

1-1-2014

One Step Forward and Two Steps Back: The Prospects for Ditch-Wide Quantifications and Alternative Transfer Methods

Ryan M. Donovan

Follow this and additional works at: <https://digitalcommons.du.edu/wlr>

Custom Citation

Ryan M. Donovan et al., One Step Forward and Two Steps Back: The Prospects for Ditch-Wide Quantifications and Alternative Transfer Methods, 17 U. Denv. Water L. Rev. 267 (2014).

This Article is brought to you for free and open access by the University of Denver Sturm College of Law at Digital Commons @ DU. It has been accepted for inclusion in Water Law Review by an authorized editor of Digital Commons @ DU. For more information, please contact jennifer.cox@du.edu, dig-commons@du.edu.

ONE STEP FORWARD AND TWO STEPS BACK: THE PROSPECTS FOR DITCH-WIDE QUANTIFICATIONS AND ALTERNATIVE TRANSFER METHODS

RYAN M. DONOVAN, P. ANDREW JONES, AND ALYSON K.
SCOTT*

Introduction	268
I. Background	270
A. Colorado’s Senior Agricultural Rights	270
B. <i>Jones Ditch</i> and <i>Burlington Ditch</i>	273
i. <i>Jones Ditch</i>	273
ii. <i>Burlington Ditch</i>	275
II. Analysis	277
A. Property Rights	279
B. Transactions Costs	280
C. Incentives for Water Transfers After <i>Jones Ditch</i> and <i>Burlington Ditch</i>	282
D. The “Legacy Ditch Bill”	283
III. Recommendations	284
A. Will Quantification Accelerate Buy and Dry?	284
B. What are the Effects to Non-Changing Shareholders?	285
i. Notice: How Much is Required?	285
ii. Can Non-changing Shareholders be Bound?	286
iii. How Should Consumptive Use be Distributed among Shareholders?.....	288
C. What is the Role for Catlin Bylaws and Internal Regulation?	290
Conclusion	291

* Ryan Donovan, P. Andrew Jones, and Alyson Scott are attorneys at Lawrence Jones Custer Grasmick LLP in Johnstown, Colorado. The authors wish to thank the Legacy Ditch Association for their statewide efforts to support senior ditch companies and water rights holders.

INTRODUCTION

Colorado expects its population to grow by roughly one million residents every decade from now until 2040.¹ By then, the state's population will approach eight million.² If Colorado's water supply continues to develop at its current rate, the projected rise in population will "inevitably lead to a large transfer of water out of agriculture resulting in significant loss of agricultural lands and potential harm to the environment."³ The greatest demand will likely be from municipal and industrial users who, under moderate assumptions of future water demand and successful completion of identified supply projects, will face a shortfall of 390,000 acre feet per year in 2050.⁴

Some have called for greater use of market-based approaches to assist in reallocating water among different users and uses.⁵ Classical economic theory suggests that markets must be competitive to achieve optimal allocation of water.⁶ But competitiveness assumes the presence of certain market conditions. This article explores two of these conditions: well-defined property rights and transactions costs.

For water markets to work, property rights to water must be well defined.⁷ The prior appropriations doctrine is adept at describing *use-based* rights in water.⁸ These proverbial "sticks" in the bundle that compose a water right specify a point of diversion, the beneficial use to which the water is applied, the place of use, and the rate of and/or amount of the diversion. Yet, the most important stick in the bundle – the quantity of water transferrable to another use – is often poorly defined under the historic consumptive use doctrine.⁹ Two recent Colorado Supreme Court ("Supreme Court" or "Court") decisions, *Burlington*

1. COLO. DEP'T. OF LOCAL GOV'T, STATE DEMOGRAPHY OFFICE, POPULATION FORECAST 2000-2040 (2012), available at <http://www.colorado.gov/cs/Satellite/DOLA-Main/CBON/1251593346834>.

2. *Id.*

3. COLO. WATER CONSERVATION BD., STATEWIDE WATER SUPPLY INITIATIVE ES-1 (2010), available at <http://cwcb.state.co.us/water-management/water-supply-planning/Documents/SWSI2010/SWSI2010.pdf> [hereinafter SWSI 2010].

4. *Id.* at 5-28.

5. See, e.g., TERRY L. ANDERSON & PETER J. HILL, WATER MARKETING, THE NEXT GENERATION (1997); K. William Easter, Mark W. Rosegrant & Ariel Dinar, *Formal and Informal Markets for Water: Institutions, Performance, and Constraints*, 14 WORLD BANK RES. OBSERVER 99 (1999); Ronald C. Griffin & Shih-Hsun Hsu, *The Potential for Water Market Efficiency when Instream Flows Have Value*, 75 AM. J. AGRIC. ECON. 292 (1993); Charles W. Howe, Dennis R. Schurmeier & Douglas Shaw, Jr., *Innovative Approaches to Water Allocation: The Potential for Water Markets*, 22 WATER RES. RESEARCH 439 (1986); Ronald A. Kaiser & Laura M. Phillips, *Dividing the Waters: Water Marketing as a Conflict Resolution Strategy in the Edwards Aquifer Region*, 38 NAT. RES. J. 411 (1998). But see, Joseph W. Dellapenna, *Markets for Water: Time to Put the Myth to Rest?*, 131 J. CONTEMP. WATER RES. & EDUC. 33, 35 (2005) (concluding that water is the "prime example of a public good for which prices cannot be set in a marketplace.").

6. E.g., Thomas C. Brown, *Trends in Water Market Activity and Price in the Western United States*, 42 WATER RES. RESEARCH 1, 2 (2006).

7. E.g., BRUCE AYLWARD ET AL., THE ECONOMIC VALUE OF WATER FOR AGRICULTURAL, DOMESTIC AND INDUSTRIAL USES: A GLOBAL COMPILATION OF ECONOMIC STUDIES AND MARKET PRICES 1 (2010); Joseph W. Dellapenna, *The Importance of Getting Names Right: The Myth of Markets for Water*, 317 WM. & MARY ENVTL. L. & POL'Y REV. 317, 327 (2000).

8. Nicole L. Johnson, *Property without Possession*, 24 YALE J. ON REG. 205, 219-30 (2007).

9. E.g., Lawrence J. MacDonnell, *Public Water—Private Water: Anti-speculation, Water*

Ditch Reservoir & Land Company v. Metro Wastewater Reclamation District (“*Burlington Ditch*”)¹⁰ and *In re Water Rights of Central Colorado Water Conservancy District v. Greeley* (“*Jones Ditch*”),¹¹ underscore the dramatic results of failure to properly quantify water rights.

In addition to well-defined property rights, low transactions costs are another prerequisite for the operation of competitive markets.¹² Colorado, perhaps more than any other Western state, scrutinizes transfers of water rights in order to prevent injury to other users.¹³ Satisfying the burden of proof is a costly endeavor for an applicant; requiring engineers, lawyers, and other experts.¹⁴ The maintenance and protection of vested rights, while undoubtedly a necessary inquiry in a change in water rights case, can introduce transactions costs that inhibit additional market activity.¹⁵ In *Burlington Ditch* and *Jones Ditch*, the Supreme Court discussed ditch-wide quantification (also referred to as system-wide quantification) of historical consumptive use.¹⁶ The ditch-wide quantification method has the potential to reduce transactions costs vis-à-vis traditional parcel-specific quantification. But did the Court offer enough clarity for ditch-wide quantifications to become the favored method of quantification? What are the realities of such a quantification system?

Section I of this article offers a brief overview of the history and development of Colorado’s agricultural water rights, including a discussion of the Supreme Court’s holdings in *Burlington Ditch* and *Jones Ditch*, two key cases from which to draw lessons related to property rights and transactions costs. Section II offers analysis of these concepts, with particular attention on the role of senior agricultural rights in meeting Colorado’s future water supply demands and the importance of ditch-wide quantification as a component of a broader strategy to develop functioning water markets. Section III examines practical issues associated with the implementation of the ditch-wide quantification method, and provides preliminary suggestions on how to address these issues.

Reallocation, and High Plains A&M, LLC v. Southeastern Colorado Water Conservancy District, 10 U. DENV. WATER L. REV. 1, 3 (2006); Henry E. Smith, *Governing Water: The Semicommons of Fluid Property Rights*, 50 ARIZ. L. REV. 445, 470 (2008).

10. *Burlington Ditch Reservoir & Land Co. v. Metro. Wastewater Reclamation Dist.*, 256 P.3d 645 (Colo. 2011).

11. *In re Water Rights of Cent. Colo. Water Conservancy Dist.*, 147 P.3d 9 (Colo. 2006).

12. *E.g.*, AYLWARD ET AL., *supra* note 7, at 1; Bonnie G. Colby, *Transactions Costs and Efficiency in Western Water Allocation*, 72 AM. J. AGRIC. ECON. 1184, 1184 (1990).

13. COLO. REV. STAT. § 37-92-305(3)(a) (2012) (A change of water rights will be approved under the Water Right Determination and Adjudication Act of 1969 only if the change will not injuriously affect other adjudicated water rights). As used in this article, transfer or change of water right involves a change as defined in COLO. REV. STAT. § 37-92-103(5); *see also* *Santa Fe Trail Ranches Prop. Owners Ass’n v. Simpson*, 990 P.2d 46, 53 (Colo. 1999) (discussing the standards for a change in use proceeding); Colby, *supra* note 12, at 1190-91.

14. *E.g.*, PETER D. NICHOLS ET AL., *WATER AND GROWTH IN COLORADO: A REVIEW OF LEGAL AND POLICY ISSUES* 143, 145 (2001).

15. *Id.* at 145 (discussing the perceived preference of municipalities to acquire additional supply through the importation of foreign water which may avoid the costs associated with a change in use proceeding); Charles W. Howe & Christopher Goemans, *Water Transfers and Their Impacts: Lessons from Three Colorado Water Markets*, 39 J. AM. WATER RES. ASS’N 1055, 1058-59 (2003).

16. *Burlington Ditch Reservoir & Land Co. v. Metro. Wastewater Reclamation Dist.*, 256 P.3d 645, 675-76 (Colo. 2011); *Cent. Colo. Water Conservancy Dist.*, 147 P.3d at 19-20.

I. BACKGROUND

A. COLORADO'S SENIOR AGRICULTURAL RIGHTS

Municipal water providers seek to acquire water rights historically used in agriculture, particularly rights represented by shares in mutual ditch companies that often have senior priority.¹⁷ Such rights satisfy a key requirement for municipalities: certainty of supply.¹⁸ Ironically, the anticipated certainty of supply that makes these rights so valuable also gives rise to great uncertainty when courts attempt to quantify the historical consumptive use associated with such rights, many of which were decreed more than a century ago.¹⁹

The adjudication statutes of 1879 and 1881 decreed many of the most senior water rights in Colorado.²⁰ The statutes required applicants to submit a "statement of claim."²¹ Statements of claim included the

name of the structure; a legal description of the point of diversion and location of the length of the ditch; the ditch's width, depth, and carrying capacity in cubic feet per second; the name of the stream supplying the ditch; the date on which work on the ditch commenced; the uses of water; the name of the owner; and an accompanying plat map showing the stream and the ditch from its point of diversion to the terminus of the claim.²²

Like many of the early water decrees, the original decrees for the Jones Ditch and Burlington Ditch water rights did not expressly state where water application could occur or limit the number of acres irrigated under the right.²³

These omissions are reflections of the time period. At that time, the government had not yet completed surveys of townships and sections,²⁴ making it difficult to identify specific land to which a water right attached. The late 19th century was also an era of rapid expansion and settlement in Colorado, which

17. See DiNATALE WATER CONSULTANTS, INC., AN EVALUATION OF ALTERNATIVE AGRICULTURAL WATER TRANSFER METHODS IN THE SOUTH PLATTE BASIN 59, 74 (2013) (In a survey of 23 Colorado water utilities and water providers, the three most important factors when considering water supply acquisitions include: 1) certainty and reliability in yield, 2) permanency of supply, and 3) ownership of water rights.).

18. *Id.*; SWSI 2010, *supra* note 3, at 7-18.

19. See David W. Baker, *Future of Ditch-Wide Change Cases in Colorado: Reducing Per-Share Water Quantities with Historical Consumptive Use Determinations Based on Unlawful Enlargement and Average Reservoir Releases*: Burlington Ditch Reservoir & Land Co. v. Metro Wastewater Reclamation Dist., 256 P.3d 645 (Colo. 2011), 15 U. DENV. WATER L. REV. 173, 174 (2011).

20. Act of Feb. 19, 1879, 1879 Colo. Sess. Laws 94, 99, § 19; Act of Feb. 23, 1881, 1881 Colo. Sess. Laws 142-43, § 1.

21. Act of Feb. 23, 1881, 142, § 1.

22. Gregory J. Hobbs, Jr., *Colorado's 1969 Adjudication and Administration Act: Settling In*, 3 U. DENV. WATER L. REV. 1, 6 (1999) (citing Ditch Statement and Platt of the Schuttee Ditches No. 1 and 2, Garfield County, Colorado (Aug. 6, 1887)) (on file with the Office of the Colorado State Engineer).

23. Burlington Ditch Reservoir & Land Co. v. Metro. Wastewater Reclamation Dist., 256 P.3d 645, 664 (Colo. 2011); *In re* Water Rights of Cent. Colo. Water Conservancy Dist., 147 P.3d 9, 11 (Colo. 2006).

24. Gregory J. Hobbs, Jr., *Colorado Water Law: An Historical Overview*, 1 U. DENV. WATER L. REV. 1, 10 (1997).

water development largely fueled and supported.²⁵ Federal and state laws encouraged this growth,²⁶ and early Colorado water law echoed this spirit of development and expansion. Early case law recognized that decrees entered under the 1879 and 1881 Adjudication Acts were not designed to limit who may use the water, but rather recognized that subsequent irrigators may join the original appropriator under the original priority.²⁷ Indeed, the 1879 Adjudication Act even permitted ditch owners to sell their water to other irrigators at a price set by county commissioners.²⁸ Lawmakers anticipated and expected expansion to other irrigators, and presumably other farms.

The historical view of senior agricultural rights as “evolving” to include other irrigators and additional acreage to foster early statehood development contrasts with the contemporary realities of water rights administration that favor rights bound by some metric, such as the intent of the original appropriator. Case law supports both approaches, although the Supreme Court generally favors the latter. In early Court decisions, volumetric limits, not specific acreage, were the measure of a water right, but the Court eventually rejected this approach.²⁹ In 1947, the Court overruled its prior decisions permitting irrigation of additional acreage even if users complied with the volumetric limits.³⁰ In the same decision, the Court adopted the current standard that limits the historical use of senior agricultural rights to the water necessary to irrigate the land the original appropriator intended to irrigate at the time of adjudication.³¹

Two years later, the Court justified this change, pointing to an implied limitation read into water rights decreed for irrigation that the extent of such rights are “measured by the needs of the land for irrigation of which the water was decreed.”³² The Court has since extended this implied limitation to all decrees,

25. G.E. RADOSEVICH ET AL., *EVOLUTION AND ADMINISTRATION OF COLORADO WATER LAW: 1876-1976* 4-5 (1976).

26. See, e.g., Desert Lands Act, ch. 107, 19 Stat. 377 (1877) (current version at 43 U.S.C. §§641-48 (2006)); Mining Act of 1866, ch. 262, §9, 14 Stat. 253 (1866) (current version at 43 U.S.C. §§ 661-66 (2006)); The Homestead Act of 1862, ch. 75, 12 Stat. 392, *repealed by* Pub. L. No. 94-579, tit. VII, § 702, 90 Stat. 2787 (1976); Act of Mar. 15, 1895, 1895 Colo. Sess. Laws 157-68, ch. 70.

27. See *Oppenlander v. Left-Hand Ditch Co.*, 31 P. 854, 855-56 (Colo. 1892).

28. Act of Feb. 19, 1879, 1879 Colo. Sess. Laws 94-97, §§ 1-4.

29. See, e.g., *Hassler v. Fountain Mut. Irrigation Co.*, 26 P.2d 102, 103 (Colo. 1933) (“It is also the law that water appropriated and decreed may be applied to a larger or smaller acreage, and on a different kind of character of land, so long as such operation does not divert a larger quantity of water than was decreed.”); *Fulton Irrigation Co. v. Meadow Island Irrigation Co.*, 86 P. 748, 749 (Colo. 1906), *abrogated by* *Enlarged Southside Irrigation Ditch Co. v. John’s Flood Ditch Co.*, 183 P. 2d 552 (Colo. 1947) (“The mere fact that it is the intention of appellee to apply the water, diverted from its original headgate into the new headgate and new ditch, upon a larger acreage, does not even presumptively establish that more water, measured in time or quantity, will be used than was diverted through the original headgate, nor will it presumptively establish injury to the vested rights of others.”); *Cache La Poudre Irrigation Co. v. Larimer and Weld Reservoir Co.*, 53 P. 318, 321 (Colo. 1898), *abrogated by* *Enlarged Southside Irrigation Ditch Co.*, 183 P. 2d at 552 (“An ‘enlarged use’ may mean that more land is being irrigated with the same quantity of water than formerly was employed in irrigating fewer acres. It does not necessarily imply that a greater volume is required.”).

30. *Enlarged Southside Irrigation Ditch Co.*, 183 P. 2d at 555.

31. *Id.* (“In fact, the acreage under irrigation is the principal basis of measurement of the use of water in the adjudication of priorities, and use on increased acreage of necessity is evidence, although rebuttable, of increased use either in volume or time.”).

32. *Enlarged Southside Irrigation Ditch Co. v. John’s Flood Ditch Co.*, 210 P. 2d 982, 985

not just those for irrigation rights.³³ The source of this limitation is one of the fundamental tenets of Colorado water law - the appropriative system favors optimum use by requiring water be applied for beneficial purposes.³⁴ Early Colorado water laws promoted expansion of agricultural water rights to other lands, whereas contemporary decisions espouse the desire to limit the speculative use of water by confining such rights to the user's original intentions regarding the number of acres irrigated.

As municipalities and water suppliers acquire more senior agricultural rights, it is important to understand the historical context of these rights and the constraints that limited accurate definition in original decrees. This is particularly true in light of the significant evolution of water law and the technological advancements that have occurred since courts first entered many of these decrees. Accurate quantification of these rights is a critical stone in the path towards creating viable and efficient markets for water, which may help prevent the forecasted widespread dry-up of agricultural land.

At the outset, it is important to define the meaning we assign to the term "market." After all, the buying and selling of water rights is not a recent phenomenon. Municipalities have been acquiring agricultural water rights since at least the 1890s.³⁵ However rudimentary or inefficient markets may have been, or continue to be, markets for water do exist. Colorado is currently grappling with how to refine its approach to water markets in order to limit or eliminate the negative byproducts of water transfers, such as "buy and dry."³⁶

Proposed new approaches to water transfers are generally and collectively labeled Alternative Transfer Methods ("ATMs").³⁷ Examples include rotational fallowing, deficit irrigation, water banks, and purchase and lease back agreements.³⁸ These practices result in conserved consumptive use portions available for lease. If the water court approves a change in use, the owner or lessee can use conserved water for multiple purposes. The distinction between ATMs and complete transfers of a water right from one use to another is that ATMs permit the sharing of water associated with a particular right among various types of beneficial uses. The focus is on the change in the type of use, not an actual change in ownership. For this discussion, when we refer to water markets, we refer to transfers in which several users share a given water right for multiple types of beneficial use.

As Colorado courts strive to quantify senior rights, they simultaneously struggle to reconcile the limitations of historic decrees with the factual development of these early rights.³⁹ The success of ATMs hinges not only on accurately

(Colo. 1949).

33. See, e.g., *Orr v. Arapahoe Water and Sanitation Dist.*, 753 P.2d 1217, 1223 (Colo. 1988); *Rominiecki v. McIntyre Livestock Corp.*, 633 P.2d. 1064, 1067 (Colo.1981); *Weibert v. Rothe Bros., Inc.*, 618 P. 2d 1367, 1372 (Colo. 1980).

34. See *Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46, 54-55 (Colo. 1999).

35. See *Strickler v. City of Colo. Springs*, 26 P. 313, 315 (Colo. 1891).

36. See COLO. WATER CONSERVATION BD., NO/LOW REGRETS ACTION PLAN 5, 7 (2013).

37. *Id.* at 5.

38. *Id.*

39. See Bruce Finley, *High Colorado Court Limits Conversion of Ag Water for Municipal Use*, DENVER POST, May 31, 2011 ("The issue in these cases is what the historical use of water

quantified water rights, but also on an improved process for transferring the water rights to other uses. If we are going to attract sellers and buyers to the water market, then the cost of transferring water through ATMs must be less than other alternatives. The *Jones Ditch* and *Burlington Ditch* decisions recognize the efficiency of ditch-wide quantifications, but the results of these decisions – significant reductions in the quantity of certain senior water rights – has deterred and will likely continue to deter the use of the ditch-wide methodology.⁴⁰

B. JONES DITCH AND BURLINGTON DITCH

The *Burlington Ditch* and *Jones Ditch* decisions serve as useful case studies that highlight the need to accurately quantify historical water rights and improve the process for transferring such rights to other uses.⁴¹ Both decisions involve change in use applications filed by owners of senior agricultural rights seeking to change the use of the rights to either augmentation or municipal uses.⁴² In change of use cases, courts protect against unlawful enlargement of a water right by limiting the quantity of water that can be changed to the amount of water historically consumed under the right.⁴³ Therefore, in change in use proceedings, the question of the right's historical consumptive use is a necessary inquiry.⁴⁴

The effect of the Court's ruling in the *Jones Ditch* and *Burlington Ditch* decisions was to significantly reduce the area served by senior water rights, and thus significantly reduce the quantity of water associated with such rights.⁴⁵ In both instances, the Court's interpretation of the original appropriators' intent formed the basis of its holding.⁴⁶

i. *Jones Ditch*

Consider the *Jones Ditch* case. William R. Jones was an early settler of northern Colorado, who claimed land three miles northwest of Greeley along

is. That's a very difficult thing to prove. Old decrees were imprecise. Measurement was imprecise. As the value of water increases, the challenge of finding just how much a person's or district's water right might have been in the past is very difficult.") (quoting the late University of Colorado Law School Dean David Getches), available at http://www.denverpost.com/ci_18176361#.

40. See DiNATALE WATER CONSULTANTS, INC., *supra* note 17, at 31-32 (discussing the results of a survey of FRICO shareholders in connection with their preferences for alternative transfer mechanisms in which many respondents were reluctant to consider ATM transfers).

41. See *id.* at 103-04.

42. *Burlington Ditch Reservoir & Land Co. v. Metro. Wastewater Reclamation Dist.*, 256 P.3d 645, 655 (Colo. 2011); *In re Water Rights of Cent. Colo. Water Conservancy Dist.*, 147 P.3d 9, 12 (Colo. 2006).

43. See *Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46, 54-55 (Colo. 1999).

44. *Williams v. Midway Ranches Prop. Owners Ass'n, Inc.*, 938 P.2d 515, 522 (Colo. 1997) ("When a determination of historic usage has not previously been made, the water right must be quantified to effectuate a change or augmentation-plan case.").

45. *Burlington Ditch*, 256 P.3d at 665-67; *Cent. Colo. Water Conservancy Dist.*, 147 P.3d at 14, 16.

46. *Burlington Ditch*, 256 P.3d at 665-67; *Cent. Colo. Water Conservancy Dist.*, 147 P.3d at 14, 16.

the Cache la Poudre River ("Poudre River").⁴⁷ Shortly after his arrival, he initiated construction on the Jones Ditch to divert water so that he could irrigate the fertile bottomlands between the Poudre River and a line of bluffs to the south.⁴⁸ Mr. Jones adjudicated the ditch that bore his name in 1882.⁴⁹ During that adjudication, Mr. Jones testified that he owned approximately 300 acres, and that up until the time of adjudication, he had irrigated only those 300 acres.⁵⁰ The court entered a general decree allowing Mr. Jones to divert 931 cubic feet per minute for irrigation ("Jones Ditch Water Right").⁵¹

In the years following entry of the decree, Mr. Jones and his successors in interest continued development of the ditch.⁵² From 1920 to 2006, the Jones Ditch consistently irrigated at least 700 acres.⁵³ The Jones Ditch Company, incorporated in 1944, holds the Jones Ditch Water Right for the benefit of its shareholders.⁵⁴ Eventually, the Central Colorado Water Conservancy District ("Central") came to own 139 of the 200 outstanding shares in the Jones Ditch Company.⁵⁵

In 2000 and 2002, Central sought to change the use of seventy-seven of its shares from domestic and irrigation uses to irrigation, augmentation, replacement, exchange, and recreation with a right to use the consumable portion of the water right.⁵⁶ Thus, the lawful historic consumptive use of the water right was at issue.⁵⁷ Central claimed that the Jones Ditch Water Right extended to the amount of water used to irrigate the approximately 700 acres since 1920.⁵⁸ Opposers claimed Central's interpretation represented an unlawful enlargement of the Jones Ditch Water Right.⁵⁹ The District Court, Water Division No. 1 ("Water Court") agreed with the opposers.⁶⁰ On appeal, the Colorado Supreme Court affirmed.⁶¹

The Supreme Court found that Mr. Jones' testimony in the original adjudication - in which he stated that he owned "at least 300 acres that lie under the ditch on the same side of the river that can be irrigated from this ditch" and that he had "irrigated all of this land that needs irrigation" - was dispositive to its determination.⁶² This statement, made over 120 years prior to Central's change in use application, proved fatal for Central. Both the Water Court and the Supreme Court interpreted the original appropriator's statement to indicate that

47. Applicant's Trial Brief at ¶ 5, Cent. Colo. Water Conservancy Dist., 147 P.3d 9 (Colo. 2006).

48. *Id.*

49. *Cent. Colo. Water Conservancy Dist.*, 147 P.3d at 11-12.

50. *Id.* at 12.

51. *Id.* at 11.

52. *Id.* at 12.

53. *Id.*

54. *Id.*

55. *Id.*

56. *Id.*

57. *Id.*

58. *Id.*

59. *Id.*

60. *Id.*

61. *Id.* at 14.

62. *See id.* at 17.

the Jones Ditch Water Right was an absolute water right.⁶³ Thus, both the Water Court and Supreme Court concluded that the expansion of acreage - from the original estimation of 300 acres to the 700 acres Central claimed-constituted an unlawful expansion of the Jones Ditch Water Right.⁶⁴

While the Water Court determined the extent of Central's water right on a per-parcel basis,⁶⁵ the Supreme Court opted, and stated its preference, for a ditch-wide analysis.⁶⁶ Under a ditch-wide approach, a court quantifies the entire water right of a mutual ditch company and then allocates the water right among the shareholders of the company according to their pro rata ownership of shares.⁶⁷ This approach contrasts with a parcel-specific (or parcel-by-parcel) approach, which quantifies consumptive use for the shares sought to be changed to new uses without extending that value of consumptive use to other shares in the same ditch company.⁶⁸ When a change in use applicant seeks a change in use pursuant to a parcel-by-parcel approach, the historic consumptive use per changed share is generally not binding on other shareholders in that ditch company; shareholders seeking a subsequent change in use must proceed to establish the historic consumptive use with respect to the shares they wish to change.⁶⁹ The law permits either a per-parcel or ditch-wide methodology, but the Court stated that "[d]itch-wide analyses are preferable" because "they prevent expensive re-litigation of consumptive use."⁷⁰ The Court also prefers ditch-wide analyses because such an approach is consistent with the pro rata operation of mutual ditch companies.⁷¹

Application of the ditch-wide approach in *Jones Ditch* rendered the seventy-seven shares Central sought to change valueless.⁷² As discussed below, that result may ultimately compel, and in the opinion of the authors has already compelled, applicants in change of use cases to avoid ditch-wide quantification.

ii. *Burlington Ditch*

In many respects, *Jones Ditch* was a prequel to the more recent *Burlington Ditch* decision. Like the Jones Ditch Water Right, water rights associated with the Burlington Ditch, Reservoir and Land Company ("Burlington") are among

63. *Id.* at 12, 14.

64. *Id.*

65. *Id.* at 13.

66. *Id.* at 18-19.

67. *Id.* at 19. (citing *Great W. Sugar Co. v. Jackson Lake Reservoir & Irrigation Co.*, 681 P.2d 484, 490 (Colo. 1984)).

68. *See id.* at 12-13. (The Water Court, deciding to leave undisturbed a 1992 Decree in which it awarded Central 401.4 acre-feet of consumptive use per year based on its ownership of 62 additional shares, opted for a parcel-specific analysis in which it determined the historical consumptive use of the shares Central sought to change by analyzing the amount of water that was historically used to irrigate 37 acres owned by Central. The Water Court awarded Central 66.65 acre feet pursuant to a parcel-specific approach).

69. *See id.*

70. *Id.* at 19.

71. *See id.* at 18. (In its opinion, the Colorado Supreme Court states that "shares of stock in a mutual ditch company represent the stockholder's interest in the ditch water right" and then discusses the allocation of a mutual ditch company's water right among its shareholders pro rata.).

72. *See id.* at 19-20.

the most senior rights in Colorado, with a priority date of 1885.⁷³ Though the Colorado Supreme Court in *Burlington Ditch* addressed many substantive issues, quantification of historical consumptive use was again a requisite inquiry in this change of use case.⁷⁴ Like *Jones Ditch*, the outcome of *Burlington Ditch* was a dramatic reduction in the historical consumptive use of senior water rights.

Burlington, incorporated in November 1885,⁷⁵ began construction of the Burlington Ditch around the same time.⁷⁶ A decree, entered in 1893 in Case No. 11200 ("1893 Decree"), provided the company a priority date of November 25, 1885 for a direct flow right of 350 cubic feet per second ("cfs") from the South Platte River ("Burlington 1885 Direct Flow Right") and a storage right in Barr Lake and Oasis Reservoir to be filled at 350 cfs ("Burlington 1885 Storage Right").⁷⁷

The district court that entered the 1893 Decree adopted the referee's finding, which identified 12,000 acres capable of irrigation between the Burlington headgate and Barr Lake and Oasis Reservoirs, as well as 28,000 acres of lands susceptible to irrigation below these storage facilities.⁷⁸ The decree went on to describe, now almost notoriously, that the amount of acreage that the ditch could serve was "unlimited as it may continue to the eastern line of Colorado."⁷⁹ From 1885 until 1909, Burlington diverted approximately 200 of the 350 cfs of the Burlington 1885 Direct Flow Right for irrigation of lands *above* Barr Lake.⁸⁰

In 1909, Farmers Reservoir and Irrigation Company ("FRICO") contracted with Burlington for water "in excess of those rights [that] entitled the Burlington Company to fill Barr/Oasis . . . and in excess of the water now obtained and used for direct irrigation."⁸¹ Diversion records showed this amount of "excess water" was roughly the 150 cfs not then used by Burlington.⁸² FRICO delivered this water for irrigation of lands *below* Barr Lake.⁸³ It was around this time that FRICO began expanding the Burlington system, adding nearly 140 miles of new canals as part of its Barr-Lake Division.⁸⁴ The district court granted FRICO a 1908 priority in the expanded Burlington Canal for 600 cfs from the South Platte.⁸⁵

As part of a 2004 water court application, FRICO, Burlington, Henrylyn Irrigation District, United Water and Sanitation District, and East Cherry Creek Valley Water and Sanitation District applied for a change in use from irrigation

73. *Burlington Ditch Reservoir & Land Co. v. Metro. Wastewater Reclamation Dist.*, 256 P.3d 645, 656 (Colo. 2011).

74. *Id.* at 662.

75. JAMES E. SHEROW, A HISTORICAL NARRATIVE OF THE BURLINGTON DITCH: RESERVOIR AND LAND COMPANY 2 (1987), <http://www.burlingtonres.com/history.htm>.

76. *Burlington Ditch*, 256 P.3d at 656.

77. *Id.*

78. *Id.*

79. *Id.*

80. *Id.* at 656-57.

81. *Id.* at 657.

82. *Id.*

83. *Id.*

84. *Id.* at 657-58.

85. *Id.* at 657.

to municipal use of Burlington and FRICO water rights historically used to irrigate farms below Barr Lake.⁸⁶ As in any change in use case, the analysis necessarily included a determination of the historical consumptive use of the Burlington 1885 Direct Flow Right. The Water Court held FRICO's expansion of the Burlington system unlawful, and calculated the lawful historical consumptive use of the Burlington 1885 Direct Flow Right as the 200 cfs Burlington put to beneficial use prior to FRICO's expansion.⁸⁷

Relying in part on *Jones Ditch*, the Colorado Supreme Court affirmed and held that the application of water to additional acreage, resulting in increased consumptive use above that perfected under the decreed appropriation, was unlawful.⁸⁸ In interpreting the nearly 120-year old decree, the Supreme Court deferred to the Water Court's finding that there was no evidence that Burlington intended to irrigate lands below Barr Lake with the Burlington 1885 Direct Flow Right.⁸⁹ The Supreme Court addressed the apparent discrepancy between its holding and the original 1893 Decree, which permitted Burlington to divert up to 350 cfs, by concluding that a "diversion flow rate in a decree is neither the measure of a matured water right, nor conclusive evidence of the appropriator's need for which the appropriation was originally made."⁹⁰

As in *Jones Ditch*, the Court in *Burlington Ditch* analyzed historical consumptive use according to a system-wide approach.⁹¹ Several parties challenged the Water Court's ditch-wide quantification of shares not identified in the application.⁹² The Supreme Court affirmed the Water Court's approach, concluding that the resume notice was sufficient to place other Burlington and FRICO shareholders on inquiry notice that the action may potentially affect their rights, and that the Water Court had proper in rem jurisdiction over all water rights under the ditch because such rights were "put at issue" by the change application.⁹³

II. ANALYSIS

Colorado is seeking to accomplish what appear to be competing goals in water management. Colorado seeks to preserve its agricultural heritage along with that sector's contribution to the state's economy, while concurrently acknowledging that transfers of water out of agriculture are likely to fill the projected municipal and industrial ("M&I") supply "gap".⁹⁴ Additional transfers of water out of agriculture seem inevitable. But the manner in which owners transfer water rights is a policy variable upon which there is some control.

The case for policy change is an easy one to make. To protect vested water rights holders, water courts may impose the dry-up of previously irrigated land

86. *Id.* at 653-55.

87. *Id.* at 655.

88. *Id.* at 664-65.

89. *Id.* at 664.

90. *Id.* at 665.

91. *See id.* at 675.

92. *Id.* at 675.

93. *Id.* at 675-76.

94. *See* SWSI 2010, *supra* note 3, at ES-8 and ES-16-17.

as a condition to granting a change in use.⁹⁵ Due to either dry-up covenants or urban encroachment, between 500,000 and 700,000 additional irrigated acres in Colorado could be dry by 2050.⁹⁶ This has real economic consequences to the state. Depending on the region and crops grown, the average economic activity generated per irrigated acre can range from \$335 to over \$1200.⁹⁷ When lands are permanently removed from irrigated agriculture, the ripple effects can be distressing to rural communities.⁹⁸ In addition to being a vibrant market for the state,⁹⁹ agriculture also supports soil conservation, recreational opportunities, and cultural values.¹⁰⁰ With the fate of many rural communities inextricably tied to agriculture, and thus water, it is no surprise that there is a growing divide among Colorado water users.¹⁰¹

While reallocation of water from agriculture to other uses makes up only one leg of the so-called “four-legged stool” to meet projected future water demands in the state, such transfers comprise a considerable portion of Colorado’s future water supply portfolio.¹⁰² The Water Right Determination and Adjudication Act of 1969 (“1969 Act”) permits various types of temporary transfers with administrative approval.¹⁰³ However such transfers may only operate within well-defined time periods, thereby potentially constraining their ability to facilitate sufficient water trading to address the M&I gap.¹⁰⁴ In addition to these

95. See, e.g., *City of Thornton v. Bijou Irr. Co.*, 926 P.2d 1, 87-88 (Colo. 1996).

96. SWSI 2010, *supra* note 3, at 4-32.

97. JENNIFER THORVALDSON & JAMES PRITCHETT, COLO. WATER RES. INST., REPORT NO. 207, ECONOMIC IMPACT ANALYSIS OF REDUCED IRRIGATED ACREAGE IN FOUR RIVER BASINS IN COLO. 40 (2006).

98. See Howe & Goemans, *supra* note 15, at 1062-63 (discussing the economic impacts, including losses in employment, income, and tax revenue, in the Arkansas Valley of dry up associated with transfers of water from agriculture to municipalities); Charles W. Howe, Jeffrey K. Lazo, & Kenneth R. Weber, *The Economic Impacts of Agriculture-to-Urban Water Transfers on the Area of Origin: A Case Study of the Arkansas River Valley in Colorado*, 72 AM. J. OF AGRIC. ECON. 1200, 1200-04 (1990).

99. See generally STEPHEN DAVIES, AMALIA DAVIES, BECKY GOLDBACH, & MARTHA SULLINS, COLO. STATE UNIV., COLO. DEP’T OF AGRIC., THE CONTRIBUTION OF AGRICULTURE TO COLORADO’S ECONOMY: AN EXECUTIVE SUMMARY 1-4 (2012), available at <http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheadername1=ContentDisposition&blobheadername2=Content-Type&blobheadervalue1=inline%3B+filename%3D%22CSU+Executive+Summary.pdf%22&blobheadervalue2=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251833847153&ssbinary=true>.

100. See, e.g., Randall S. Rosenberger & Richard G. Walsh, *Nonmarket Value of Western Valley Ranchland Using Contingent Valuation*, 22 J. AGRIC. & RES. ECON. 296, 296 (1997).

101. See generally Sandra K. Davis, *The Politics of Water Scarcity in the Western States*, 38 SOC. SCI. J. 527, 534 (2001) (discussing the factors that contribute to conflict over water).

102. See SWSI 2010, *supra* note 3, at 7-5 and 7-6.

103. COLO. REV. STAT. § 37-92-308(4)(a)-(c) (2012).

104. *Id.* (Recognizing that the time required to go through the water court adjudication process can be problematic for some water users, the general assembly has authorized the use of substitute water supply plans (“SWSP”) to effect change applications under certain circumstances. If an applicant has filed a change of water right application with the water court and the court has not yet issued a decree in that matter, the applicant may request the state engineer to approve the temporary operation of such change in water right. If the state engineer determines, after receiving comments from the opposers in the pending water court application, that the SWSP will replace all out-of-priority depletions in time, location, and amount, and will otherwise prevent injury to other appropriators, then the state engineer will approve the SWSP for a period of up to one year); see also §§ 37-92-308(5)(a)-(c) (A SWSP may be approved, even without a pending

statutory transfer methods, creating markets for water leasing is one approach that warrants attention. Markets are not a remedy to all water scarcity problems,¹⁰⁵ but there is evidence that market signals are already affecting allocation decisions.¹⁰⁶

Can current water transfer methods be improved to foster transactions that meet M&I demand and curtail the buy and dry trend? The Colorado Water Conservation Board (“CWCB”) has begun to address this question through its ATM grant program.¹⁰⁷ The ATM studies underway point towards the development of promising concepts, many of which address the need to create incentives for water leasing. For reasons discussed below, *Jones Ditch* and *Burlington Ditch* hold lessons on the eventual efficacy of many of the ATM models.

A. PROPERTY RIGHTS

In any given transaction, property rights define the value of what is exchanged.¹⁰⁸ Water rights in Colorado challenge categorization, often straddling the line between a private property right and a public good.¹⁰⁹ The public nature of water is cemented in the Colorado Constitution.¹¹⁰ However, the prior appropriation system recognizes usufructuary rights in water held by private individuals and entities.¹¹¹ The act of appropriation, through control and application of water to a beneficial use, entitles the appropriator to make use of that amount of water in subsequent years.¹¹²

The extent of the private right to use water, like many other natural resources, is limited and presents a unique bundle of rights.¹¹³ These rights are subject to the well-established condition that the water must be applied to a non-speculative use.¹¹⁴ The right holder must continue to divert water once there is lawful appropriation, or risk a finding of abandonment (commonly known as the “use it or lose it” condition).¹¹⁵ Adjudicated water rights give the appropriator the right to the continued use of a certain amount of water at a specified

change in water right application in water court, for a limited duration of up to five years); § 37-92-309 (Interruptible water supply agreements (“IWSA”) allow for approval by the state engineer of temporary transfers of the consumptive use portions of absolute water rights to another beneficial use, without adjudication, if the proponent can prove the agreement will not cause injury to other appropriators. An IWSA can be exercised in no more than three years in a ten year period).

105. See Dellepenna, *supra* note 5, at 36-37 (discussing externalities in water markets); Howe, Schurmeier & Shaw, Jr., *supra* note 5, at 441 (discussing externalities in water markets).

106. Jedidiah Brewer, Robert Glennon, Alan Ker, & Gary Libecap, *2006 Presidential Address Water Markets in the West: Prices, Trading, and Contractual Forms*, 46 *ECON. INQUIRY* 91, 105 (2008) (summarizing water markets in the Western U.S. from 1987 to 2005).

107. COLO. WATER CONSERVATION BD., *ALTERNATIVE AGRICULTURAL WATER TRANSFER METHODS GRANT PROGRAM SUMMARY AND STATUS UPDATE 1-2* (2012).

108. Harold Demsetz, *Toward a Theory of Property Rights*, 57 *AM. ECON. REV.* 347, 347 (1967).

109. See MacDonnell, *supra* note 9, at 2, 5; Smith, *supra* note 9, at 466-68.

110. COLO. CONST. art XVI, § 5.

111. See *Navajo Dev. Co. v. Sanderson*, 655 P.2d 1374, 1377 (Colo. 1982).

112. See COLO. REV. STAT. § 37-92-103(2), (3)(a) (2013).

113. See Smith, *supra* note 9, at 468-70.

114. See, e.g., *Colo. River Water Conservation Dist. v. Vidler Tunnel Water Co.*, 594 P.2d 566, 568 (Colo. 1979).

115. *CF&I Steel Corp. v. Purgatoire River Water Conservancy Dist.*, 515 P.2d 456, 457-58 (Colo. 1973) (nonuse in conjunction with intent to abandon result in the loss of a water right).

place, for a particular purpose, and in priority.¹¹⁶ Once applied, the water right owner has no right to claim unappropriated return flows; once applied, that water belongs to another appropriator.¹¹⁷

But the ultimate measure of an owner's private right in water - historical consumptive use ("HCU") - is generally not fixed until the owner seeks to transfer the right to a different use.¹¹⁸ Along with a water right's priority, quantification of HCU is the primary stick in the bundle that defines the value of the right for transfer because HCU is the true quantitative measure of a water right.¹¹⁹

Consistent with the requirement that a change in use of a water right cause no injury to junior appropriators, HCU is the quantity of water an owner historically withdrew and consumed by application of the water to a decreed beneficial use¹²⁰ and, therefore, is water that was historically unavailable to supply other appropriators. As described in the next section, quantification of HCU is neither simple nor inexpensive, particularly when the right an owner seeks to change was historically used in irrigation.¹²¹

B. TRANSACTIONS COSTS

For water transfers, transaction costs are those costs associated with identifying opportunities for trade, negotiating transfers, monitoring, and potential mitigation of third party effects and conveyance.¹²² The transaction costs incurred in obtaining legal approval to effect the proposed change in water right are of particular importance.¹²³ As discussed above, quantification of HCU takes on great significance in a change in use application.

A lack of accurate data can impede determination of HCU for changes of use involving agricultural water rights.¹²⁴ Determination of HCU requires assemblage of historic diversion records, which are generally available from the state.¹²⁵ The courts also require historical data regarding the types of crops grown and the number of acres irrigated.¹²⁶ In addition, HCU determination requires techniques like the Blaney-Criddle method, which incorporate data regarding tem-

116. *E.g., Navajo Dev. Co.*, 655 P.2d at 1377; George A. Gould, *Water Rights Transfers and Third-Party Effects*, 23 WYO. LAND & WATER L. REV. 1, 24-25 (1988) [hereinafter Gould I].

117. *Comstock v. Ramsay*, 133 P. 1107, 1111 (Colo. 1913) (It is a well-recognized principle of Colorado water law, that under our priority system, waters remaining after the application to a beneficial use "belong once again to the river system at the moment they are released by the user . . . and start to flow back to the river.").

118. *See Smith, supra* note 9, at 469-70.

119. *See Santa Fe Trail Ranches Prop. Owners Ass'n v. Simpson*, 990 P.2d 46, 54-55 (Colo. 1999).

120. *Id.*

121. James N. Corbridge, Jr., *Historical Water Use and the Protection of Vested Rights: A Challenge for Colorado Water Law*, 69 U. COLO. L. REV. 503, 524-26 (1998).

122. Laura McCann & K. William Easter, *A Framework for Estimating the Transaction Costs of Alternative Mechanisms for Water Exchange and Allocation*, 40 WATER RES. RESEARCH 1, 2 (2004).

123. Colby, *supra* note 12, at 1184.

124. *See Gould I, supra* note 116, at 20.

125. Corbridge, *supra* note 117, at 524.

126. George A. Gould, *Transfer of Water Rights*, 29 NAT. RES. J. 457, 464 (1989) [hereinafter Gould II].

perature, sunshine, climatological data, and consumptive use coefficients to estimate crop consumption, evapotranspiration, and evaporation.¹²⁷ Water courts must also determine ditch loss, as water lost through seepage in the ditch is not consumed and instead finds its way back to the tributary surface system.¹²⁸ The costs associated with such quantification can affect market activity.¹²⁹ This may even limit market efficiency or prevent market formation altogether.¹³⁰ Research suggests such costs push M&I water market participants away from the acquisition of previously-decreed native water and towards the market for foreign water delivered through existing projects.¹³¹

In contrast, consider the market for units of Colorado-Big Thompson Project ("C-BT") water, which the Northern Colorado Water Conservancy District ("NCWCD") oversees. Several unique qualities of C-BT units attract M&I providers. First, although use of the water may only occur within NCWCD boundaries, units may be transferred among users without the need for a return flow analysis.¹³² Further, C-BT unit transfers are generally not subject to water court scrutiny, thereby considerably reducing the transactions costs associated with transferring units.¹³³ Lastly, C-BT units are homogenous as each share gets the same amount of water.¹³⁴

By several accounts, the market for C-BT units is one of the better functioning water markets in the Western U.S.¹³⁵ By number of transactions, it is one of the most active water markets.¹³⁶ The relative ease with which water is transferred fosters continual trading, as opposed to markets for native water in which M&I providers tend to "buy ahead."¹³⁷ Because the development of new supplies is one of the four legs of the stool to address the M&I gap,¹³⁸ we could possibly see markets similar to the C-BT market arise with the completion of new supply projects. But such projects are expensive and take considerable

127. Gould I, *supra* note 116, at 20.

128. See Gould II, *supra* note 126, at 465.

129. Gould I, *supra* note 116, at 23.

130. Colby, *supra* note 12, at 1184.

131. NICHOLS ET AL., *supra* note 14, at 146-47. Native water is to be distinguished from foreign or "developed water." *Id.* Developed water "is that water which has been added to the supply of a natural stream and which never would have come into the stream had it not been for the efforts of the party producing it . . . It follows that the developers without hindrance could use, re-use, make successive use of and dispose of the water." *City of Denver ex rel. Bd. of Water Comm'rs v. Fulton Irrigating Ditch Co.*, 506 P.2d 144, 147 (Colo. 1972); see also COLO. REV. STAT. § 37-82-106 (2013).

132. See *Estes Park v. N. Colo. Water Conservancy Dist.*, 677 P.2d 320, 324 (Colo. 1984) (discussing Article 19 of the contract between NCWCD and the U.S. in which the latter reserved for the benefit of the former all return flows for domestic, irrigation, and industrial uses).

133. Howe & Goemans, *supra* note 15, at 1056.

134. *Id.*

135. David S. Brookshire, Bonnie Colby, Mary Ewers, & Philip T. Ganderton, *Market Prices for Water in the Semiarid West of the United States*, 40 WATER RES. RESEARCH 1, 7 (2004) ("[T]he CBT system of shares provide the simplest property rights structure to support market trades. The homogeneity of the right is the key characteristic that separates the water right from location, owner type, and historical use.").

136. Brown, *supra* note 6, at 3.

137. Howe & Goemans, *supra* note 15, at 1060.

138. SWSI 2010, *supra* note 3, at 7-4.

time to plan, construct, and permit.¹³⁹ In the meantime, we could proactively take the lessons learned from the C-BT market and translate them to improve the market for native water.

Shares in mutual ditch companies are capable of replicating some of these attributes, particularly when using a ditch-wide quantification approach. Determining the HCU attributable to each share in one proceeding results in homogeneity of shares, one of the qualities that economists have concluded improves the functionality of the C-BT market. Additionally, and as the C-BT market shows, a ditch-wide quantification would reduce future transaction costs and create incentives for trade.

C. INCENTIVES FOR WATER TRANSFERS AFTER *JONES DITCH* AND *BURLINGTON DITCH*

If part of Colorado's water portfolio to meet future water demand requires reliance on ATMs to prevent large scale dry up of agricultural land, then it is fair to evaluate the incentives for would-be ATM participants to engage in water markets. An analysis of the *Burlington Ditch* and *Jones Ditch* decisions reveals, at best, mixed incentives for the development of temporary transfers.

As alluded to above, these decisions encourage the development of water markets by recognizing the efficiency gains of ditch-wide quantifications. Ideally, the result of such an approach is twofold: (I) the homogenization of shares in a given ditch company, which allows each share to represent a right to use a certain amount of water under the same priority, and (II) reductions in the transaction costs associated with quantifying HCU. The two go hand-in-hand. It is easier to imagine the potential for water trades when the buyer and seller are certain as to the amount of water being traded before seeking water court approval. If the market for C-BT units is a comparison, then both of these results are important with respect to their potential to create incentives for water trading.

Though the Colorado Supreme Court expressed a preference for the ditch-wide approach, the outcome of both the *Burlington Ditch* and *Jones Ditch* cases established incentives to avoid such an approach. Both decisions point towards one conclusion: after more than a century of precedent and statutory development, property rights to water are still poorly defined in Colorado. No market, for water or otherwise, can be expected to form without well-defined property rights.¹⁴⁰ Our state goes to great lengths to define the nature of water rights, but does so only indirectly - by parameters that define its use.¹⁴¹ If water markets are to function, the bundle of sticks comprising a water right must include how much of that right is transferrable. Ideally, this component would attach to a

139. See *id.* at 7-21 (discussing factors to consider for new supply development strategy concepts); see also Gould II, *supra* note 126, at 457-58 (noting the financial implications of new water development projects).

140. E.g., Terry L. Anderson & P.J. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 J.L. & ECON. 163, 178 (1975) (noting that well-defined property rights led to greater enforceability); Gould I, *supra* note 116, at 24 ("Well-defined rights are one of the essentials for an efficient market.")

141. See *Burlington Ditch Reservoir & Land Co. v. Metro. Wastewater Reclamation Dist.*, 256 P.3d 645 (Colo. 2011); *In re Water Rights of Cent. Colo. Water Conservancy Dist.*, 147 P.3d 9 (Colo. 2006).

water right prior to a change in use proceeding.

The Court's attempts to define the consumptive use of a water right in *Burlington Ditch* and *Jones Ditch* muddied the waters further. In *Jones Ditch*, the Court founded its determination of consumptive use on analysis of the original appropriator's intent. In that case, the 120-year old testimony of William R. Jones was controlling as to the quantification of HCU.¹⁴² Similarly, the Court's decision to nearly halve Burlington's 1885 Direct Flow Right turned on the applicants' inability to demonstrate Burlington's intent over a century ago to irrigate lands below Barr Lake.¹⁴³ Now, when transferring an agricultural water right, the proponent must not only demonstrate compliance with all of the other parameters used to describe a water right – nonspeculative, continuous use, from an approved point of diversion, applied to the decreed type(s) of use, etc. – the proponent must also provide evidence that the amount to be transferred was applied to lands the original appropriator intended to irrigate. Surely, these decisions sent the boards of directors of ditch companies and the attorneys that represent them scouring historical files to determine if they could meet such a burden. *Burlington Ditch* and *Jones Ditch* did more to increase uncertainty with respect to water rights, thus chilling the development of water trading.

D. THE "LEGACY DITCH BILL"

Recent legislation introduces certainty into senior agricultural water rights. The Legacy Ditch Bill provides that the lawful maximum amount of irrigated acreage for decrees entered prior to 1937, and which are silent as to the number of acres the appropriator may irrigate, is the maximum amount of acreage irrigated (in compliance with all other provisions of the decree) during the first fifty years after entry of the decree.¹⁴⁴ This statute's operation is akin to statutes of limitation. It creates a presumption that even allegedly unlawful right expansions through historical diversions that have gone unchallenged by the State Engineer or other water users are indeed lawful.

Similar legislation has protected other rights, notably those in property. Colorado recognizes an 18-year limitation on real property claims.¹⁴⁵ This and other statutes of limitation strike a balance between affording an opportunity for redress and the need to protect against the risk of error about the merits of stale claims when evidence may be difficult to obtain because it has been lost, memories have faded, or witnesses have disappeared or are deceased.¹⁴⁶ In sum, statutes of limitation offer certainty. In a commercial setting, such certainty fosters investment and market activity.¹⁴⁷ This is the essence of the Legacy Ditch Bill – to offer sufficient time for contesting assertions of unlawful enlargement, while simultaneously protecting longstanding uses of water from ancient claims. Such certainty alleviates the surprise water rights owners (or prospective purchasers) experience when their rights are suddenly rendered valueless.

142. *Cent. Colo. Water Conservatory Dist.*, 147 P.3d at 17.

143. *Burlington Ditch*, 256 P.3d at 664.

144. COLO. REV. STAT. § 37-92-305(4)(a)(I)(B) (2013).

145. *Id.* at § 38-41-101(1).

146. *Order of R.R. Telegraphers v. Ry. Express Agency*, 321 U.S. 342, 348-49 (1944).

147. Tyler T. Ochoa & Andrew J. Wistrich, *The Puzzling Purposes of Statutes of Limitation*, 28 PAC. L.J. 453, 467 (1997).

The Legacy Ditch Bill is a step towards defining that all-important stick in the bundle for agricultural water – HCU. Knowing that certain senior agriculture water rights have some protection from claims of unlawful expansion, like those at issue in *Burlington Ditch* and *Jones Ditch*, restores value to those rights and lets market participants confidently enter into transactions for those rights.

III. RECOMMENDATIONS

The Supreme Court has identified ditch-wide quantifications as the most efficient and viable means to quantify senior irrigation rights to permit additional uses.¹⁴⁸ However, unanswered questions remain. This section discusses three commonly expressed questions regarding ditch-wide quantification in the wake of *Jones Ditch*, *Burlington Ditch*, and the adoption of the Legacy Ditch Bill, and provides preliminary responses to these concerns.

A. WILL QUANTIFICATION ACCELERATE BUY AND DRY?

If the goal of ditch-wide quantifications is to facilitate future transfers of water, a reasonable argument exists that such a method will only accelerate buy and dry. That is, it is good to have barriers to protect existing agricultural water because M&I providers acquiring agricultural rights ought to bear the burden of proving HCU of the water rights they acquire. Otherwise, it would become much easier for water to leave agriculture. This is a valid concern.

Ditch-wide quantifications are not a panacea to solve all allocation problems and, acting alone, they cannot be expected to overcome the underlying reasons for widespread buy and dry. But, further analysis provides hope that ditch-wide quantifications are a step in the right direction. Colorado's current system for water transfers appears to promote, or at least contribute to, buy and dry. Due to economies of scale, M&I suppliers acquiring water tend to "buy ahead."¹⁴⁹ Under current conditions, this is a rational position. M&I suppliers need to secure enough water to justify the expense as transaction costs increase. If a transaction yields more water than a municipality needs in the short term, the municipality is protected because it can always lease water back to the ditch company.

Ditch-wide quantifications can offer a way to reduce the buying-ahead phenomenon. If the costs associated with acquiring ditch shares can be lowered because the transferrable amount (i.e., the HCU) of the shares has already been determined, M&I suppliers can better align their water acquisitions with their near-term anticipated demand. Again, turning to the market for C-BT units for a reference, there is evidence that transfers of CB-T units are much smaller than traditional water rights transfers.¹⁵⁰ Low transaction costs allow continual trading rather than the occasional large transfer.¹⁵¹

The next logical question is: Won't this lead to a death by a thousand paper cuts? Is the result the same – water leaving agriculture bound for urban use? Are we just delaying the inevitable? This is an area where the CWCB's ATM

148. See Cent. Colo. Water Conservatory Dist. v. City of Greely, 147 P.3d 9, 19 (Colo. 2006).

149. Howe & Goemans, *supra* note 15, at 1059-60.

150. *Id.*

151. *Id.*

grant program can prove helpful by devising long-term options for water markets. Successful water markets need the flexibility to allow M&I users and irrigators to share water under the same right. Such proposals could restore balance in water allocation by giving agricultural users a viable alternative to selling their entire water right. Middle ground does exist. But, our current approach has failed at finding it. Whether through extended-period water leases, water banks, rotational fallowing, or other ATM concepts, the road to greater water sharing, and thus more water remaining in agriculture, must lead through quantification. Accomplishing quantification on a wider scale through the ditch-wide method opens the door for more participants in ATM-type programs.

B. WHAT ARE THE EFFECTS TO NON-CHANGING SHAREHOLDERS?

Colorado has long recognized the right to change the use of an established water right as a fundamental stick in the bundle of rights that make up a valuable usufructuary right, subject to the condition that such a change may not injure other appropriators.¹⁵² Similarly, this general rule has long applied to shareholders in a mutual ditch company.¹⁵³ As owners of a portion of the underlying senior water right decreed for irrigation, shareholders enjoy the right to change the use of their shares.¹⁵⁴ When they do so, however, the mutual ditch company – a non-profit entity charged with delivering each shareholder its pro rata portion of the water right¹⁵⁵ – is faced with challenges arising out of the novel characteristics of the changed portion of the right. Suppose a water court imposes special terms and conditions upon the exercise of the right for the new use that may impact shareholders other than the shareholder seeking the new use. This imposition and extension of terms to non-changing shareholders creates questions regarding the ability of the changing shareholder to initiate a process that could affect others in the ditch. Assuming such a proceeding is lawful, the extent of notice and participation by the mutual ditch company and/or other shareholders is also questionable. The contractual nature of the mutual ditch company and its resultant ability to impose reasonable restrictions on the diversion and use of the senior water right create another layer of potential complication. Colorado's water community must adequately address these questions if the ditch-wide quantification approach is to be adopted on a broad scale.

i. Notice: How Much is Required?

If a shareholder or group of shareholders is going to request a change in place or type of use that could have effects upon non-changing shareholders and the operation of the mutual ditch company as a whole, it is imperative that the ditch company and the non-changing shareholders receive full and fair notice and opportunity to participate in the water court process. Colorado has existing laws and procedures to address this concern as it relates to individual

152. *E.g.*, *Strickler v. City of Colo. Springs*, 26 P. 313, 316 (Colo. 1891).

153. *E.g.*, *Wadsworth Ditch Co. v. Brown*, 88 P. 1060, 1061 (Colo. 1907).

154. *Fort Lyon Canal Co. v. Catlin Canal Co.*, 642 P.2d 501, 509 (Colo. 1982).

155. *Id.* at 508.

shareholders – monthly resume publication in each water division.¹⁵⁶ The purpose of the resume notice is to alert all other water users to an application that could affect their rights.¹⁵⁷ In *Burlington Ditch*, the Court addressed challenges to the Water Court's jurisdiction by analyzing the sufficiency of the resume notice.¹⁵⁸ Thus, the Court has adopted and recently used this approach.

If their bylaws permit, ditch companies have the right to approve a change in use application prior to shareholder filing and to insist upon terms and conditions that protect the company and the non-changing shareholders.¹⁵⁹ If the ditch company's board properly exercises this power, it may eliminate the need for both the ditch company and individual shareholders to appear in the water court to protect their rights.

In the change of use context, determination of HCU by a ditch-wide approach will, by definition, affect other shareholders in the system. Courts will analyze questions regarding diversion patterns, ditch loss, administration, and others and reflect such issues in a decree. As discussed below, the outcomes of these prior decisions may bind other shareholders in subsequent cases. For any water court application, the resume notice must contain the name and address of the applicant, a description of the water right involved, and a description of the ruling sought.¹⁶⁰ If the applicant provides this information and publishes it in the resume such that other parties have at least inquiry notice – i.e., that level of notice sufficient to reveal to potential parties the nature of the claim being made so they can decide whether to conduct further inquiry into the full extent of those claims and whether to participate – the notice requirement is satisfied such that the Court has proper in rem jurisdiction to decide the case.¹⁶¹

ii. Can Non-changing Shareholders be Bound?

Another question that must be addressed is whether and to what extent a single shareholder, or subset of shareholders, in a mutual ditch company may unilaterally request a change in type or place of use that results in findings of fact or law that are binding upon non-changing shareholders. For ditch-wide quantifications to realize their anticipated benefit – primarily gains in efficiency – the answer to this question should be yes. As co-owners of a larger water right, it is not unreasonable to expect that shareholders in a ditch company may, from time to time, initiate actions that bind other shareholders. This expectation is incident to co-ownership. Determination of HCU in an earlier proceeding should be preclusive on that issue in subsequent cases, absent changed circumstances.

156. See COLO. REV. STAT. §§ 37-92-302(3)(a)-(b) (2012).

157. *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 24-25 (Colo. 1996); *Monaghan Farms, Inc. v. City & Cnty. of Denver*, 807 P.2d 9, 17 (Colo. 1991).

158. *Burlington Ditch Reservoir & Land Co. v. Metro Wastewater Reclamation Dist.*, 256 P.3d 645, 675-76 (Colo. 2011) (“The resume in both cases was sufficient to place parties on notice: they contained detailed information on the water rights at issue, the location of the structures, to which those rights were decreed, and the scope and impact of the decree sought.”).

159. *Fort Lyon Canal Co.*, 642 P.2d at 506-07.

160. COLO. REV. STAT. § 37-92-302(3)(a) (2012); see also *Bijou Irrigation Co.*, 926 P.2d at 26 (inadequate resume notices are those “characterized by the complete absence of material information concerning the disputed water rights.”).

161. *Burlington Ditch*, 256 P.3d at 674-75, 677.

Shareholders in a ditch company are co-owners of the senior water right they allocate among themselves.¹⁶² Such shareholders have chosen to enter this co-ownership relationship on a contractual basis with other shareholders. In other contexts, Colorado law recognizes the right of a co-owner to initiate a judicial proceeding that binds other co-owners. Consider the right of a co-owner in real property to initiate an action for partition.¹⁶³ In some respects, a ditch-wide quantification can be analogized to such a partition action. Similar to the rights of co-owners in real property, shareholders in a ditch company should reasonably expect that other shareholders will commence actions that have the potential to affect the non-changing shareholder's interest, particularly where shareholders submit change in use applications requiring quantification of the water right sought to be changed.

The Colorado Supreme Court has consistently approved of the principle that a prior determination of HCU should have preclusive effect in a later action.¹⁶⁴ The proper application of issue preclusion can reduce transaction costs in subsequent determinations because application of the doctrine saves the proponent in a later change in use case from having to put on evidence regarding HCU.¹⁶⁵ The application of issue preclusion is not without its limits. One such limit becomes apparent when circumstances have changed since the previous determination.¹⁶⁶ The Supreme Court has applied this exception to reopen previous decrees to determine injury resulting from enlarged use,¹⁶⁷ but the Court has not extensively tested the exception in change in use cases involving ditch-wide quantification. We suspect that future cases will refine the extent of this exception.

162. *Farmer's Reservoir & Irrigation Co. v. Consol. Mut. Water Co.*, 33 P.3d 799, 807 (Colo. 2001); *Jacobucci v. Cnty. of Jefferson*, 541 P.2d 667, 672 (Colo. 1975).

163. COLO. REV. STAT. § 38-28-101 (2013).

164. *High Plains A & M, LLC v. Se. Colo. Water Conservancy Dist.*, 120 P.3d 710, 723 (Colo. 2005) ("Second, we have held that a sufficient ditch-wide historic consumptive use analysis in a change of water right case can be utilized in another change case for allocation of the amount of water to which the mutual company shareholder is entitled"); *Williams v. Midway Ranches Prop. Owners Ass'n, Inc.*, 938 P.2d 515, 526 (Colo. 1997) ("However, when historical usage has been quantified for the ditch system by previous court determination, the yield per share which can be removed for use in an augmentation plan is not expected to differ from augmentation case to augmentation case . . ."); *Farmers Reservoir & Irrigation Co.*, 33 P.3d at 807 ("Once the Water Court has adopted a methodology for determining an appropriation's historic beneficial consumptive use and has made allocations of consumptive use based thereon, that methodology and those allocations are normally expected to govern future change proceedings involving the same water right.").

165. *High Plains A & M*, 120 P.3d at 723 ("Appropriate implementation of claim and issue preclusion prevents expensive relitigation of historical consumptive use in transfer after transfer involving the same ditch or reservoir system"); *Midway Ranches*, 938 P.2d at 525 ("The water court may take judicial notice of its prior determinations and decrees in historic use, change, and augmentation plan cases involving the same water right. The creation of water divisions and the appointment of water judges on a watershed basis to make findings of fact and conclusions of law necessarily anticipates reliance on prior judgments and decrees as to noticed, adjudicated claims regarding a water right.").

166. *Farmers High Line Canal v. City of Golden*, 975 P.2d 189, 200-01 (Colo. 1999); *Midway Ranches*, 938 P.2d at 526.

167. *E.g., Farmers High Line Canal*, 975 P.2d at 200-01.

iii. How Should Consumptive Use be Distributed among Shareholders?

Assuming a ditch-wide analysis quantifies the consumptive use by the entire senior irrigation right, how should shareholders divide that consumptive use? At first blush, the answer to this question seems obvious: ditch companies should distribute consumptive use and diversions pro rata. However, the details of HCU analyses and the vagaries of mutual ditch company administration cloud this seemingly straightforward approach.

Some preliminary examples aid the analysis. In simple terms, consider two ditch systems - one "water short" and one "water long." In the water short ditch system, average crop demand consistently exceeds average available water supply under the senior water right. In such a system, shareholders suffer shortages and are more likely to demand their full pro rata portion of the senior right. Under these conditions, administration is often supervised; shareholder headgates may have measuring devices, shareholders are required to call for or place orders for water, and the ditch rider or ditch superintendent plays an active role in ensuring that each shareholder receives their pro rata portion.

In contrast, in the water long ditch, average available supplies diverted under the senior irrigation right exceed average crop demand under the ditch. Plenty of water is available and shareholders are unlikely to consistently demand a full pro rata portion of the senior right. Instead, they will deliver the amount necessary to meet the demands of the crops, which often constitutes an amount less than the pro rata entitlement. For obvious reasons, administration within the water long ditch is likely to be less stringent; farm headgates may not have measuring devices, shareholders are permitted to open and close their headgates at will rather than relying upon the ditch superintendent.

In reality, ditch administration is more complicated than the simple water short and water long examples imply. Three factors increase the level of complexity. First, few ditches are water short or water long all the time. Ditches may be water long in the spring when the runoff is occurring, water short in mid-summer when the ditch is subject to a senior call, and water long again in the fall. So, the question of whether a ditch is water long or water short must itself be answered with a temporal question-when?

Second, few ditches deliver water to all shareholders all the time. Even in predominately water short systems, farming practices may dictate delivery to only a portion of the shareholders at a given time. Crops, cultivation, and irrigation methods can all vary under a ditch. For example, a farmer using a center pivot irrigation system may demand water only when the system is running, a farmer cutting hay will not deliver water to the field, while depending upon its size and soil type or precipitation events, a furrow-irrigated corn field may be saturated and in need of several days without water. As a result of factors like these, less than all headgates are likely to be taking water at a given time. When some headgates are closed, the remaining open headgates will divide available water between them and each will receive more than its pro rata entitlement for that day. In this sense, many ditch companies may be truly "mutual" in the sense that the shareholders use one another's pro rata portions on a given day. Ideally, as the irrigators take turns using one another's water, deliveries approach a pro rata amount over the course of an irrigation season.

The third complexity arises out of the size and water demand of individual

farms within a system. Regardless of whether a ditch system is water short or water long as a whole, individual farms within the system may be water short or water long depending upon the number of shares used to irrigate each farm. Within a given ditch system, farmers own a specific number of shares entitling them to an identified portion of the diversions of the senior right.¹⁶⁸ For example, in a ditch company with 100 shares and a 100 cfs water right, each share would be entitled to one cfs, less ditch loss, expressed as a flow rate, or $1/100^{\text{th}}$ of diversions over the course of the irrigation season, expressed as a volume. A shareholder owning five shares would be entitled to five cfs, or $5/100^{\text{th}}$ of the diversions in acre-feet. Now assume the lands irrigated by this ditch consist of a patchwork of individually owned parcels of varying sizes. In general terms, shareholders will have a sense for how much acreage a single share will irrigate. In the present example, it could be that one share, which entitles a shareholder to one cfs, will irrigate eighty acres so that a shareholder owning eighty acres and one share could be expected to produce a crop.

In an ideal world, each irrigator would own precisely the number of shares necessary to irrigate lands that he or she owns. In reality, this is not the case. Shares are bought and sold between shareholders, parcels are divided and sold. As a result, farms end up with an unequal number of shares per acre. For example, it is possible that a 240-acre farm may have one share associated with it, while the neighboring eighty-acre farm has three shares. Using the present example, this would mean that the 240-acre farm would be dramatically water short, while the eighty-acre farm would be dramatically water long, regardless of whether the ditch system itself was considered water short or water long. In actual operation, it is unlikely that the eighty-acre farm received a full pro rata amount, literally flooding the crops, while the neighboring 240-acre farm received less than the amount necessary to grow a crop. Instead, the eighty-acre farm took what it needed, which was less than the pro-rata amount attributable to three shares, and the 240-acre farm picked up the excess from the eighty-acre farm and used more than its pro-rata amount.

To illustrate the issues these variables raise in the context of a ditch-wide change in use application, assume that on a system-wide basis the consumptive use associated with each share is fifty acre-feet. The simplest ditch-wide analysis assumes that each shareholder received a pro rata delivery of water, eliminating variability like that described above between the eighty- and 240- acre farms. Historically, the 240-acre farm consumed 150 acre-feet per year, while the eighty-acre farm consumed fifty acre-feet per year. The question arises as to who is entitled to the benefit of the consumptive use that occurred by the delivery of the eighty-acre farm's shares to the 240-acre farm? Using share ownership, the eighty-acre farm owner, as owner of three shares, should be entitled to 150 acre-feet, while the 240-acre farm owner would be entitled to fifty acre-feet. At the same time, the three-share owner, as the owner of that specified portion of the senior water right, did not use it. Instead, it was the one-share owner that invested the time and effort necessary to secure the consumptive use. How should the mutual ditch company address this issue? How would the law address it if the mutual ditch company does not provide guidance?

168. *Jacobucci v. Cnty. of Jefferson*, 541 P.2d 667, 672 (Colo. 1975).

As an additional layer, consider the frequent water court term and condition requiring the party changing the use of a senior irrigation right to dry up or cease irrigating the acreage historically irrigated by the right.¹⁶⁹ Can the three-share, eighty-acre owner force the 240-acre owner to cease irrigating? If the system is voluntary, and allows the 240-acre owner to “sell” dry up acreage, is it fair that the three-share owner should theoretically have the benefit of 150 acre-feet, but lose the value as a practical matter out of the necessity to pay the 240-acre owner for dry up acreage? The latter result could strike many mutual ditch company shareholders as unfair because it essentially punishes those within the ditch system that had the foresight to acquire sufficient shares to irrigate and rewards those who farmed ‘on the cheap’ by relying upon others’ excesses.

Mutual ditch companies should be prepared for these questions to arise in the context of a ditch-wide analysis and be ready to develop bylaws or policies that fairly distribute the consumptive use attributable to each share. The answers to these questions will vary with each ditch company, depending upon the facts and circumstances. The important thing is that companies recognize the questions, and move proactively to address them.

C. WHAT IS THE ROLE FOR CATLIN BYLAWS AND INTERNAL REGULATION?

Mutual ditch companies’ ability to impose reasonable regulations upon the exercise of shareholders’ pro rata portion of the water right presents the best avenue for companies to address the questions raised in this section and thrive in a new era of ditch-wide quantification. Colorado ditch companies occupy a unique corner of the law. Though some similarities exist between ownership of shares in a ditch company and shares in a general corporation, the analogy breaks down because of the distinctive nature of ditch companies.¹⁷⁰ It is not a trust relationship.¹⁷¹ The relationship is one formed in contract.¹⁷² Nonetheless, the ditch company, formed largely out of the necessity to share in the monumental task of constructing ditches in Colorado’s early history, still remains a “vehicle by which its owners operate and manage its affairs.”¹⁷³

In the context of a change in use proceeding, shareholders have the same right as other appropriators to change the place of use, subject to the no-injury standard.¹⁷⁴ In the context of such a change, ditch companies are not merely bystanders; they have the authority to impose reasonable limitations, beyond those contained in the 1969 Act, upon a shareholder seeking to obtain a change in their water right.¹⁷⁵ “Catlin Bylaws,” named after the Colorado Supreme Court case that approved them¹⁷⁶, are the proper venue for resolving questions surrounding the appropriateness of a ditch-wide quantification for a particular company.

169. *City of Thornton v. Bijou Irr. Co.*, 926 P.2d 1, 87 (Colo. 1996).

170. *Jacobucci v. Cnty. of Jefferson*, 541 P.2d 667, 672 (Colo. 1975).

171. *Id.* at 673.

172. *Id.* at 672 (citing *Supply Ditch Co. v. Elliott*, 15 P. 691 (Colo. 1887)).

173. *Id.* (quoting *Billings Ditch Co. v. Indus. Comm’n*, 253 P.2d 1058, 1060 (Colo. 1953)).

174. *E.g.*, *Fort Lyon Canal Co. v. Catlin Canal Co.*, 642 P.2d 501, 509 (Colo. 1982).

175. *Id.* at 508-09.

176. *Id.*

The Court approved the most basic form of a Catlin Bylaw in *Fort Lyon Canal Co. v. Catlin Canal Co.*, which requires shareholders to receive company approval prior to filing a water court or administrative change in use application.¹⁷⁷ These bylaws may require the shareholder to present a complete application, including supporting engineering and a proposed water court application, to the ditch company board of directors for review prior to filing. The bylaw may also require the shareholder requesting the change in use to make a deposit to the company to offset the legal and engineering costs of review. Review of the application gives the mutual ditch company board the opportunity to consider the potential impact of the application upon non-changing shareholders and the company. A mutual ditch company may condition approval on compliance with terms and conditions reasonably necessary to protect other shareholders and the company from injury. Mutual ditch company boards should be careful to strike a balance between the tension between the individual shareholder's right to change the use of his or her portion of the right and the rights of non-changing shareholders to continue irrigation practices. The Catlin Bylaw power is not without limitation and should be exercised judiciously to preserve its potency.

Since the relationship between shareholders in a mutual ditch company is grounded in contract, it is possible that the bylaws could address many other issues. For example, regardless of how the General Assembly or water court handles the notice issue, the bylaws could require a shareholder seeking to implement a ditch-wide change in use to personally notify all other shareholders. Likewise, a bylaw could address issues of how to allocate consumptive use and how to distribute dry-up. Companies with foresight could agree beforehand how to process a ditch-wide application, from its inception to prosecution, on fundamental terms and conditions, and to create a cost-sharing mechanism within the ditch for those that benefit from its provisions. The Catlin Bylaw power mutual ditch companies enjoy allows those closest to the right - its owners - to establish reasonable parameters for a ditch-wide quantification.

CONCLUSION

Large-scale quantification of senior irrigation rights is a prerequisite to the development of effective and efficient water markets in Colorado. Assigning consumptive use amounts and standardized terms and conditions for new uses of the changed rights, in addition to the historical irrigation usage, opens the door to new modes of agricultural-urban water sharing. It has the potential to reduce the pressure for M&I users to buy and dry Colorado's farms. The Colorado Supreme Court has identified ditch-wide quantifications as the most efficient means of achieving quantification. The current legal and regulatory environment can provide notice and adjudicate ditch-wide quantification and produce equitable results. Mutual irrigation companies should move proactively to address key questions and develop ditch-specific policies to guide quantification.

177. *Id.*

