Water, Water, Nowhere: Adapting Water Rights for a Changing Climate

Caleb Hall
I. INTRODUCTION

Water supply is increasingly threatened by climate change throughout the West, especially in California. Although California has started regulating ground-water use, the state’s current efforts are not likely sufficient to adapt to an ever warming climate. California’s latest legal efforts are needed, but are lacking because “it will take years to craft and implement the management plans, the full effect of the regulations — the recovery of…over-pumped basins — won’t be felt until at least 2040.”

Meanwhile, recent climate change research predicts that evapotranspiration will increase seven percent in the immediate future. By 2050, the median snowpack could be one-third smaller than historical medians, and by 2100 it could be two-thirds smaller. Such drastic losses in snowmelt will yield less runoff to refill reservoirs leading to more frequent droughts. Other statistics show that by 2100, there may only be a ten percent chance that California’s snowpack will equal today’s average accumulation.

Considering the dire straits of California’s water supply, current legal responses to droughts in the West will fail to respond to worsening droughts because western water law is premised on the assumption that current water use can be maintained. However, in an unstable climate, that assumption is no longer valid. Under prior appropriation, water rights are maintained as long as water use is deemed “beneficial.” Although “beneficial use” is considered through the rate and amount of water used, such analysis is still limited to categorical definitions without contextual consideration. California and the western United States must reconsider the “beneficial use” requirement to adapt to climate change as such treatment is not sustainable in a time of ever-increasing droughts.

This Article begins with an explanation of California’s current water use, how the current drought threatens water use, and how climate change will ensure more disastrous drought. A history of development of western water law is offered to describe the current situation. This leads to a discussion of three spectrums of western water law: California’s recognition of both riparian and prior appropriation, Colorado’s, recognize of only prior appropriation, and Kansas’ adoption of several unique legal mechanisms to address drought. The Article concludes by urging that current western water law is not sufficiently prospective for more frequent droughts, but California water law can shift into a temporal, circumstance-oriented requirement if it changes from its current static “beneficial use” requirement.

II. THE GOLDEN, UNSUSTAINABLE STATE

California, the Golden State, is aptly named because of its historic gold resources that precipitated the mass migration towards the American West. In addition to gold, California also has enticing natural splendor, accessible ports, and agricultural productivity, developing it into the eighth largest economic engine in the world. California, recognized as the most productive agricultural state in the United States, leads the nation in production of various crops including almonds, grapes, and tomatoes among others. All of the aforementioned resources, from gold to crops, require water extraction, transportation, and sustenance, making “…California’s very existence…premised on epic liberties taken with water.” While California’s precious water resources should be protected, recent events have shown that is not the case.

California’s water use is immense, wasteful, and, possibly worst of all, unmonitored. California, mostly a mixture of dry desert and Mediterranean climate, must divert approximately forty-three million acre-feet annually from melting snowpack and groundwater. Sixty percent of those acre-feet come from reservoirs and other surface waters, while forty percent comes from groundwater. Regardless of the source, an estimated
eighty percent of California’s water use goes towards agriculture, mostly in the Central Valley, with ten and fifteen percent of water devoted to the uniquely thirsty almond and alfalfa crops respectively, even though a great portion of both are exported. Of the remaining twenty percent of the state’s water supply, industrial use consumes six percent, leaving fourteen percent for home and governmental usage. Within municipalities, water usage is highest in wealthy neighborhoods, reaching half of a domestic water bill in some areas when compared to lower income areas. However, there is no accurate way to measure California’s overall water use as many regions, especially the arid Central Valley, lack water meters. The absence of water meters deprives California of the ability to monitor water use and increase conservation efforts when necessary.

The massive water use coupled with little oversight is proving disastrous now in an ever-warming world. Studies show that “a persistent region of high atmospheric pressure hovering over the Pacific Ocean that diverted storms away from California” are causing the droughts. Such atmospheric conditions are more likely to occur today because of higher concentrations of tropospheric greenhouse gasses that are warming the atmosphere. Furthermore, a higher frequency of droughts is also likely because a warmer atmosphere holds more moisture than a cooler one. Climate change is leading to less precipitation, thus causing California’s agriculture to suffer, resulting in $2.2 billion in direct and indirect costs this year, including the loss of more than seventeen thousand seasonal and part-time jobs. Such losses have led the federal government to declare all fifty-eight California counties as “natural disaster areas.”

California’s continuing drought from 2013 not only threatens the state’s economy, but impacts residents directly. In the agricultural worker communities of southern California, particularly east Porterville in Tulare County, where temperatures hover over one hundred degrees Fahrenheit during the summer, more than five hundred households “cannot flush a toilet, fill a drinking glass, wash dishes or clothes, or even rinse their hands without reaching for a bottle or bucket.” Meanwhile, “[g]roundwater levels... have plunged by sixty feet or more in some spots, and tens of thousands of wells are in danger.” Aside from the inconvenience to California residents without water, the most recent drought and future droughts will continue to threaten the lives of agricultural workers who are influential in harvesting all of the aforementioned crops. This is not simply speculation; if people do not have access to water, it does not matter how much they are paid if they cannot work.

To combat the lack of access to water, California began regulating groundwater use, but these efforts neglect to factor in the exacerbation of existing drought conditions. On September 16, 2014, Governor Edmund Brown signed three bills, Assembly Bill 1739, and Senate Bills 1168 and 1319 to enable local agencies to tailor “sustainable groundwater plans” to address specific, regional economic and environmental issues.

Assembly Bill 1739 provides for the creation of groundwater sustainability agencies to impose fines for unreasonable water use, submit groundwater sustainability plans to California’s Department of Water Resources (“DWR”), require groundwater use reporting, and grant California’s State Water Resources Control Board (“SWRCB”) the authority to designate water basins as probationary basins if there are groundwater overdraft problems. A probationary basin designation entails an interim sustainability plan with more immediate regulatory action.

Senate Bill 1168 grants the sustainable use of groundwater for both economic and environmental uses; directs the DWR to designate the water needs of a water basin as a high, medium, low, or very low priority; and requires groundwater sustainability plans to manage all high and medium priority basins. Senate Bill 1319 enables the SWRCB to designate high and medium priority basins as probationary basins if certain criteria are met after January 31, 2025, and removes local agencies’ authority to implement parts of their respective sustainability plans if the SWRCB determines that the current plan is adequate. If a plan is adequate, then a replacement interim plan to meet or help meet the basin’s sustainability goal is implemented.

These newly approved bills are an improvement, but any benefits as a result of the legal amendments are likely to be too late because the local groundwater management agencies will not be identified until 2017. Moreover, overdrafted groundwater basins will not have sustainability plans until 2020; high and medium priority basins that are not currently overdrafted will not have their respective plans until 2022; and high and medium priority basins are not required to obtain full sustainability until 2040. As these plans are developed, the western states’ water resources are going to be further stressed, and California will potentially face more water shortages. None of the bills address how California will mitigate the demands of vested water rights in the face of an ever-decreasing supply of water. Proposition 1, approved on November 4, 2014, may help alleviate water supply issues with $7.545 billion in bonds being devoted to water supply infrastructure projects; however, Proposition 1 still does not address the current problem of water rights being guaranteed in a time of drought.

The established and newly created legal protections surrounding water use are not sufficiently adaptable to the growing demands of climate change, and, must therefore be reconsidered if life in California and the western United States is to be sustained. Legal protections must be rethought because the luxury of the status quo is lost in an ever-warming world. Therefore, either prior appropriation’s failures are addressed voluntarily now, or under duress in the future. Before postulating what additional legal mechanisms are necessary, one should understand how prior appropriation came to be.

III. Western Water Law or “First in Time, First in Right”

Prior appropriation, the western water law regime recognizing the right to divert water away from its original source, came about because western courts wrestled with the conflict of economic imperatives for growth and limited water resources.
Different western states either partially or exclusively recognize the doctrine, and Kansas has developed unique legal tools to accommodate recognized water rights in times of drought.46

A. THE DEVELOPMENT OF THE PRIOR APPROPRIATION DOCTRINE

The western water right doctrine that threatens California’s future originated when gold was discovered in the high Sierras at Sutter’s Mill on January 24, 1848.49 At the time the United States was not exercising any right over the land or water despite its recent purchase,50 leaving a legal vacuum wherein the customs of gold miners could supplant established common law.51

Under Mexican control, a communal framework administered California’s waters.52 On the other hand, the United States borrowed the English Common Law riparian doctrine where the right to the use stayed with the land, and riparian owners have the right “to have a natural stream through his land continue to flow without diminution or alteration.”53 When California became a state, it adopted the riparian common law rules, but also retained some water law notions from Mexico.54

The legal systems conflicted with the miners, as gold mining required both the personal acquisition of water for public use, and the diversion of water away from its natural flow.55 Furthermore, riparian water law did not satisfy non-irrigated agriculture because fewer than twenty inches of rainfall fall each year west of the hundredth meridian.56

California’s Supreme Court wrestled with the conflict of law and reality.57 The Court resolved the conflict when it implemented the traditions of the gold miners as a model.58 Accordingly, the California Supreme Court created the prior appropriation doctrine of “first in time, first in right” where one attains a superior right over other claimants to use water, separate from the source, when one is first to divert the water for a beneficial use.59 In promoting use of water for mining purposes, the California Supreme Court stated “the right to appropriate the waters of the streams of this State, for mining and other purposes, has been too long settled to admit of any doubt or discussion at this time.”60 In siding with new customs of miners, the Court decided that it was “emphatically the law-makers, as respects mining, upon the public lands in the State.”61

Prior appropriation soon spread eastward away from California into the rest of the West, and numerous western states, including Colorado and Nebraska,62 enshrined prior appropriation into their constitutions.63 In contrast, states like Kansas opted to be guided through statutes and case law.64 The doctrine has consistently developed that a water right requires a diversion of water for a beneficial use, covering both what the water is used for and how much.65 Water appropriated for a non-beneficial use was, and still is “waste” and can be grounds for terminating a water right.66

Intent to divert and notice of diversion are almost de facto elements of any irrigation or other water works project, but the diversion requirement itself has largely been marginalized throughout the twentieth century,67 especially as in-stream beneficial uses, such as fish, wildlife habitat, and recreation, became recognized as a collateral result of the environmental movement in the 1960s.68 It is generally agreed that “beneficial use, without waste, is the basis, measure, and limit of a water right.”69 Without a beneficial use, there is only waste and the resulting forfeiture of a water right without a beneficial use cannot reasonably be considered a taking.70

It is unclear what exactly a beneficial use is because most western states have no statutory guidance regarding the requirement, leaving the beneficial use concept up to judiciary discretion.71 Often the result is that a beneficial use is “socially acceptable,” which allows industrial and exploitative uses of water. However, beneficial use also extends into in-stream uses of water and other environmental concerns.72

With beneficial use being so malleable yet crucial to water rights, any climate change adaptation in water law must address this definitional issue. Ironically, with “beneficial” being a subjective and inherently value-laden term, courts and legislators could have conceived ecology to be within the beneficial use requirement at its outset just as development is equated with benefit. Unlike California, which recognizes both the riparian and prior appropriation doctrine,73 Colorado rejects the riparian doctrine outright, opting to rely solely on prior appropriation.74 This leads to a split among the western states depending on whether they follow California’s or Colorado’s model. However, beyond this dichotomy, unique water law mechanisms are emerging in Kansas.75

B. CALIFORNIA WATER LAW

California’s constitution guarantees its citizens the ability to appropriate water, with the appropriation guiding it in a “manner prescribed by law.”76 Water use must be both reasonable and beneficial, and conversely there is no right to waste water unreasonably or in a non-beneficial manner.77 California is also free to enact laws to further limit water use to beneficial purposes.78 Thus, California’s constitution does not guarantee that one may always have access to water, but instead only guarantees beneficial uses and directs the State to decide what distinguishes benefit from waste.79

In 1914, California’s SWRCB oversaw the Water Commission Act of 1914 establishing California’s modern water permit process.80 Subsequently, the Board has broad authority to allocate water resources reasonably and prevent waste.81 When approving or transferring a water right, the Board takes “into account all prior rights and the availability of water in the basin.”82 Under this review, riparian users have priority over prior appropriators.83 The SWRCB also considers flows necessary for in-stream uses such as recreation and wildlife habitat.84 The approval process entails the water appropriator’s application specifying the “proposed project’s source, place of use, purpose, point(s) of diversion and quantity to be diverted,” an environmental review under the California Environmental Quality Act, a public notice and comment period, and a permit granting the water right.85 A quasi-governmental irrigation district then monitors water use.86

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California’s courts guide the state’s water use by stressing reasonable and beneficial purposes, and that there is no vested property right to waste water unreasonably. California’s courts also recognize that the State may validly limit the property interest of a water right to reasonable use, going so far as allowing the full deprivation of water rights.

The state’s power is judicially sanctioned so far as to also apportion waters under the public trust doctrine. The doctrine says states must guarantee control and access to all its navigable waters and submerged lands. The doctrine is limited to navigability, but in California the water right approval process may also contemplate “commerce, fishing, recreation, or ecological use[s] relating to the source stream,” to ensure that new water uses do not interfere with the public trust or other’s lawful water rights. Though the doctrine is rarely used, it can impede multi-million dollar water development projects if evoked.

California recognizes waste as diverting an amount of water that “exceeds the amount reasonably necessary for beneficial purposes,” following the “general custom of the locality” as opposed to the “most scientific method known.” The standard of waste is biased towards finding no waste as general customs serve as the litmus. Appropriators need not use the best methods available to prevent waste. Instead, a party challenging a water right only needs to demonstrate both the technological feasibility of a less wasteful option and that such an amount still comports with local customs. However, courts only stop the most overly superfluous of water uses, as the law bends the common law to suit utility and custom.

California law’s inherent bias towards the utilization of all water available and deference to custom makes the State’s existing legal framework inadequate in the face of climate change. This is true despite a critique of California’s recent water law reformations. California’s current problems will only worsen as local customs summarily equate agriculture and other goals with beneficial use if local customs continue shaping what is seen as reasonable and wasteful.

Optimists may want to turn to the public trust doctrine to adapt to climate change, but such reliance is likely misplaced. Though the public trust doctrine enables the state to consider ecological and other holistic notions to ensure “the greatest number of beneficial users that the water supply can support,” the doctrine is still “subject to the rights of those with lawful priority to the water.” Even if California courts use the public trust doctrine to prevent further unsustainable water development, the doctrine fails to address vested, uneconomic and unsustainable water rights. Therefore, California must turn to solutions beyond its current and updated water law jurisprudence to adapt to ever more demanding droughts.

C. Colorado Water Law

If California’s own hybrid legal framework, combing riparian and prior appropriation, cannot enable the State to adapt to its current water crisis and climate change, then perhaps it should consider other western water law regimes. Following California’s water law development, the United States Congress, via the 1866 Mining Act and 1877 Desert Lands Act, approved that states and territories can change their legal systems to develop unappropriated water on and off the federal lands secured with the Treaty of Guadalupe Hidalgo. Like California, Colorado had to resolve multiple conflicting water law doctrines at the time of its statehood. The conflict arose between Spanish-American settlers who brought their communitarian approach to water law where one’s right of access was qualified by the needs of others, and early Mormon settlers who hold that groups, not individuals can own water rights.

The early Kansas Territorial government largely adopted the Spanish and Mormon water law doctrines, but conflict arose shortly after achieving statehood in 1861 when Colorado had the choice of adopting the common law riparian doctrine or the newly developed prior appropriation custom. Unlike California where the courts simply adopted the customs of industry to justify legal changes, Colorado courts relied on the newly codified support for prior appropriation in Colorado’s constitution. Therefore, the Colorado Supreme Court did not have to recognize a new legal doctrine to conclude that Colorado was a purely prior appropriation state. The irony of the Colorado’s Supreme Court decision did not escape the critical gaze of the late Joseph Sax who described the Court’s reasoning as nothing more than, “judicial revisionism in reading the Territorial legislature’s riparian statutes.”

Regardless of the Colorado Supreme Court’s probable oversight, prior appropriation was readily incorporated into “the policy… that there should be maximum utilization of water and that the maximum utilization doctrine be integrated into the law of vested rights.” In 1884, just two years after the Court’s endorsement of the doctrine, over a million acres of Colorado land was irrigated due to prior appropriation’s ready ability to secure private property rights. For decades, State overseers relied on the words of individual appropriators to determine priority and the establishment of water rights leading to many supply problems. As Kansas Assistant Attorney General and water lawyer explains:

“Most appropriators did not know how much water they were diverting, how much they had even claimed, or how much their lands needed…. They had no regard whatsoever for future water needs, and made grossly excessive claims. They posted different claims of water to the same tract of land, either in competition with one another or by mistake. These errors produced a problem as old as prior appropriation itself: that of over-appropriation where the quantities set forth in decreed water rights vastly exceeded the supply the stream could give, even in wet years.”

In response, Colorado created a system of water courts with the Water Right Determination and Administration Act of 1969. The Act divided Colorado into Divisions, wherein water judges and division engineers oversee the claims of potential appropriators and resolve disputes.
Today, a water right applicant provides the division's water clerk with “a verified application setting forth facts supporting the ruling sought,” including showing all the elements of prior appropriation.\textsuperscript{117} Afterwards, “the appropriator can receive a judicially awarded final decree, with a priority backdated to the time the ‘first step’ was taken provided that the work toward appropriation continued with reasonable diligence.”\textsuperscript{118} Once a final decree and a continued diversion for beneficial and reasonable use is obtained, the appropriator acquires a vested right.\textsuperscript{119} An applicant can also reach the same result by acquiring a conditional decree from a water court, which enables an appropriator to acquire a priority date on a yet to be completed waterworks project.\textsuperscript{120}

Once such a right is acquired, Colorado’s courts rely on the State’s constitution to give an inordinate amount of deference towards protecting that right from governmental interference.\textsuperscript{121} The Colorado Supreme Court has held that these constitutional provisions are meant to preserve the prior appropriation system rather than conserve water for the public or future.\textsuperscript{122}

This is not to say that Colorado water users are free to act without any restraints. Like every western state, one can only obtain a water right through prior appropriation if the water diverted is “of a specified quantity of water to an actual beneficial use.”\textsuperscript{123} Groundwater is also included within the “beneficial” and “reasonable” use requirements that must be maintained lest a water right be divested.\textsuperscript{124} However, it is not always apparent what qualifies as a beneficial use because Colorado lacks extensive statutory guidance.\textsuperscript{125} The State’s constitution does provide that domestic, agricultural, and manufacturing purposes are beneficial uses, but otherwise leaves the definition of beneficial use to court discretion.\textsuperscript{126} Storage itself is not a beneficial use, though subsequent usage is, and neither is an excessive water diversion, though that is almost by definition unreasonable as well.

Colorado’s water courts grant such deference to applicants that they rarely find a non-beneficial or unreasonable use. Water rights are frequently divested or limited as between complaining plaintiffs and defendants,\textsuperscript{127} but courts still grant water rights when the application is late or when collateral business documents are not properly filed.\textsuperscript{128} Interstate compacts, retroactive legislation, or “the uncontrolled discretion of state engineers” will not limit water rights in Colorado.\textsuperscript{129}

It is because of Colorado’s policy of maximized water use, with an extreme amount of deference towards appropriators, that its water law provides no help to adapt to climate change demands.\textsuperscript{130} In Colorado, “[a] decreed priority to the use of water for irrigation is not only a property right, it is a freehold.”\textsuperscript{131} But with drought conditions throughout the West predicted to worsen, a Colorado water right will soon be a freehold in nothing.\textsuperscript{132} In finding categorical beneficial uses with little to no judicial scrutiny, Colorado’s legal regime is a race to the bottom, with every appropriator driving his straw down to get the last drop. Colorado’s current water law regime is deficient in the face of climate change and more adaptable methods should be planned.

D. Kansas Water Law

Kansas has adopted several novel legal adaptations to drought that may be extendable to other western states. After entering statehood in 1861, Kansas adopted riparian common law,\textsuperscript{133} and then recognized prior appropriation via statute in 1876.\textsuperscript{134} Thus, Kansas subscribes to the California doctrine, continuing to recognize the riparian doctrine alongside prior appropriation today.\textsuperscript{135} State courts refused to solely recognize prior appropriation even as Kansas’ Division of Water Resources (“DWR”) was forming in 1917.\textsuperscript{136} However, after the ravaging Dust Bowl of the 1930s, prior appropriation and deeper wells grew into higher esteem as water resources became more critical to economic security.\textsuperscript{137}

The doctrine did not receive constitutional regard as it did in other states\textsuperscript{138}, but Kansas recognized that prior appropriation was necessary to develop the western half of the state and accordingly passed the Kansas Water Appropriation Act (“KWAA”) of 1945, extending prior appropriation to all waters, both surface and groundwater.\textsuperscript{139} The KWAA also recognized water rights as property rights, provided the mechanism for acquiring new water rights, designated waters rights established by or before June 28, 1945 as vested rights, and granted the chief engineer the ultimate authority over the enforcement of rights and allocation of water resources “for the benefits and beneficial uses of all of its inhabitants,” not just water right owners.\textsuperscript{140} The 1957 KWAA amendments further protected interests of water appropriators through classification of impairment as an unreasonable interference or degradation of the water’s quality “beyond a reasonable economic limit.”\textsuperscript{141}

As a result of the KWAA, Kansas now administers water rights similarly to other western states.\textsuperscript{142} Applicants must state that they wish to divert water for a reasonable beneficial use and then have the chief engineer and Kansas’ DWR perform an

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The majority of water appropriation, as much as it is mined, have priority. Today, like California, Kansas devotes eighty-five percent of its water towards agriculture. However, the chief engineer may suspend a water right if the use becomes so excessive as to be unreasonable and wasteful. Factors considered when determining if a water use constitutes waste include, but are not limited to, minimum desirable streamflows, groundwater recharge rate, the priority of exiting claims, and the amount of each competing claim.

Unfortunately, this legal system alone leads to frequent overdraw problems. Kansas statutes do not further define “beneficial use” or “waste,” and its view of impairment is rooted in economics as opposed to a hydrology. Consider all of that with an overzealous desire to develop the State’s water, and the cruel irony of the KWAA becomes apparent. The KWAA allows an exponential increase in the number of granted rights, even though the law was enacted with the purpose of preventing over-drawing of groundwater. Since the KWAA’s enactment, water right applications increased from 334 between 1945 and 1950 to 5,730 during the 1950s, 6,433 during the 1960s, and 16,226 in the 1970s. However, none of those numbers accurately indicate the amount of water the State uses, as the chief engineer does not need to be informed of domestic wells. Meanwhile, the Ogallala Aquifer, the main source for appropriated water in the State, went from three percent depletion in 1960 to thirty percent depletion today. As such, agriculture does not receive the majority of water appropriation, as much as it is mined, with the Ogallala Aquifer predicted to be sixty nine percent depleted by 2060.

In response to these depletion trends, Kansas has created three legal innovations, unique to western states, to address drought and declining water reserves. The first legal innovation was the chief engineer’s new authority, granted in 1978, to designate certain areas as intensive groundwater use control areas (“IGUCA”). The chief engineer may establish an IGUCA upon his or her own volition, or under his or her discretion after the requisite amount of demand within a groundwater management district, a multi-county governmental within the DWR. The conditions necessary for the formation of an IGUCA include when:

“(a) Groundwater levels in the area in question are declining or have declined excessively; or (b) the rate of withdrawal of groundwater within the area in question equals or exceeds the rate of recharge in such area; or (c) preventable waste of water is occurring or may occur within the area in question; (d) unreasonable deterioration of the quality of water is occurring or may occur within the area in question; or (e) other conditions exist within the area in question which require regulation in the public interest.”

Eight such IGUCAs are now existent using the aforementioned basis. Once established, the chief engineer may preempt all new water rights applications, set a permissible total groundwater withdrawal level, reduce the amount of permissible groundwater withdrawal, require a rotation in groundwater use, or any necessary provision to “protect the public interest.”

Second, in 1991 the Kansas Legislature granted the chief engineer the authority to require water right applicants to formulate a conservation plan to preserve water resources. Such authority is discretionary, and can only be evoked if there is a finding that the conservation plan will “assure public benefit and promote public interest.”

Third, and most recently in 2012, the Kansas Legislature enabled local communities to establish stricter water use standards in Local Enhanced Management Areas (“LEMA”). Whenever an area within a groundwater management district is designated as an IGUCA, community members, who presumably realize that their unregulated actions threaten the common groundwater resource, may restrict their water rights within further circumscribed areas in the IGUCA. Entering into a LEMA is completely voluntary, and subject to the chief engineer’s approval.

All of Kansas’ efforts to adapt to drought and dwindling resources are commendable, but likely will be insufficient in light of climate change. IGUCAs allow established, yet still unsustainable, agricultural practices to continue, never questioning if water usage is truly beneficial if it is being applied to thirsty corn. Enabling the chief engineer to require conservation plans likewise sounds promising, but being subject to the complete discretion of the chief engineer makes the measure almost meaningless when the chief engineer’s discretion is biased through the long standing myth that western water use can and should be maximized. Personal views also undermine the LEMA efforts, for as long as they entirely voluntary then it will always be immediately more economical for an individual appropriator to continue drilling, rather than limit his or her own use with the hope that neighbors will do likewise.

With recent legal adaptations to drought being lackluster, the inherent problems with prior appropriation are not addressed. Beneficial use in Kansas is still categorically defined, waste is practically undefined as unreasonable as measured by custom, and water rights still implicitly assume that a finite resource can be extracted ad infinitum. Current Kansas political leadership is unlike to address a response to any of those problems in prior appropriation are not as it is now legitimized considering the construction of an aqueduct, bringing the Missouri River to Dodge City despite the legal and technical infeasibility of such an endeavor. Therefore, none of the currently existing models of water law can remedy California’s water woes, in of themselves. Instead, the problems inherent in prior appropriation must be addressed to adapt to climate change, and new legal approaches should be considered.
IV. A Climate Change Adaptive Water Law

Prior appropriation developed not as a logical extension of established common law, but as a discrete, unprecedented incident to accommodate the needs and desires of early California miners and farmers. As such, prior appropriation implicitly assumed that water could be utilized like any hard or soft rock mineral, with extraction levels remaining relatively constant. This system of water allocation may have seemed appropriate from the latter half of the nineteenth century and into the twentieth as the population of western U.S. cities exploded; however, with the circumstances surrounding climate change becoming grimmer.

It is clear that prior appropriation relies on false assumptions when the circumstances surrounding climate change become grimmer. It is reasonable to foresee more climate change induced drought, which will increasingly stress a resource that is consistently dropping in supply. As there are no expectations that the West’s water supply will increase, water supply, agricultural productivity, and other economic endeavors, are inversely related and antagonistic towards each other. Thus prior appropriation, which enables resource exploitation based on temporal priority, is doomed to drain what water remains.

Prior appropriation must adapt if life, not just agriculture, in the western United States is to be sustained. Expanding the legal conceptions of beneficial use from a categorical, individual viewpoint to a more societal, ecological one will help make this trend occur.

A. Adapting Prior Appropriation

Case law and precedent supports the changing the nature of the beneficial use element of prior appropriation. As long as a water right is reasonably utilized for a statutorily approved, constitutionally protected use, then the use is not waste, and the water right is not subject to forfeiture. The amount of water diverted must still be reasonable, but the reasonableness of a water project’s use is not judged.

Extremely water intensive agricultural projects can continue because they are agricultural. Prior appropriation’s shortsightedness is not surprising, considering that the doctrine was designed to do nothing more guarantee property rights with maximal water use. Such certainty is no longer possible in a changing climate. One need only look at California’s current drought to understand the prior appropriation doctrine’s inflexibility to satisfy climate change’s ecological demands.

Despite prior appropriation’s inherent problems, it is important to note that the California Supreme Court justifies the curtailment of water rights because, “the protection and conservation of the natural resources of the state [is] in the general welfare and serve[s] a public purpose, and so constitute[s] a reasonable exercise of the police power.” Relying on that justification, a California appellate court reasons that, “a diversion of water may be for a purpose ‘beneficial’ in some respect . . . does not make such use ‘reasonable’ when compared with demands, or even future demands, for more important uses.” Likewise, the Ninth Circuit Appellate Court agrees that the “beneficial use [requirement] expresses a dynamic concept, which is a ‘variable according to conditions’, and therefore over time.” Even the Idaho Supreme Court recognizes that “conditions might so change that [previously acceptable uses] would be an unjustifiable use of water needed for other purposes.” Thus, the concept of beneficial need not be limited to the status quo.

The fluid nature of beneficial use should not be controversial. Prior appropriation was itself a seemingly unprecedented legal change that was necessary at the time. Both the beneficial use and waste doctrines of water law have even changed over time, finding new uses of water not to be waste as the new methods became accepted over time. Similar to how the “the morality of an act is a function of the state of the system at the time it is performed,” the reasonableness, wastefulness, or benefit of a water project cannot be measured unconditionally. Rather, the water right approval process can and should consider that water projects that were once beneficial may no longer be so today.

This view of beneficial use envisions no categorical definitions of beneficial uses. Beneficial use should instead “weigh relative values and priorities.” Accordingly, agricultural, industrial, and similar water uses are not treated as de facto beneficial. Instead, individual state statutes may direct state engineers and agencies to consider future water needs before deeming a use beneficial and entitled to a water right. State courts may also act by finding proposed and current water usages wasteful, just as the courts recognized that once non-beneficial uses could become beneficial.

State statutes could also entail ranking certain crops, providing deference to more water efficient crops, and designating other crops as wasteful based on the state where appropriators wish to grow them. For example, corn in western Kansas may be unreasonable in a drought, while wheat production may be beneficial. In California, some crop productions may never again be considered beneficial as the effects of climate change worsen. Since “the right to water in the West is premised upon
use,” then already established, and unsustainable, water rights may be rightfully forfeited once the water use is deemed to be no longer beneficial.193

Western states should adopt this more holistic consideration of beneficial use. California’s constitution allows for water rights to be circumscribed by statute, and California’s courts recognize that beneficial use need not be a static trait.194 Idaho,195 Washington,196 Montana,197 New Mexico,198 Wyoming,199 North Dakota,200 South Dakota,201 and Nebraska202 are similarly situated, and thus can likewise adopt a context specific concept of beneficial use. In Kansas there is no reason to believe that beneficial use could not be further redefined because water rights therein have repeatedly been restricted by statute.203 For the same reason, a context specific beneficial use doctrine should be applicable in Oregon,204 Nevada,205 Utah,206 and Oklahoma.207 Of course, there are limitations to this argument.

B. IMPEDIMENTS TO ADAPTION

Impediments to adaptations will come from takings claims, the particularities of individual states, and the subjective nature of the word “beneficial.” As water rights are property rights, any infringement is likely to run against takings claims arguments.208 Wielding the Fifth Amendment to the U.S. Constitution, protesters are likely to claim that changing the conception of beneficial use will result in property takings without just compensation.209 However, any such takings claims in retaliation of the new beneficial use criteria are more than likely to fail.210

Changing the meaning of beneficial use is not likely to violate the first per se taking example, as a water right is not a property interest in the water itself.211 Instead, a water right is a usufructuary right, entitling only the right to access a certain amount of water.212 As the first per se taking involves the state occupying a physical property interest, not usufructuary, this analysis is inapplicable.213 This result is true also for the second per se taking example of deprivation of economic value.214

To determine whether a diminution of economic value is a per se taking, a court must also balance the economic impact of the regulation on the property owner, the government’s interference in the property owner’s expectations, and the reasoning behind the regulation.215 However, this analysis is tailored by an “extremely deferential” view in favor of the governmental action.216 As long as there is a reasonable basis for the regulation, it is likely to be sustained. As changing the nature of beneficial use most definitely has a reasonable basis, it will not be seen as a taking per se.

Regarding the final form of a takings claim, undue total forfeiture is found when all economically beneficial use of a property interest is extinguished as a result of governmental action. A regulation or other enactment with such an effect can survive the total forfeiture analysis “only if the logically antecedent inquiry into the nature of the owner’s estate shows that the proscribed use interests were not part of his title to begin with.”217 The governmental limitation “must inhere in the title itself,” being a mere extension of already existing limitations in the property interest in question and established property law.218

Though altering beneficial use may manifest as new legislation or state constitutional decree, such changes are still a logical extension of the reason behind the beneficial use requirement. Furthermore, the beneficial use requirement is inherent in a water right’s title and within the background of every western state’s property jurisprudence.219 Therefore, the creation of a climate adaptive prior appropriation scheme, even when it restrains “pre-existing uses of rights that were legal when initiated,” should not constitute an unconstitutional taking in any sense.220

As for the particularities of individual states, a re-envisioned beneficial use requirement will not likely be implemented in Colorado, Arizona, and Texas. Colorado’s water law jurisprudence is so deferential to appropriations that any new restrictions on obtaining water rights will first have to address the state’s constitution.221 This is also true for Arizona, since the Arizona Supreme Court found the retroactivity of a beneficial use statute upon vested water rights unconstitutional.222 Texas provides additional and unique challenges because, even if the climate change adaptive beneficial use doctrine was adopted, the State applies the rule of capture to groundwater while wholly ignoring the reasonable use doctrine.223 Thus, to adopt a holistic beneficial use to save groundwater during drought, Texas will have to statutorily abrogate its history of treating water like oil and gas.224

Finally, the last foreseeable legal impediment to adapting the western water right regime for a warming climate is the subjective nature of the word “beneficial” itself. Even if water law statutes across the West are accordingly amended, state water courts and agencies may still further the implicit bias of progress within natural resources law. Though flood irrigation, or luxury crops, in a drought may not seem beneficial to an environmentalist, they still are to administrative agencies. Therefore, these conflicting views may lead to implementation problems within individual states, and eventually inconsistencies among western states.

However, such problems can be remedied by articulate drafting that demonstrates what “beneficial use” is meant to

“If the western model rights model does not voluntarily change now, it will have to be coerced to do so in the future.”
further: the survival of western water resources. Courts may aid in this matter by rightfully construing prior appropriation statutes in line with long standing precedent that “beneficial use” need not be a categorical attribute.\textsuperscript{225} The fact that climate change is drastically reducing the availability of water resources makes any conflicting views on beneficial use irrelevant. If the western model rights model does not voluntarily change now, it will have to be coerced to do so in the future.

**V. Conclusion**

Prior appropriation may have built the West, but prior appropriation’s success relies upon a constant climate, an assumption that is no longer reasonable. The late economist Garrett Hardin lamented that “[t]he law, always behind the times, requires elaborate stitching and fitting to adapt it to this newly perceived aspect of the commons.”\textsuperscript{226} Here, to preserve the commons of water and agriculture in America’s west, prior appropriation must be “stitched” to adapt to climate change. California’s current legal structure is promising, but the existence of California’s current drought problems exemplifies how the current state of the law is insufficient. Also, California’s recently enacted amendments will take too long to implement and do not speak to the issue of satisfying vested water right demands as the water supply is continually depleted. Colorado’s water law regime of prior appropriation is also not likely to assist the rest of the West considering its extremely deferential stance towards maximized appropriation. As for Kansas, its efforts should be commended, but is unlikely to produce substantially better results because water rationing remains voluntary and the State believes that continuous growth is possible.

Instead, California, and the rest of the West, can readily adapt to climate change by utilizing an equally adjustable definition of beneficial use. This new vision of beneficial use will encompass environmental factors and the sustained continuation of state economies, not just what the water is used for and how much water is used. Thus, the water rights that vest outdated and unnecessary water projects will be lost to make room for new diversions.

A climate adaptive beneficial use requirement can be adopted easily via statute in California and other states that shape the guarantees of prior appropriation with statutes and judicial oversight. However, such a solution is not likely to work in Colorado, where its water court system seemingly demands that water reserves be drained; Arizona, where the State’s Supreme Court has strictly interpreted Arizona’s authority over established water rights; and Texas, which applies the rule of capture to ground water. It is improbable that creating a more holistic beneficial use element will be free of implementation inconstancies as “[t]he irrigation lobby still has a few things going for it, mainly sentimentality, tradition, and law.”\textsuperscript{227} Thus, subjective biases will always determine what is considered a beneficial use.

Nonetheless, the legal conception of beneficial use must change, not “should.” The West simply does not have enough water to maintain constant economic growth and to keep farm-worker communities alive.\textsuperscript{228} Climate change will foreseeably deprive California’s Central Valley, the United States’ hearth of agriculture, of one of life’s most basic necessities.\textsuperscript{229} In a way, this will be a fitting end; prior appropriation, at least as it conceived today, may begin to die in the state where it was erratically conceived.

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5. Cayan et al., supra note 4.

6. See Allen v. Cal. Water & Tel. Co., 29 Cal. 2d 466, 488 (1946) (“...the policy inherent in the water law of this state is to utilize all water available.”).

7. See Tim Barnett et al., *The Effects of Climate Change on Water Resources in the West: Introduction and Overview*, 62 CLIMATE CHANGE 1, 6-8 (2004) (“What this work shows is that, even with a conservative climate model, current demands on water resources in many parts of the West will not be met under plausible future climate conditions, much less the demands of a larger population and a larger economy.”); see also Roger Revelle & Paul Wagoner, *Effects of a Carbon Dioxide-Induced Climatic Change on Water Supplies in the Western United States, Changing Climate: Report of the Carbon Dioxide Assessment Committee 419, 424 (Nat’l Acad. Press 1983) (“For the postulated climatic change, supplies would greatly diminish in all regions, ranging from almost a 76% reduction in the Rio Grande region to nearly 40% in the Upper Colorado, with the result that estimated requirements would exceed supplies in the Missouri, Rio Grande, and Upper and Lower Colorado regions.”).  

Irwin v. Phillips, 5 Cal. 140, 146 (1855) (resolving a dispute between two water appropriators in favor of the first diverter).\textsuperscript{8}


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Drought of 2013/2014: Character, Context, and the Role of Climate Change

The Extraordinary California when compounded with the drought of 2013 summer going into 2014 being the bay-area-loses-billions-leaky. This waste is particularly concerning 2014, http://www.mercurynews.com/drought/ci_26350962/california-drought- ... 2004 law managing meters statewide by 2025”).


Note that from thousands to billions of gallons of water in California are also being repeatedly wasted due to years of neglected infrastructure. e.g., 25

23 But see Rogers & St. Fleur, supra note 15 (reporting on a “2004 law managing meters statewide by 2025”).


26 See Swain et al., supra note 25 at S3-S7.

27 See id. at S7.


35 See Kazakoff, supra note 1.

36 See Weiser, supra note 4.


39 See id.


42 See Assembly Bill 1739; see also Senate Bill 1168; see also Senate Bill 1319.


44 See Cayan et al., supra note 4.


46 See id. at 17.


50 The United States acquired possession of California shortly after in the Treaty of Guadalupe Hidalgo, but California would not become a state for two more years. City of Berkeley v. Superior Court, 26 Cal. 3d 515, 521 (1980); Standard Oil Co. of Cal. v. Johnson, 10 Cal. 2d 758, 760 (1938).


52 Lux v. Haggin, 69 Cal. 255, 313 (1884) (“the running waters of California were not dedicated to the common use of all the inhabitants in such sense that they could not be deprived of the common use.”).

53 Id. at 259–60.

54 Id.; Wiel, supra note 51, at 4–5.

55 Wiel, supra note 51, at 7.
Toll, supra note 49.
56 Eddy v. Simpson, 3 Cal. 249, 253 (1853) (noting the court adhered strictly to riparian water law despite "the novel questions growing out of the peculiar enterprises in which many of the people of this state are embarked.").
57 In mining, the first person to find a valuable mineral gains the rights to exploit it, and exclude others. See Irwin v. Phillips, 5 Cal. 140, 146 (1855) (reasoning that recent mining customs "have so firmly fixed as that they have come to be looked upon as having the force and effect of res judicata."). Among these the most important are the rights of miners to be protected in the possession of their selected localities, and the right of those who, by prior appropriation, have taken the water from their natural beds . . . to supply the necessities of gold diggers, and without which the most important interests of the mineral region would remain without development.
58 Id.
59 Hill v. King, 8 Cal. 336, 338 (1857) (holding that a prior appropriator’s water quality concerns may preempt subsequent miners’ wishes to operate).
60 Jennison v. Kirk, 98 U.S. 453, 457 (1878) (finding that a senior water right holder causes no injury to a junior right holder simply by diverting the water entitled to the former).
61 Though Nebraska may not normally be described as a western state, it is included within this paper’s consideration as Nebraska straddles the 100th meridian, the traditional dividing line between the eastern and western halves of the United States. This treatment will likewise be extended to North Dakota, South Dakota, Kansas, Oklahoma, and Texas.
62 See, e.g., Stevenson v. Steele, 453 P.2d 819, 826 (1969) (respecting the non-diversionary water right guaranteeing winter livestock watering); see also Diane Brownlee, The Public Vote in the Game of Water Wars: An Unquenchable Thirst to Define and Implement “Public Values” in Western Water Laws, 70 UMKC L. Rev. 647, 655 (2002) (discussing the changing public goals of western water law); see id. at 349 ("It is beneficial use, and not diversion, that is the constitutional hallmark of a water right").
64 Toll, supra note 49, at 617.
65 Id. at 603-04; see also Neuman, supra note 66, at 925.)
66 See, e.g., Dep’t of Parks & Idaho Dep’t of Water Admin., 530 P.2d 924, 927-28 (Idaho 1974) (allowing Idaho to reserve a water right in in-stream use to preserve the aesthetic and recreational aspects of the water for posterity); see also Klein, supra note 67, at 349 ("beneficial use has a flexible meaning, generally reflecting the dominant public interests of the time," and therefore, “uses considered beneficial today may not be so regarded in the future").
68 Coffin v. Left Hand Ditch Co., 6 Colo. 443, 447 (Colo. 1882).
69 As early as 1894, some of the people of this state were embarked."
70 See supra note 23.
71 Compare Stinson Canal & Irrigation Co. v. Lemoore Canal & Irrigation Co., 188 P. 77, 82 (Cal. App. 3d 1919) (recognizing that water diversion projects customarily lose up fifty percent of their water from evaporation and seepage), with Erickson v. Queen Valley Ranch Co., 22 Cal. App. 3d 578, 585 (1971) (deeming a water project, that would lose over eighty percent of its water due to seepage, to be wasteful).
73 See supra text accompanying notes 39-45.
75 Note also that even if the public trust doctrine were to be used to alleviate California’s current drought, such solution would not be possible for the rest of the West where the doctrine’s application in ecological realms has been largely rejected. See Phillips Petroleum Co. v. Mississippi, 484 U.S. 469, 487 (1988) (explaining that courts have consistently limited the public trust doctrine to navigability and other transportation issues).
78 See id.
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The preferred beneficial uses are domestic, municipal, irrigation, industrial, recreational, and water power uses, respectively. Kan. Stat. Ann. § 82a-707(b) (2009).


Note that the categorical beneficial uses recognized in Kansas prioritize development, agricultural in particular, whereas recreational beneficial uses, which could potentially encompass ecologically minded projects, are the second to the last in preference. See Kan. Stat. Ann. § 82a-707(b).


Griggs, supra note 105, at 1280.

Id. at 1285 (citing John Peck, Groundwater Management in Kansas: A Brief History and Assessment, 15 KAN. J. L. & POL’Y 441, 443 (2006)).

KAN. STAT. ANN. § 82a-714(a).

Kan. Admin. Regs. 5-1-1(o).

Reisner, supra note 14.

See Barnett et al., supra note 7; see also Robert Adler, Climate Change and the Hegemony of State Water Law, 29 Stan. Envtl. L. J. 1, 10 (2010) (arguing that “both legal and technological institutions governing water law and management will have to respond in ways that are sufficiently flexible to address a wide range of possible future outcomes”).


See Donald MacIntrye, The Prior Appropriation Doctrine in Montana: Rooted in Mid-Nineteenth Century Goals-Responding to Twenty-First Century Needs, 55 Mont. L. Rev. 303, 304 (1994) (explaining that the assumptions of plentiful underlying prior appropriation are no longer reasonable, and that appropriators are now relying on finite water resources).

United States v. Alpine Land & Reservoir Co (Alpine Land), 697 F.2d 851, 855 (9th Cir. 1983) (citations omitted), cert. denied sub nom., Pyramid Lake Paiute Tribe v. Truckee-Carson Irrigation Dist., 464 U.S. 863 (1983) (holding that Nevada State Engineer can consider farmers’ applications to change the place of diversion, or manner or place of use, despite the federal government’s objections); Dep’t of Parks v. Idaho Dep’t of Water Admin, 530 P.2d 924, 931 (Idaho 1974); Tulare Irrigation Dist. v. Lindsay-Strathmore Irrigation Dist., 45 P2d 972, 988 (Cal. 1935).

See generally Brownlee, supra note 68, at 649.

See Neuman, supra note 66.


See Weiser, supra note 4 (quoting John Laird, secretary of the California Natural Resources Agency, “Unless we take strong action, we won’t have the existing water be reliable for the future”).

Tulare Irrigation. Dist., 45 P2d at 988.


United States v. Alpine Land & Reservoir Co. (Alpine Land), 697 F.2d 851, 855 (9th Cir. 1983) (citations omitted), cert. denied sub nom. (quoting Farmers Highline Canal & Reservoir Co. v. City of Golden, 272 P2d 629, 634 (1954); Pyramid Lake Paiute Tribe v. Truckee-Carson Irrigation Dist., 464 U.S. 863 (1983) (holding that Nevada State Engineer can consider farmers’ applications to change the place of diversion, or manner or place of use, despite the federal government’s objections).

Dep’t of Parks v. Idaho Dep’t of Water Admin., 530 P.2d 924, 931 (Idaho 1974).

See Irwin v. Phillips, 5 Cal. 140, 146 (Cal. 1855); see also Coffin v. Left Hand Ditch Co., 6 Colo. 443, 447 (Colo. 1882).

See Klein, supra note 67, at 350; see also Dep’t of Parks, 530 P.2d at 931 (extending the beneficial use requirement to include recreation).

Hardin, supra note 175, at 1245.

Toll, supra note 49, at 619.

See United States v. Alpine Land & Reservoir Co., 697 F.2d 851, 855 (9th Cir. 1983); Dep’t of Parks, 530 P.2d at 926 (affirming that “beneficial use of the basis, the measure, and the limit of all rights to the use of the public water . . .”).


See, e.g., La Plata River & Cherry Creek Ditch Co. v. Hinderlider, 25 P2d 187, 188 (Colo. 1933) (detailing a typical takings claim in the water right context).

See U.S. Const. amend. V; see, e.g., Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1027 (1992) (holding that a taking without due compensation may be found where “the logically antecedent inquiry into the nature of the owner’s estate shows that the proscribed use interests were not part of his title to begin with.”); see also Loretto v. Telprompter Manhattan CATV Corp., 458 U.S. 419, 426 (1982) (noting that an ad hoc, factual inquiry must be used to determine “whether compensation is constitutionally due for a government restriction of property”).

Critics may be quick to contradict this statement by citing a recent Texas case, holding that reducing water use to conserve supply is a taking, and thus assert that the taking analysis is flawed. See Edwards Aquifer Auth. v. Bragg, 421 S.W.3d 118, 146 (Tex. App. 2013). However, the Bragg case lacks binding authority on the cases used in this takings analysis, and better reflects the unique nature of water law in Texas as opposed to the West as a whole. The novel problems of reforming “beneficial use” in Texas will be further addressed in this subsection.

See, e.g., Lucas, 505 U.S. at 1015 (denoting the permanent, physical invasion of private property as an example of a per se taking).


See Loretto, 458 U.S. at 425.

See Lucas, 505 U.S. at 1015-016 (giving a government regulation that neither substantially advances a legitimate state interest nor leaves any economic use of a property as the second example of a per se taking).


Toll, supra note 49, at 634 (citing Sax, supra note 110, at 263).

Lucas, 505 U.S. at 1027.

Id. at 1029.

See Klein, supra note 67.

Sax, supra note 110, at 260; see also Toll, supra note 49, at 633–35; see also Dan Tarlock, Takings, Water Rights, and Climate Change, 36 Vt. L. Rev. 731, 740 (2012) (“the consensus (and more accurate characterization of water rights) is that they are a different form of property right, and thus the
Constitution affords water-right holders comparatively less protection to land owners”).

221 See Colo. Const. art. XVI, §§ 5–6; see also People v. Emmert, 597 P.2d 1025, 1028 (Colo. 1979) (deferring to Colorado’s Constitution which “simply and firmly establishes the right of appropriation in this state.”).

222 San Carlos Apache Tribe v. Superior Court ex rel. Cnty. of Maricopa, 972 P.2d 179, 189 (Ariz. 1999)


224 See Edwards Aquifer, 369 S.W.3d at 829 (stating that both natural gas and groundwater are regulated under the rule of capture); see also Sipriano, 1 S.W.3d at 78 (recognizing that groundwater is regulated “within the common-law tort framework established by the rule of capture” regardless of reasonable use restrictions).


226 Hardin, supra note 175, at 1245.

227 Reisner, supra note 14, at 517.

228 Lawrence J. MacDonnell, Out-of-Priority Water Use: Adding Flexibility to the Water Appropriation System, 83 Neb. L. Rev. 485, 486 (2004) (“Moreover, the historical function of prior appropriation law—to make an initial allocation of the West’s water resources among potentially competing claimants—has been largely completed. Little unallocated surface water remains; and the costs of its development, both financial and environmental, have grown sharply”).

229 Cayan et al., supra note 4.