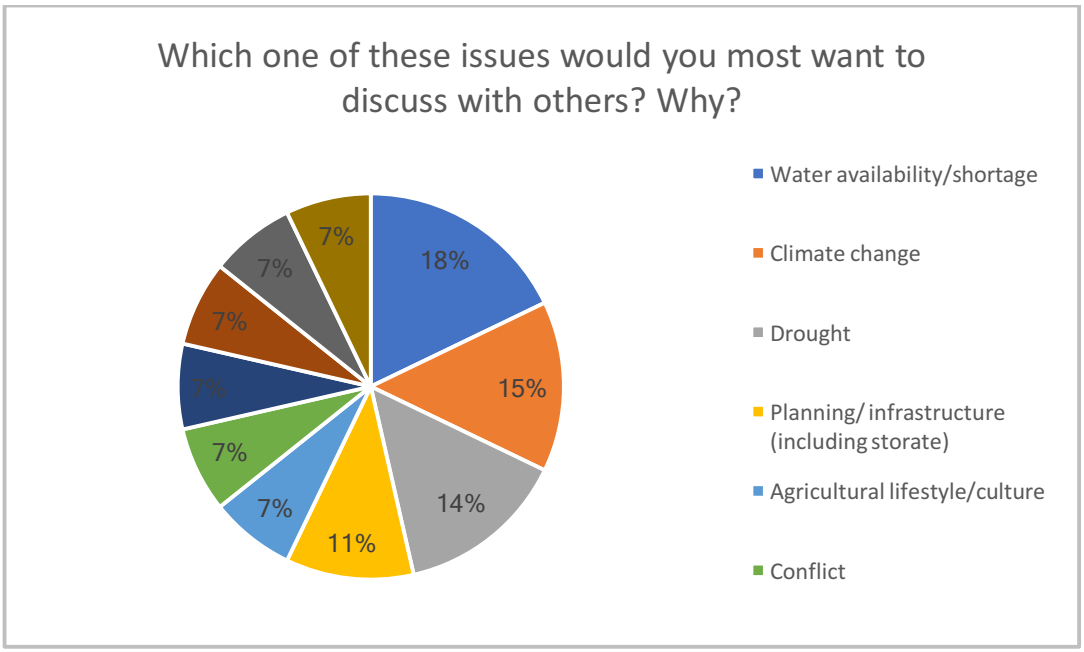


Figure 2: Summary of responses to question #2

2A. Concern #1: Water availability, shortage (16%)

Participants aired a number of concerns related to water availability and shortage, specifically in the context of over-allocation, development, and waste. Further, concerns about drought and climate change were often wrapped up in these conversations, but the predominant language was shortage or availability. Concerns about drought and climate change were captured below.

Stakeholder A: *What bothers me is probably how it's all set up for side roll usage, all set up for wasteful usage.*

Stakeholder C: *You can just drive down the dang road in the spring to see the problems. A lot of the time, when only five shares of water will do the job, people use ten even when the ground's already saturated.*

Stakeholder E: *I can say this: sometimes, you know, the way we used to use water isn't the best way to use it now. Not the most bang for our buck.*

Stakeholder F: *We don't have enough votes in western Colorado to make up for what the can vote on in Denver. The politicians will use up all the local rivers to make up what they owe to the lower river areas in CA.*

2B. Concern #2, 3: Climate change (13%) & drought (13%)

A number of participants talked about the long recovery after a drought, as well as their long-term fears about changes associated with climate change and their desire to see the community, or their neighbors, take a proactive approach. Additionally, the concern about not knowing what's coming was raised both in the context of climate change and, for those who were not comfortable with the term climate change, in the form of drought. Some stakeholders expressed that while drought was not uncommon, drought paired with other pressures (like development or market shifts) was something they were concerned about.

Stakeholder A: *A very wet year is equally as devastating as a dry year.*

Stakeholder B: *It takes ranchers 7-10 years to recoup the loss of a drought year.*

Stakeholder C: *The community needs to figure out how best to transition [in the face of climate change and the subsequent impacts on the economy] and identify a feasible alternative.*

Stakeholder D: *1977 was a real bad drought. Turned on to #5 and that lasted a week, and people understood that's the way it was. Not this year, in 2018, we'll be in a bad drought and people aren't going to like it at all. There's too many people now.*

Stakeholder E: *We need to talk about climate for what it is. On one hand, I get it [not calling it climate change] because we all want to get along, but it's happening.*

2B. Concern #4 (10%): Planning and infrastructure, including storage

People in the Mancos Watershed are concerned both about existing infrastructure and needs for future infrastructure, but do not always share the same views on what those needs or priorities are. However, as was mentioned in above, all participants regularly reiterated the importance of "saving" water.

Stakeholder A: *We need to save as much water as we can.*

Stakeholder B: *Water in our community is scarce but it's vital. Without it, we wouldn't be here. It's the State of Colorado, too. Trying to do different things. I think they're going to decide that the state needs it more than the county or town does.*

Stakeholder C: *Honestly, for the watershed, forest management is probably the biggest [specifically as it relates to the vulnerability of water resources through wildfire]. The drought- there's only so much we can do about it. That's why we have reservoirs now.*

Additional Concerns:

In response to the question, "which one of these issues would you most want to discuss with others and why", interviewers received numerous responses regarding the need for education, the danger of specific myths, or misunderstanding between users and about CO Water Law.

Stakeholder A: *Landowner vs. landowner conflict. If someone came in here to buy a piece of property and had any idea about the water situation, it would cut down immensely on the amount of water problems we have. We wouldn't need the water sheriff.*

Stakeholder B: *People don't know enough about water law to actually apply it.*

Stakeholder C: *Realtors lack information on water and mislead home buyers*

Stakeholder D: *If somebody coming in here to buy a piece of property had any idea what the water situation was before they bought a piece of property, we wouldn't have half the water conflicts that we have.*

Further, subjects were concerned about often less represented or "appreciated" values, like fish, wildlife, and downstream users, specifically on the Ute Mountain Ute reservation.

Stakeholder A: *Conflict between agriculture and in-stream flows*

Stakeholder B: *Fluctuations in water supply does not allow a healthy functioning river system.*

Participants also expressed a desire to simultaneously shift and hold onto the culture of production and ranching, presumably through dialogue.

Stakeholder A: *New landowners are more willing to learn than old ranchers who are more stuck in their ways.*

***

Question 3. What concerns you most about this issue?

Answers to this question often repeated those given in response to question #1, as subjects who were asked "What water supply issues are of critical importance to our community?" often when asked to describe their personal concerns about specific issues.

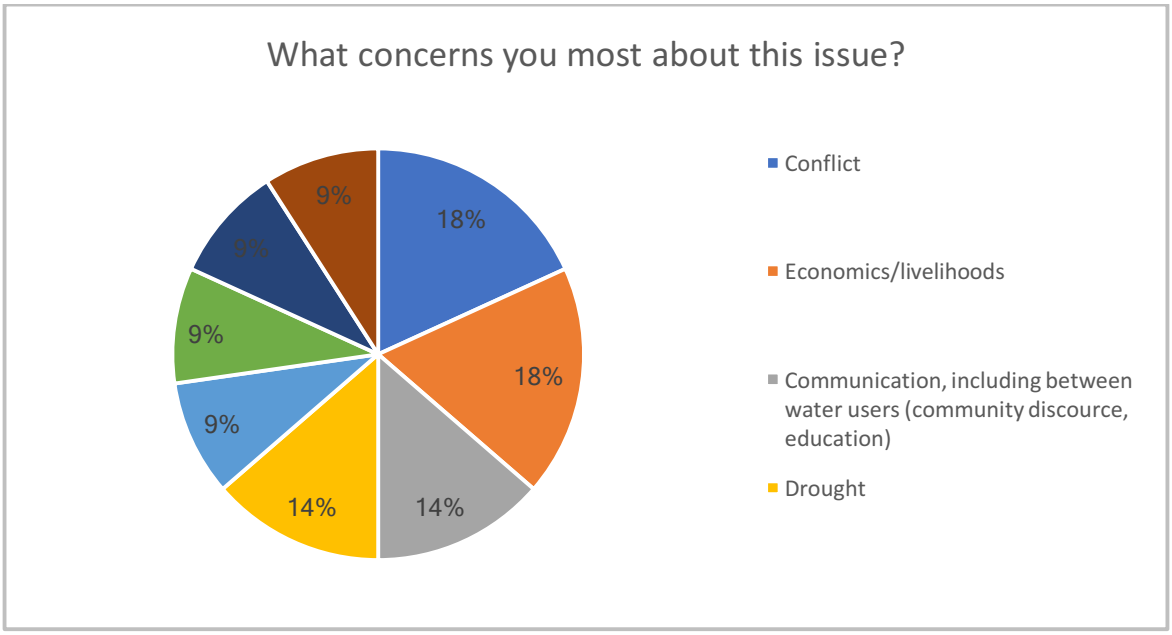


Figure 3: Summary of responses to question #3

3A. Concern #1 (18%): Conflict

The term "conflict" came up in response to almost all questions, whether to address specific conflicts between neighbors or producers on the same ditch, different values, or the discussion of potential future conflicts in a water-restricted region. In the context of this question, a number of subjects shared the concern about an increase in conflicts as water supply becomes more limited.

> **Stakeholder A:** *There's too many people now.*
>
> **Stakeholder B:** *How do we satisfy all the users while maintaining traditional water rights?*
>
> **Stakeholder C:** *People are real concerned when they think they're not getting their fair share of water.*
>
> **Stakeholder D:** *We have enough water. It's who gets it that creates conflict.*

3B. Concern #2 (18%): Economics/livelihoods

Often related to conflict but in the context of different values, a number of participants, both producers and non, stated their appreciation for and concern about the viability of a future ag industry, small or large.

> **Stakeholder A:** *I care about keeping the Valley the way it is today, keeping the heritage in agriculture. And that's getting harder and harder because no one's working in ag anymore.*
>
> **Stakeholder B:** *The county is ill-prepared to build a viable ag economy.*
>
> **Stakeholder C:** *What are my kinds gonna do? There just aren't that many jobs here.*

3C. Concern #3: Climate change (9%) & drought (14%)

Whatever the original water supply concern stakeholders stated, a significant portion identified climate change or drought as the thing that most concerned them about that issue.

> **Stakeholder A:** *To me, it's probably climate change and global warming, and the fact that we live in the Southwest, and there is drought here.*
>
> **Stakeholder B:** *There's a lack of forward thinking in this community and it's needed to address climate change.*
>
> **Stakeholder C:** *What concerns me is what concerns all of us right now: drought.*

Additional Concerns

As was the case with other questions, lack of education and mis-information were popular topics under this question, as were communications, proactive education, and planning needs.

> **Stakeholder A:** *Lack of education, lack of knowledge, lack of experience.*
>
> **Stakeholder B:** Stakeholder: *As for communication, there's no place for the whole community to come together. No local paper. We're all fragmented into our little friend and social groups.*

Participants also expressed specific concerns about the impacts of limited water supply, and on water quality concerns associated with that supply. As many stakeholders shared in question #1, ecological values are particularly vulnerable to water shortages.

> **Stakeholder A:** *Herbicide and pesticide use. That getting in the water.*
>
> **Stakeholder B:** *Maintaining biological diversity is critical.*

Finally, throughout the interviews and in response to this question, stakeholders shared in their concern about the impacts of water supply shortages on agriculture and on limited or vulnerable storage capacity within the watershed.

> **Stakeholder A:** *A lot of people in this Valley have no idea what living here would be like if we didn't have a reservoir.*
>
> **Stakeholder B:** *New people who move in don't understand how important the reservoirs are.*
>
> **Stakeholder C:** *The thing that worries me in the long-term is that they drew the lake down so low that if we don't get a decent winter, what are we going to drink next year?*

***

Question 4. Do you have ideas of how to best address this issue in the community?

The answers to question number four are some of the most informative, specifically regarding future interests and actions that stakeholders may be will to take to address areas of concern.

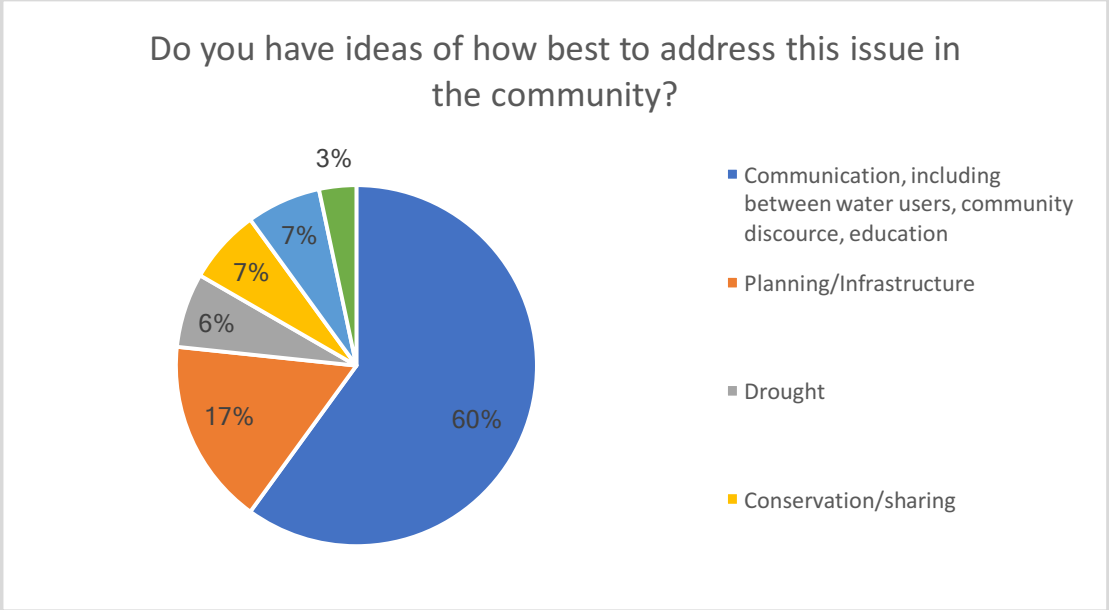


Figure 4: Summary of responses to question #4

4A. Concern #1 (60%): Communication and education, including between water users

Overwhelming, subjects interviewed for this concern gathering exercise identified important gaps in education and opportunities for both education and community dialogue. However, shared definitions for the goals of education were not universal. Some stakeholders advocated for education regarding very specific actions, like the application of herbicides, or the specifics of CO Water Law, while others supported and encouraged communication and information sharing more broadly, and recommended specific methods to that end.

> **Stakeholder A:** *Maybe awareness of herbicide use, especially the persistent stuff. There may be some education that can be done around that. I'm not even aware of the health risks with that stuff.*
>
> **Stakeholder A:** *We as a community can work tougher to educate fellow community members, but to develop the interest for them to show up us a whole different problem.*
>
> **Stakeholder B:** *We could do a better job introducing ourselves to new people who move in. And pray for rain.*
>
> **Stakeholder C:** *More communication and compromise so water can be used more efficiently.* Stakeholder A: *Lack of cooperation and collaborative approach to water management. We need an acequia-like system where all users could cooperate and maintain livelihoods.*
>
> **Stakeholder D:** *Education. It all comes down to education and teaching. Gotta get rid of the ignorance. If people aren't ignorant than they have no excuse.*
>
> **Stakeholder E:** *Act now! Use current drought as a jumping off point for community discourse.*

Stakeholder F: *In order to have a real estate license in this area, you should have to take water classes.*

4B. Concern #2 (17%): Planning, infrastructure

Perhaps not surprisingly, when it came to identifying solutions, a number of ideas centered around the creation of a plan that in some cases included improvements or answering questions around infrastructure, or in other cases focused on conservation or the development of methods for working as a community to prioritize and utilize water in line with shared community values. While solutions around planning focused on water concerns, some extended that protection to resource management for the protection of the watershed, specifically planning for fire.

Stakeholder A: *Develop a voluntary plan. For new people to get water, "it has to come from those who have it. There is no other way."*

Stakeholder B: *Create a local community forum and develop consensus at community level. Back decision making with diversity.*

Stakeholder C: *Water marketing (a la CO River Trust)*

Stakeholder D: *...people just being aware that they can leave their land in trusts, or people being allowed to subdivide into smaller pieces. Right now, people can't subdivide and they can't sell. And right now, there's a lack of smaller parcels that are farmable, and people don't want to see it subdivided into smaller subdivisions, but allowing that smaller subdivision for ag might be a good middle ground.*

Stakeholder E: *Create a wildfire recovery plan for the watershed. Look at each drainage and assess the value of each stream.*

Stakeholder F: *There's nothing we really can do except do our best to conserve the water we have.*

Additional Ideas:

Often related to either education or planning, a number of stakeholders focused on specific means of conserving water, either through proactive measures (like crop changes), or response measures, like information real estate agents or helping people better understand their water rights.

Stakeholder A: *I think promotion of other irrigation methods can help conserve some. Moving away from hay to grains would help with the herbicide usage.*

Stakeholder B: *Grow more drought-efficient crops. We need someone to set a model to make it possible. If you can work less, use less water, and produce a higher income, more farmers would get on board.*

Stakeholder C: *Increase the rates. If you start getting in their pocket they'll conserve.*

Question 5. What concerns do you hear expressed by others?

Answers to this question, in many ways, mirror the concerns expressed by individuals in response to question 1, "What water supply issues are of critical importance in our community", with some variation.

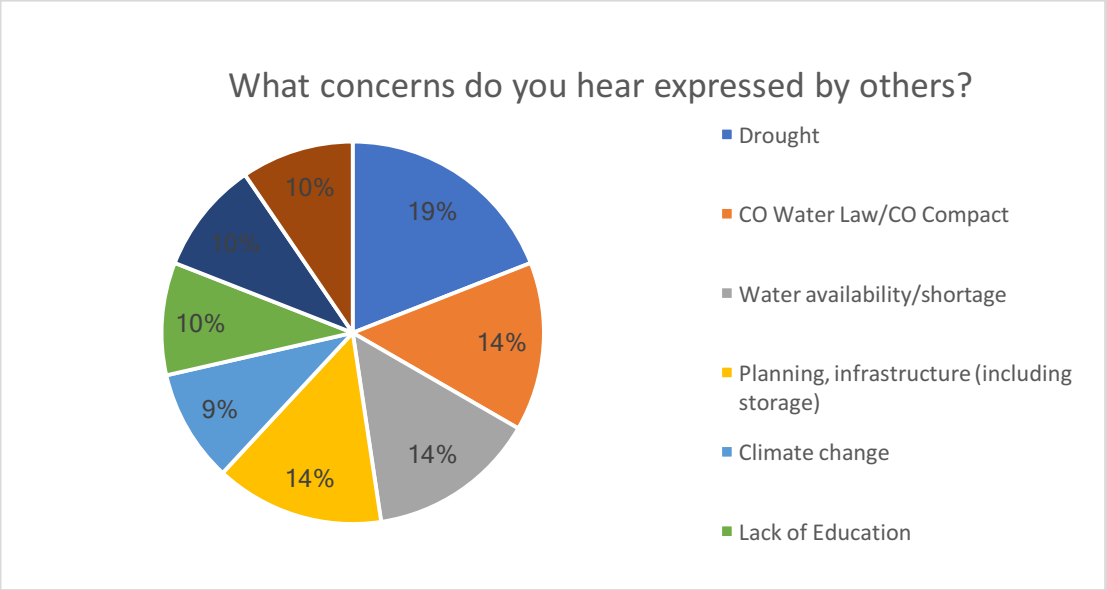


Figure 5: Summary of responses to question #5

5A. Concern #1,2 (19%): Drought and climate change (14%)

This may well be a question that accurately captured the concern of the moment which, in 2018, was most certainly drought. Climate change also factored into answers about this question, though at less of a rate than when people expressed their individual concerns.

> **Stakeholder A:** *What concerns me is what concerns all of us right now: drought.*

5B. Concern #2,3 (28%): Lack of water & CO Water Law

As was often the case in these interviews, concerns about shortages and water availability were often linked with concerns about the threat of a Call on the Colorado River, though the specifics of those concerns seemed to vary among participants. Some expressed concern about a call, while others continued to express concerns about misuse under current appropriations/allocations.

> **Stakeholder A:** *When I talk to other people, it's "am I going to have enough water". Another concern is the lower Colorado calling on the river. If they call, will we be able to fill our reservoirs?*

> **Stakeholder B**: *Most of the concern around water is: we don't have enough. The Mancos Valley is over-appropriated. We don't have the water for the need. We just don't have it.*

Additional Concerns:

Subjects also said they heard concerns expressed about storage capacity, aging infrastructure, the impacts (unintended) of piping some of the major ditches, and the vulnerability of or potential loss of an agriculture economy, and the impacts of parcelization.

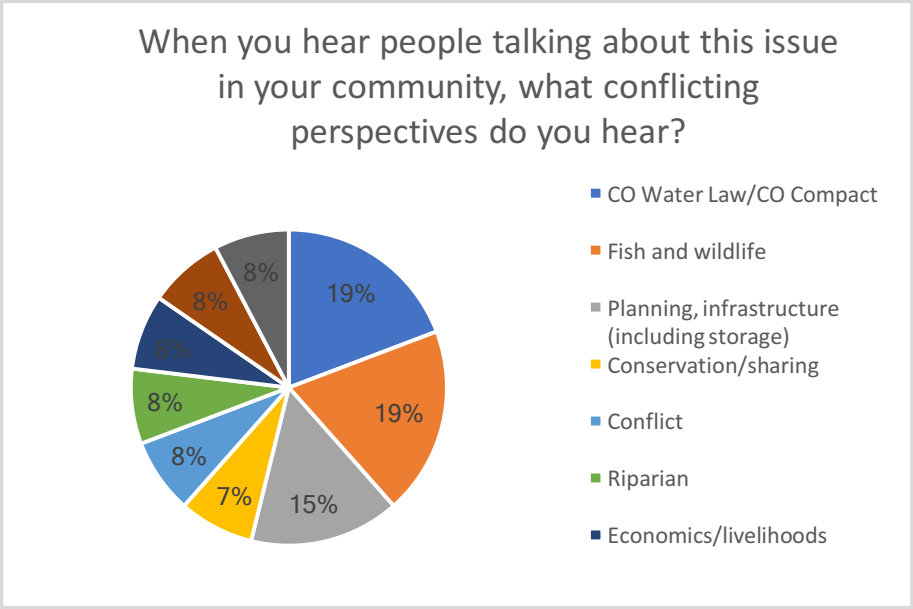
> **Stakeholder A:** *The economy is on everybody's mind. What can we do to pump more money into the Mancos Valley. That's probably the biggest thing that comes up in conversation.*

Stakeholder B: *All these big reservoirs are at a record low. Across the West, if we didn't have those reservoirs we would have no drinking water.*

***

Question 6.When you hear people talking about this issue in your community, what conflicting perspectives do you hear?

This question does not appear to be well understand by most subjects. While participants often highlighted issues that they felt were loaded or created conflict, they did not often elaborate on the specifics of conflicting perspectives. Rather, stakeholders generally identified themes. In some cases, stakeholders identified specific conflicts, often that they themselves experienced or were engaged in.



6A. Concern #1,2 (36%): CO Water Law/CO compact & fish and wildlife

That these two concerns tied for first place reflects the response of a number of interview subjects who highlighted the conflict between water users and current Water Law, and the potential for in-stream flow rights or flows designed to meet the needs of fish and other aquatic animals reliant upon flows in the river for their survival.

Stakeholder A: *Consumptive use vs. in stream flows*

Stakeholder B: *People are so rooted in value systems that they can't see the other side.*

Stakeholder C: *A few years ago one of these 'save the fish' fish habitat outfits come in and went the full length of the river and built fish habitat in the river. Last year during the flood, you could listen to their fish habitats rolling down the river.*

6B. Concern #3 (30%): Planning and infrastructure (including storage)

The conflicting perspectives that interview subjects expressed in relation to planning and infrastructure most often had to do with conflicts regarding the piping of ditches in the Valley and the subdivision of larger properties. Some reported concerns about return flows, or the impacts to riparian ecosystems that had grown up in response to the ditch.

> **Stakeholder A:** *Anybody can divide the land up but when you sell it for somebody to live on it, you have to put water on it. And we don't have it.*
>
> **Stakeholder B:** *We don't have a domestic water source. The Town of Mancos is limited with their water source.*
>
> **Stakeholder C:** *Both of their diversions [Weber and Root and Ratliff] are terrible. They've had to work on them and work on them.*
>
> **Stakeholder D**: *The pipelines have really helped a lot.*
>
> **Stakeholder E:** *Property rights. What you can and can't do on a ditch that runs through someone else's property. State laws gives you the right to have what grounds you need to maintain the ditch but it don't tell you you can do whatever you want on it.*

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Question 7.Is there anything else you'd like to share? Did we miss anything?

Not surprisingly, this question resulted in few uniform answers but some common themes rose to the surface.

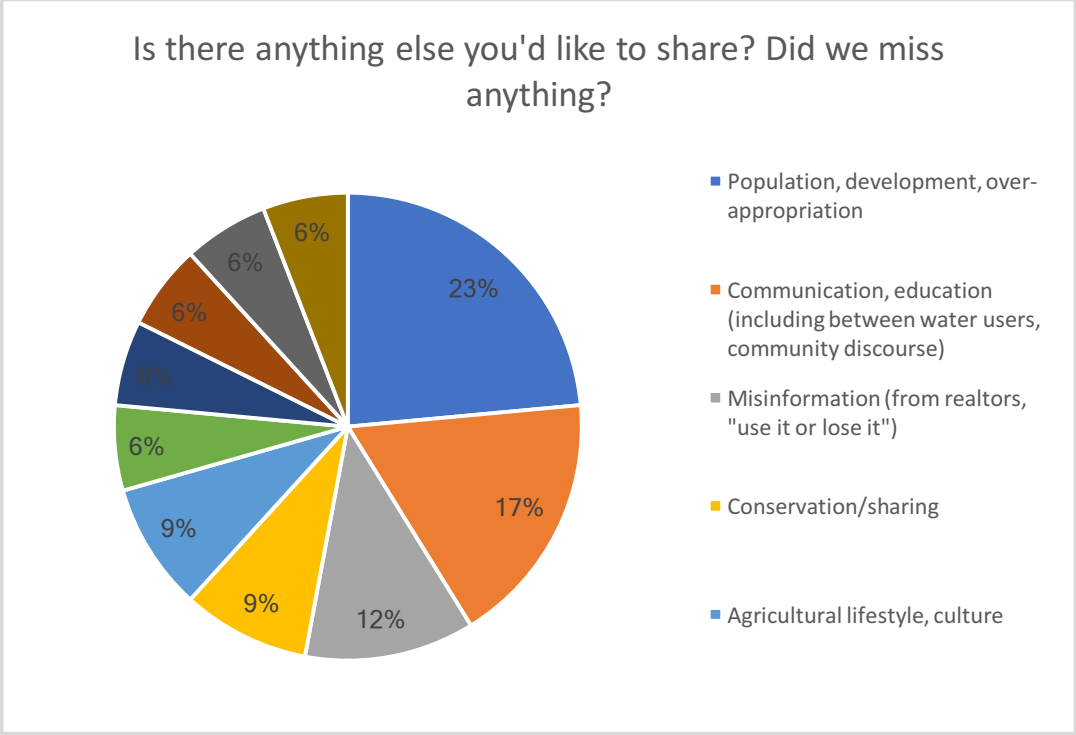

Figure 6: Summary of response to question #7

7A. Concern #1 (28%): Population, development, over-appropriation

One of the most salient issues for interview subjects surfaced when this question was asked and had to do with concerns about development. Those concerns were sometimes about parcelization, sometimes about second or absentee homeowners or landowners, and sometimes simply around an increasing population and the related demand, both for consumptive and non-consumptive use.

> **Stakeholder A:** *Everybody I've talked to, the realtors told the buyers they have more water than they really do.*
>
> **Stakeholder B:** *Restrict municipal use and enforce conservation so more water can go to ag.*
>
> **Stakeholder C:** *Create cooperative agreements on lateral ditch so market farmers would get more water than hobby farmers.*
>
> **Stakeholder D:** *I think we have a population issue. People are charging more than the market will bear.*

7B. Concern #2 (17%): Communication, education (including between water users, community discourse); Misinformation (12 %)

Wrapped up in these concerns was often the issue of education, specifically around water rights for new landowners and often directly associated with concerns about the real estate industry and approach to sales and information in the Mancos Watershed. Some interview subjects had specific ideas, aired below, about how to address some of the issues.

> **Stakeholder A:** *Workshops on water law would be good.*
>
> **Stakeholder B:** *I care about keeping the Valley the way it is today, keeping the heritage in agriculture. And that's getting harder and harder because no one's working in ag anymore.*
>
> **Stakeholder C:** *It's important to bring young farms and commercial farmers and ranchers together and ensure their interests are aligned.*
>
> **Stakeholder D:** *A community approach is necessary. There is probably more need than there is water.*
>
> **Stakeholder E:** *We have enough water. It's who gets it that creates conflict.*

Additional Concerns

In addition to concerns about over-allocation, impacts from development, and the importance of education and community dialogue, interview subjects aired concerns about underpaying for the value of water, ideas for a future recreation industry that helps boost the economy, and sometimes shared, sometimes distinct goals of protecting both community values, and ecological ones.

> **Stakeholder A:** *Community, environment. What else is there, really? The health of both of those*
>
> **Stakeholder B:** *Develop more recreation opportunities for storage reservoirs to boost economy and create new values for the watershed.*

Stakeholder C: *We spend more on our cell phone bills than our water bills.*

Stakeholder D: *Small operations can give back to the community and offer jobs if they have enough water.*

Stakeholder E: *What is a healthy river with no water and no riparian ecosystem?*

Stakeholder F: *Develop a diverse outreach plan for community meetings. Use: postcards, newspaper ads, radio ads, and emails.*

Stakeholder G: *It's hard to find anybody to work. You can't find anybody to haul hay or fix fence.*

Stakeholder H: *I actually like the way all the people who have moved into this valley have set up greenhouses. I don't mind that. They're growing vegetables and people like to eat vegetables. They're adding in new money to the local economy. I think the Mancos Valley's in pretty good shape.*

Finally, this question brought out some repeated concerns about the vulnerability of the watershed, and some related concerns about public land management practices that, in one subjects' view, exacerbate forest health concerns.

Stakeholder A: *There is no proactive fire management in the watershed.*

Stakeholder B: *Feds do not allow public to 'clean up forest' via grazing and logging and this creates higher fire danger which then impacts the watershed.*

***

Question 8.Would you like to be engaged and in future meetings and discussions about water supply concerns?

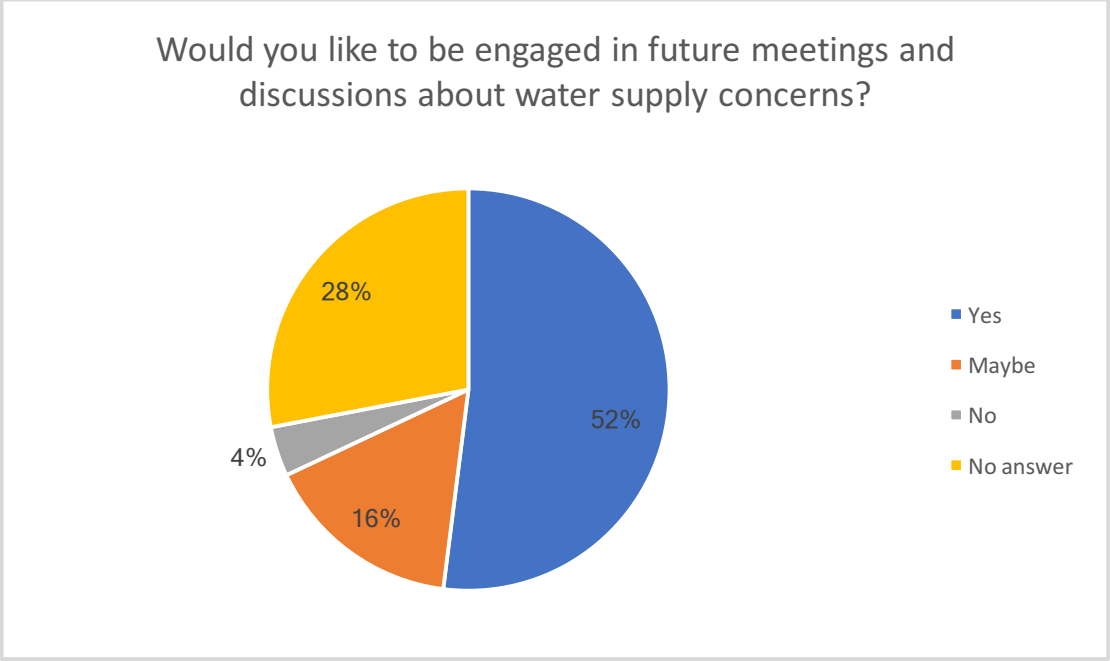

Figure 7: Summary of responses to question #8

The majority of people answered yes and even, when maybe, expressed the desire to stay involved with the caveat that their time is limited. It is unclear whether stakeholders who did not answer were not given the chance to answer (i.e., the question was not asked), they did not understand the questions, or they did not hear it and moved on to other discussions.

CONCLUSIONS

Under future climate scenarios, droughts like the one water users in the Mancos Watershed experienced in 2018 are expected to occur every 5-7 years. Rising temperatures and a decrease in winter snowpack are likely to impact all water users. Additional anticipated impacts of climate change include:

- In addition to the + 2-degree F increase in average temperatures that the Mancos watershed already experienced between 1985 and 2015, annual temperatures in the area are likely to increase by another 2-4 degrees over the next 30 years;
- In winter, temperatures will increase by 1.5-6 degrees, significantly altering the snowline/freezing line by between 400-1800 feet;
- Peak runoff will occur between 10-20 days earlier;
- Summer soil moisture will experience a deficit between 20% and -60%;
- The frequency and severity of wildfires will increase, and wildlife season could expand by as much as one month.

Taken alongside these future predictions and the pressing strain on already stressed water resources, the MCD concern gathering efforts, which collected input from diverse stakeholders at a critical time to inform future efforts that align the community around shared goals. Specifically, efforts to build a drought contingency plan will increase the resilience of water users in the Mancos across the board.

People in the Mancos Watershed want to keep water in the watershed, but host differing opinions about where (i.e., in piped or open ditches, in the river channel, in storage). Specifically, because the bulk of

these interviews were conducted during the 2018 drought, this effort captured concerns when participants were particularly vulnerable, or under stress. Whether relatedly or not, the response they offered to interviewers consistently highlighted the need for education, community dialogue, planning, and collaboration.

In a few of the interviews, participants acknowledged past efforts to bring the community together, and the challenges associated with engaging busy and sometimes untrusting stakeholders in dialogue, or identifying the best ways to share information. Numerous subjects shared a distrust of "outsiders" and proposed that some sort of incentive must be provided to engage stakeholders.

Future efforts of the Mancos Conservation District will seek to address some of these information and communication gaps and, more specifically, respond to specific requests for additional information about CO Water Law and opportunities for conservation under the law (and without risk to existing rights); convene stakeholders to identify shared goals or opportunities to meet the shared goal of keeping water in the watershed; create opportunities for information sharing (dialogue) between producers and community members who may have differing views.

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EXHIBIT A: MCD Survey Questions

Survey Questions

1. When you think about water in our community, what comes to mind? What concerns you? What bothers you personally?

2. What concerns do you hear from other people when it comes to this issue?

3. Can you describe a specific situation from your experience or a situation that you are very familiar with that illustrates the problem?

4. What do you think is causing this problem?

5. What do you think should be done about this problem?

6. What do you think might happen – good or bad – if such an action were taken?

7. What comes to mind when you think about food in our community? What concerns you? What bothers you?

8. What do you think is causing this problem?

9. What are your ideas of possible solutions?

10. Do you think our local waterways (rivers, irrigation ditches, reservoirs, etc.) have an impact on your food sources?

11. What do you care about?

12. How are you involved in the community?

EXHIBIT B: TNC Intern Survey Questions

Mancos Watershed Drought Concern Gathering-MASTER LIST OF QUESTIONS

In the coming months, the Mancos Conservation District and their partners will be working to create a discussion framework around water supply issues that are important to our community. We need your help in determining which water supply issues are most in need of public dialogue. Thank you for taking the time to meet with me.

*Other ideas for basic “warm up” and introduction.
It could say something like:

- As a partner of the MCD, I’m helping to gather information for this community discussion about water supply
- Before we get started, do you have any questions or concerns?
- How long have you lived and worked (ranched/farmed/etc.) in the Mancos River Valley?
- What do you value about living in the Mancos Valley?

Questions:

1. What **water supply issues** are of critical importance to our community?

2. Which **one** of these issues would you most want to discuss with others? Why?

3. What **concerns you most** about this issue?

4. Do you have ideas of how to best address this issue in the community?

5. What concerns do you hear expressed **by others**?

6. When you hear people talking about this issue in your community, what **conflicting perspectives** do you hear?

7. Is there anything else you'd like to share? Did we miss anything? Who else should we talk to?

8. Would you like to be engaged in future meetings and discussions about water supply concerns?

Wildlife Questions

-What value does your agency put on wildlife and biota

-What efforts do you put towards wildlife, and what types of wildlife? Esp. aquatic species

-How are aquatic species doing? What are your assessment metrics?

-What do you think the largest impacts to fish are, current and future?

-What opportunities do you see for conserving aquatic species while maintaining human water needs?