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Olga V. Wilhelmi, Michael J. Hayes, Deborah S.K. Thomas,

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Managing drought in mountain resort communities: Colorado's experiences

Olga V. Wilhelmi
Institute for the Study of Society and Environment, National Center for Atmospheric Research, Boulder, Colorado, USA
Michael J. Hayes
National Drought Mitigation Center, University of Nebraska, Lincoln, Nebraska, USA, and
Deborah S.K. Thomas
Department of Geography and Environmental Sciences, University of Colorado at Denver, Denver, Colorado, USA

Abstract

Purpose – This paper aims to investigate drought impacts and vulnerabilities specific to mountain resort communities and the implications for the tourism industry, in order to derive a set of recommendations for reducing drought vulnerability of this economic sector.

Design/methodology/approach – This article presents the results from a case study conducted in Colorado, USA, mountain communities evaluating the multi-year drought that culminated in 2002. Using qualitative research methods, a series of interviews were conducted to garner the experiences of state and local tourism officials, ski resort representatives, and environmental, municipal and agricultural organizations.

Findings – This study finds that drought alone was not responsible for creating the variety of direct and secondary impacts on Colorado resort communities. The paper highlights the importance of water resources to the economic wellbeing of resort communities and recognizes the critical roles of communication, planning, media and public perception during a drought.

Originality/value – Societal vulnerability in mountain resort communities in relation to drought has rarely been addressed in the literature. The study provides specific recommendations to the resort managers and tourism officials for mitigating drought impacts of, and reducing resort communities' vulnerability to, drought.

Keywords Tourism, General management, Colorado

Paper type Case study

Introduction

The twenty-first century in Colorado started with what many media sources and public officials referred to as "the worst drought in Colorado history". A multi-year drought event, with its peak in 2002, affected the entire state, resulting in significant water shortages. Detailed climatological analyses (Pielke *et al.*, 2005) proved that precipitation deficits were not exceptional in all areas of the state. It was the

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combined effect of decreased precipitation, evaporation losses, increased temperatures, and higher than average municipal and agricultural water demands, which resulted in a drought event that not only affected Colorado's economy and environment but lead to the conclusion that "Colorado society is now more vulnerable to . . .drought than in the past" (Pielke *et al.*, 2005).

A drought management approach that includes proactive mitigation measures, preparedness, planning and careful evaluation of available water resources tends to increase communities' adaptive capacity and reduce drought vulnerability. The Colorado Drought Mitigation and Response Plan (State of Colorado, 2001) created an institutional structure for interactions between responsible agencies throughout the state in the event of a drought. The plan was originally developed in 1981, was revised in 2000, placing more emphasis on drought mitigation, and activated for the first time since 1981 in 2002.

In early 2002, Colorado was in its fourth consecutive year of below-normal precipitation. In January, snow pack levels were measured at 65 percent of normal. By April, the statewide snow pack totals had declined to 52 percent of normal. In addition to persistent dryness, above-normal temperatures accelerated evaporative losses and increased demand on available water supplies. In April 2002, the Colorado Governor requested activation of the Colorado's Drought Mitigation and Response Plan (Byers, 2002) and convened all state drought impact task forces to recommend drought response measures, which included federal and charitable aid for supporting fire-fighting efforts and financial assistance to farmers. A Presidential Disaster Declaration for the 2002 Colorado wildfires aided thousands of Coloradans in areas affected by fire.

Impacts from this drought event were significant and wide-spread, affecting agricultural production (e.g., Webb *et al.*, 2005), municipal water supplies (Kenney *et al.*, 2003), and the tourism industry. Every sector of the tourism industry, especially summer-oriented tourism activities, in Colorado was negatively affected by the drought. In fact, most service oriented businesses in resort communities, such as restaurants, retail stores, and groceries, experienced reduced economic activity. In addition, dangerous wildfire conditions and smoke, national park and campgrounds closures, and extensive media coverage of the Colorado wildfires significantly reduced summer tourism.

A number of studies have been conducted to address societal vulnerability to drought in the context of agriculture (e.g., Wilhelmi and Wilhite, 2002) and water management (e.g. Knutson and Hayes, 2001), but little has been done to look at the local level drought preparedness and responses in communities dependent on recreation and tourism. In Colorado, tourism accounts for approximately US$8.5 billion of the state's economy in a given year. Skiing, the largest sector of the tourism industry, accounts for 19 percent (US$1,368 million) of total tourism spending (State of Colorado, 2002). Reliance of many Colorado tourism and recreational activities on water availability (e.g. rafting and skiing), in addition to increasing population migration to mountain areas, increases water demands. These trends suggest a likely increased vulnerability of resort communities to drought, which correlates with the overall statewide increase in societal vulnerability to drought (Pielke *et al.*, 2005).

In this article we investigate the impacts and vulnerabilities that are specific to the mountain resort communities (with some implications for the tourism industry, in general, as well). Based on the case study of drought conducted in Colorado mountain communities, we share experiences and lessons learned from this drought event and

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provide a set of practical recommendations in order to mitigate drought impacts in the future and decrease societal vulnerability to drought.

Case study: 2001-2003 drought in Colorado

Impacts of drought largely depend on societal vulnerability and the level of preparedness at the time drought occurs. The multi-year drought event in Colorado centering on 2002 presented an opportunity to study unique challenges to resort communities during droughts, in particular, the complex interplay between environmental sustainability, economic vitality, and social perceptions. This drought event also provided an opportunity for communities, government officials and resort managers to assess their level of preparedness for extended periods of dryness.

Goal and methodology

With the goal to increase understanding of drought impacts to and societal vulnerabilities in the resort communities, a case study was carried out in June-September, 2003. Using qualitative research methods, a series of interviews were conducted to garner information about experiences of state and local tourism officials, ski resort representatives, and environmental, municipal and agricultural organizations. Communities with a variety of geographic locations throughout Colorado were included in the study, each with proximity to resorts, major transportation arteries and urban centers. The following themes were discussed:

- drought perception and types of impacts observed;
- lessons learned;
- local-state relationships in drought planning and preparedness;
- suggestions for improvement in drought planning on a state level;
- local preparedness actions for the future droughts; and
- role of the media in a drought event.

Drought impacts on resort communities

Direct impacts. Similar to those impacts reported by the State of Colorado (2003), those interviewed mainly identified negative consequences to agriculture and summer tourism, especially water-related activities, such as rafting, fishing, and reservoir use. During the summer 2002, the water recreation industry was the most affected of all tourism and recreation industries; the extremely low levels of many reservoirs and rivers throughout Colorado presented a major challenge for this sector. In addition to economic impacts, there were clear social and environmental drought impacts. Examples mentioned included depression resulting from drought-stressed, brown natural surroundings, low stream flows, reduced water level in reservoirs, tree mortality and poor ground water quality.

Warm temperatures and a state-wide decrease in the snow pack also affected several Colorado's ski resorts. Historically, many ski resorts responded to the 1979 and 1981 droughts by investing in snow-making equipment as an adaptive approach alleviating variability in snowfall at the beginning of the season, ensuring a resort's opening date and a good snow base. As of 2003, 21 out of 25 Colorado ski resorts and ski areas made snow early in the season, from October through December in any given year. Snowmaking and associated acquisition of water rights for snowmaking is

considered by resorts as a major mitigation action against extreme drought events. However, in severe drought, this may increase contention over water rights with local communities. Overall, the direct winter impacts of the recent drought, especially on ski resorts in Colorado, were minor compared to the summertime impacts on other sectors of the recreation and tourism industry.

Secondary hazards associated with drought

Of the secondary hazards indirectly related to drought, wildfire was the most significant. Extremely dry fuel conditions resulted in 4,612 wildfires across the state in 2002, creating poor air quality and increased potential for flash flooding. The state reported that nearly 1,000 structures were destroyed by the fires (State of Colorado, 2003). For example, the Missionary Ridge Complex Fire that occurred in June and July, 2002, in La Plata and Archuleta Counties, consumed 70,662 acres and 56 homes with a cost of US$40.6 million (USDA, 2004). The extreme dryness of fuel, unique characteristics of the topography (i.e. steep grades) and homes built in recent years in wildfire high-risk areas of the wildland-urban interface contributed to the magnitude of impacts. In addition, debris flows resulting from flash flooding in the aftermath of the Missionary Ridge Fire caused substantial damage. Several homes that were defended and saved during the fire were nearly destroyed by the water and debris during the flash flooding that followed.

Even though wildfires (their number and magnitude) were in part a secondary impact of drought, many communities did not identify drought as a significant hazard until the fires started. Those interviewed spoke about a complex relationship between drought and fires in or near Colorado resort communities. Fires are as natural to Colorado as drought is a normal part of its climate. A state report indicated that Colorado typically experiences about 3,000 wildfires with a loss of 70,000 acres per year (State of Colorado, 2003). The intense dryness of 2002, following several drought years, resulted in an increase in number fires by almost 50 percent and the total area burned was nearly eight times larger than during normal years.

Everyone interviewed identified wildfire as major factor in the overall summer tourism decline. The direct impacts of the wildfires were: national and state park closures, bans on campground fires, health threats due to flames and smoke, and the nationwide and international media coverage of the wildfires occurring in Colorado. The dramatic images of Colorado fires influenced people's decisions not to vacation in the Colorado mountains that summer (Janofsky, 2002). More broadly, the wildfires heightened people's awareness of the drought, causing them to realize the severity. Wildfires played a less definite role in a winter tourism decline because once the temperatures cooled, the wildfire season ended. Lower visitation during consequent winter months was only minimally a result of lagging human perception of dryness in Colorado and was more likely linked to broader skiing visitation trends.

Other secondary impacts related to drought identified by those interviewed included the infestations of bark beetles, grasshoppers, and cut worms, the spread of noxious weeds, and the decline in groundwater quality in some residential mountain communities. Many of these factors can trigger long-term ripple effects. For example, the susceptibility of the stressed trees from drought contributed to the rapid spread of the bark beetle in the forests in the south-western part of the state. As an extension, the large forested areas affected by the bark beetle make ideal standing fuel for wildfires.

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Lessons learned

Several important lessons learned through this study have implications for all resort communities vulnerable to drought events. The first of these lessons was that drought alone was not responsible for creating the variety of impacts that had an effect on Colorado resort communities during this drought event. Other factors contributing to the impacts on these communities included the wildfires, the threat of terrorism and war following the terrorist attacks on 11 September 2001, an overall decline in the US economy, an increase in gas prices, West Nile Virus concerns, grasshopper infestations, and national trends in tourism. It is important to realize that in all cases, the complex interaction between local conditions and the climatological, economic, and social issues at a variety of scales determine the magnitude of impacts association with drought events on resort communities.

The recent drought event in Colorado highlighted the importance of water resources to the economic well-being of resort communities. In the western United States, there are already a variety of interests competing for the limited water resources in the region, including the combination of rapidly growing mountain development and reliance on water resources for recreational and tourism activities. One might think that adding a severe drought into this competitive environment would cause serious conflicts. On the contrary, this particular drought event created a situation where, in particular for those resorts and communities isolated from urban centers, there was the desire and necessity for cooperation in order to get through the difficult times of drought and seemed to generate necessary discussion around water resource management. In order to sustain local economies, cooperation developed in many instances between various sectors, including agriculture and tourism, the resort itself and a resort community, and also between communities themselves.

Another lesson learned was that the recreation and tourism sector in general, and resort communities in particular, are very sensitive to both media and public perceptions. There were several very clear examples of this, and it drove home the point that "all publicity is good publicity" may not be true for resort communities. While the media were very quick to point out stories about the negative impacts of droughts and wildfires across Colorado, drought recovery stories were not considered newsworthy. Resort communities had to identify ways to shift marketing and the media to focus on positives. The Colorado Office of Tourism also developed a comprehensive public relations plan during the summer of 2002 as part of the Drought Task Force activities. Because of the sensitive nature of perception on recreation and tourism, officials must be extremely careful requesting financial relief aid and should ensure that the geographic and sector requirements of this aid are clearly described. In this way, the request does not perpetuate negative perceptions that could affect people's decision to travel there. Several communities had communication plans in place, recognizing that media and public perceptions are critical.

Recommendations

Based on the lessons learned from the study, a set of recommendations have been developed that apply to Colorado resort communities, yet are general enough that they also apply for any resort community vulnerable to drought impacts.

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1. Improve communication and coordination

Colorado resort communities were unanimous in suggesting that improved coordination and communication is a critical recommendation for dealing with drought events. One community expressed it as "communication is the key!" This recommendation applies to improved coordination and communication between officials at the local level, as well as between the local officials and state or federal officials. Improved coordination and communication is an important component of a community crisis management plans as well. In the case of Colorado, increased coordination and communication between the resort communities and the ski resorts did take place during 2002. Some communities discussed how important it was for the state to communicate with the communities as part of its Drought Task Force activities. The Colorado Office of Tourism had representation on the Drought Task Force, and also worked hard during the drought to make sure that the various resort communities and individual ski resorts were informed. The Office and several of the resort communities relied heavily on e-mails and the web to make sure information was communicated between various officials, agencies, and the public. Improving the vertical connection between state and local officials is a critical component of this recommendation.

Some additional tools are available to improve coordination and communication. For example, the Colorado State University Cooperative Extension was involved in assisting with the coordination and communication. The extension services of land grant universities across the USA are in a unique position to provide valuable interactions between officials, as well as technological transfer between the universities and rural regions of each state. Improved communication and coordination includes the media as well. All participants in the study expressed the value of the media and the importance of close coordination and communication with the local, state, and national media. An element of this recommendation is for resort communities to hold workshops with the media to help explain the importance of tourism and recreation for the local economies, as well as develop better collaboration between the officials and the media during drought, or other natural hazard events.

2. Market the positive during a drought event

Marketing and public perceptions are very important in determining tourists' visits across the state. The rule of thumb that "all publicity is good publicity" did not apply to the Colorado tourism and recreation industry in 2002. As a result, one recommendation would be that the state, and the resort communities located within the state, be prepared to go on the offensive and identify ways to shift their marketing strategies and focus on the positive aspects about the local tourism and recreation that still exist in spite of a drought.

There were several great examples of how the resort communities across Colorado tried to accomplish this during 2002 and the other years of drought across the state. In each case, it required the communities become innovative in identifying new ideas. One community used the grasshopper outbreak as an opportunity to market some good natured grasshopper-related products, thereby poking fun at the natural situation they were experiencing in a positive, rather than negative, way. Another approach was a "Got Water" campaign, illustrating how several communities shifted their marketing focus toward more water-related themes and highlighted water on their promotional

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materials. As mentioned in the previous two recommendations, the web played an important role in positive marketing as well. One community developed a "mystery in the desert" web site targeted toward Asian audiences as a technique to focus on positive events in its region.

3. Develop state and resort community crisis management plans

One of the most important lessons learned by the state and resort communities in Colorado was that disaster events require the establishment of crisis management plans so that the response to the events can be swift and coordinated. Therefore, it is recommended that states and local resort communities each develop their own crisis management plans to deal with these disaster events. Several communities already had crisis management plans in place that immediately served to help that community respond during the height of the fires experienced in 2002. In fact, one interviewee cited the example of their crisis management plan as helpful during the drought, and then equally helpful in 2003 when a flood-caused sinkhole closed a major highway connecting the resort with nearby urban areas.

The resort communities shared that a successful crisis management plan seeks the involvement of all the local businesses and local media. It is important that community officials, businesses, the media, and the public are all sharing the same information and providing a consistent message to each other, as well as state and national officials and media. In some cases, the web proved to be an effective dissemination tool for providing the coordination and communication needed by the crisis management plans. Press releases were made available over the web, and web pages and webcams were effective in providing information to potential tourists and visitors.

4. Diversify local economies in resort communities

Colorado resort communities are highly vulnerable to disaster events because their economies are linked so tightly to tourism and recreation. For example, the central counties within the Colorado rely on tourism and recreation for 51 percent of their employment and 76 percent of their income generation. Several communities saw the importance of diversifying the economies, as well as diversifying their businesses. One of the examples given was that rafting companies should probably not be just focused on rafting, but have additional sources of income to rely on during the years when rafting is not as available. In other years, however, it might be the rafting that helps the company to sustain itself through another difficult period. A couple of communities mentioned that developing stronger interrelationships between the resort communities and the surrounding agricultural areas was an important opportunity to improve their diversity and reduce their vulnerability to disaster events. Another goal that communities mentioned was trying to bring their summer/winter tourism and recreation income closer to a 50/50 ratio in order to provide some additional diversity in dealing with hazard events.

5. Develop coordinated water, wildfire, and drought educational materials

Many of the officials interviewed for this study discussed the importance of developing coordinated water, wildfire, and drought educational materials. Providing ways to integrate this information into the curriculum of schools around the state could increase the understanding of the interrelationship between hazards, tourism,

recreation, and the natural resources. As seen with other topics, such as pollution and environmental issues, educating the youth has a "trickle up" impact on the adult society. Educational materials, however, also are needed for the public in general, and for the visitors coming into the state from elsewhere.

The concept of a "Drought awareness week" was generally seen as a bad idea to those in the tourism and recreation business because it focuses too much on the hazard rather than opportunities, producing a negative perception. However, incorporating drought into water and wildfire awareness campaigns was generally considered important. Finally, educating the statewide and local media on the interconnectedness of these issues was identified as very critical, so that balanced stories about the events could be followed by positive stories focusing on the recovery processes taking place locally.

6. Promote research on the drought impacts, responses, and predictions for resort communities

It became clear during the study that very little is known about the complete extent of drought impacts and responses on the tourism and recreation industry and how this affects resort communities. For example, understanding the economic loss locally and statewide from the 2002 summer for Colorado is probably not possible, due to the interconnectedness of the tourism sector to non-hazard related trends. In addition, long-term predictions are improving and the opportunity to identify the potential for drought events on resort communities is growing for Colorado and other locations. Understanding how the accuracy (and uncertainty) of these predictions affects action (or inaction) by decision makers at the state and resort community level becomes increasingly important.

References

Byers, J. (2002), "Drought: do you have a plan?", *American Water Resources Association Newsletter*, July, available at: www.awra.org/state/colorado/AWRA-July02.pdf

Janofsky, M. (2002), "Reaction to fires hurts Colorado tourism", *New York Times*, 7 July.

Kenney, D., Klein, R. and Morrison, A. (2003), "2002 municipal responses to drought in the Colorado front range", *Proceedings of 2003 AGU Hydrology Days Conference, Fort Collins, CO, March 31-April 2*, pp. 219-23.

Knutson, C. and Hayes, M.J. (2001), "Analyzing effectiveness of state drought plans", Quick Response Report No. 136, Natural Hazards Center, available at: www.colorado.edu/UCB/Research/IBS/hazards/qr/qr136/qr136.html

Pielke, R.A. Sr, Doesken, N., Bliss, O., Green, T., Chaffin, C., Salas, J.D., Woodhouse, C.A., Lukas, J.J. and Wolter, K. (2005), "Drought 2002 in Colorado: an unprecedented drought or a routine drought?", *Pure and Applied Geophysics*, Vol. 162, pp. 1455-79.

State of Colorado (2001), "The Colorado drought response and mitigation plan", available at: www.dola.state.co.us/oem/Publications/droughtplan.pdf

State of Colorado (2002), "Economic impact task force report on the impact of drought", Report from the Office of State Planning and Budgeting, available at: http://cwcb.state.co.us/owc/Drought_Planning/Economy_ITF_report.pdf

State of Colorado (2003), "2003 drought impacts and mitigation report", Colorado Water Availability Task Force and Impact Task Forces, April 14, available at: http://cwcb.state.co.us/owc/Drought_Planning/2003_Drought_Impact_and_Mitigation _Report_Final.pdf

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United States Department of Agriculture (2004), "Missionary Ridge Fire Archives". available at: www.fs.fed.us/r2/sanjuan/fire/missridge/index.shtml

Webb, R.S., Pulwarty, R.S. and Schuck, E.C. (2005), "2002 drought in Colorado: agricultural impacts and climate information needs", *Proceedings of the American Meteorological Society Annual Conference, San Diego, CA, 2005*.

Wilhelmi, O.V. and Wilhite, D.A. (2002), "Assessing vulnerability to agricultural drought: a Nebraska case study", *Natural Hazards*, Vol. 25, pp. 37-58.

Corresponding author
Olga V. Wilhelmi can be contacted at: olgaw@ucar.edu

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2. Shannon M. McNeeley. 2014. A "toad's eye" view of drought: regional socio-natural vulnerability and responses in 2002 in Northwest Colorado. *Regional Environmental Change* **14**:4, 1451-1461. [CrossRef]
3. Kelli Marie Archie. 2014. Mountain communities and climate change adaptation: barriers to planning and hurdles to implementation in the Southern Rocky Mountain Region of North America. *Mitigation and Adaptation Strategies for Global Change* **19**:5, 569-587. [CrossRef]
4. Deborah S K Thomas, Olga V Wilhelmi, Taryn N Finnessey, Veva Deheza. 2013. A comprehensive framework for tourism and recreation drought vulnerability reduction. *Environmental Research Letters* **8**:4, 044004. [CrossRef]

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