

Fordham Environmental Law Review

Volume 22, Number 2

2010

Article 6

Rainwater Harvesting Under Colorado's Prior Appropriation Doctrine: Property Rights and Takings

Stephen N. Bretsen*

*

Copyright ©2010 by the authors. *Fordham Environmental Law Review* is produced by The Berkeley Electronic Press (bepress). <http://ir.lawnet.fordham.edu/elr>

ARTICLES

RAINWATER HARVESTING UNDER COLORADO'S PRIOR APPROPRIATION DOCTRINE: PROPERTY RIGHTS AND TAKINGS

*Stephen N. Bretsen**

INTRODUCTION

The roll out of green technologies in the United States during the early part of the twenty-first century has involved modernizing and redeploying existing technologies. Some of these technologies were developed centuries ago to capture natural phenomena, such as wind energy from windmills. One of these “new” technologies involves capturing rain on a small scale before it becomes runoff. This rainwater harvesting¹ has the potential to become one of the greenest technologies because it combines many of the attributes that make the green label attractive: the deployment of simple, low impact materials and methods; the consumption of locally produced resources; and the ability to reduce or eliminate dependence on an industrialized public utility grid.² Additionally, rainwater harvesting is especially attractive because it utilizes a natural resource that would otherwise be wasted. Despite these attractions, rainwater harvesting was illegal

*William Volkman Associate Professor of Business & Law, Wheaton College; B.A., 1983, College of William & Mary; J.D., 1986, University of Colorado Law School. An acknowledgment of thanks is owed to Terry O'Reilly for his insightful comments and criticisms, to Wheaton College for providing the time to research and write this article, and to P.J. Hill for his mentorship.

1. As used in this article, the terms “rain” and “rainwater” include snow, snowmelt, sleet, and other forms of precipitation.

2. See BEORN COURTNEY, HEADWATERS CORP., RAINWATER AND SNOWMELT HARVESTING IN COLORADO 3 (2008), www.allianceforwaterefficiency.org/WorkArea/showcontent.aspx?id=2664.

in Colorado prior to 2009 due to the prior appropriation doctrine,³ the foundation of Colorado's water law.⁴

As a raindrop falls to the earth in Colorado, various property right holders on the ground wait to assert their claims on the use of that raindrop's water. The strength of those property rights and the degree to which they are impaired by rainwater harvesting depend on where the raindrop falls and whether its water becomes tributary to a stream system or nontributary ground water.⁵ Rainwater harvesting potentially interferes with stronger water rights, such as when a rainwater harvester diverts and uses water before a more senior water rights owner can divert and use the water despite the latter's state authorized priority of appropriation.⁶

Learning that rain is owned by someone else, and that positioning rain barrels beneath downspouts constitutes the taking of property of another can be disconcerting for homeowners, who also happen to be voters. In fact, such a large portion of these voters actually voiced their shock, amazement, and displeasure in Colorado that the Colorado General Assembly responded.⁷ In 2009 the legislature passed, and the governor signed, two bills that allow rainwater harvesting under limited circumstances.⁸ Senate Bill 09-080 authorizes small-scale residential rainwater harvesting,⁹ while House Bill 09-1129 authorizes larger, development-wide rainwater harvesting on a pilot project basis.¹⁰ Both statutes point toward possible broader rainwater harvesting initiatives in Colorado in the future.¹¹

3. *See infra* Part III.

4. *See* GEORGE VRANESH, *VRANESH'S COLORADO WATER LAW* 8 (James N. Corbridge & Teresa A. Rice eds., rev. ed. 1999).

5. *See infra* notes 174-82 and accompanying text.

6. *See infra* notes 72-76 and accompanying text.

7. *See* Steven K. Paulson, *Get Out Your Rain Barrels; New Law Lets Some of You Collect Water*, *THE GAZETTE* (July 1, 2009, 6:10 AM), <http://www.gazette.com/articles/barrels-57687-colorado-denver.html>.

8. R. Scott Rappold, *New Laws Open the Way for Rain Barrels, For Some*, *THE GAZETTE* (June 2, 2009, 5:42 PM), <http://www.gazette.com/articles/water-55602-rain-bill.html>.

9. *See* COLO. REV. STAT. §§ 37-90-105(1)(f), 37-92-602(1)(g) (2010).

10. COLO. REV. STAT. § 37-60-115(6). *See generally* COLO. REV. STAT. §§ 37-92-308(4)-(5).

11. *See infra* Part III.

Given existing water property rights and the protection afforded to certain water rights by Colorado's relatively strict application of the prior appropriation doctrine,¹² rainwater harvesting legislation both current and future rainwater harvesting legislation potentially creates a takings claim under the United States and Colorado Constitutions.¹³ Successful takings claims by senior water rights owners whose property rights are materially injured by state-authorized rainwater harvesting could result in the payment of just compensation.¹⁴ Further, the specter of doling out money from the public treasury to existing water rights owners makes addressing the concerns of homeowners who want to harvest rainwater potentially more complicated for elected officials than simply passing enabling laws. Since takings of private property are protected by the constitutional limitations of a public use and just compensation,¹⁵ opposing political pressures exerted by potential rainwater harvesters and existing water rights owners raise issues about the nature of water property rights and the extent to which water rights are protected from government regulations. Recently, these issues arose in the takings context when the California state government prohibited agricultural irrigators from diverting water to maintain instream flows to protect endangered species.¹⁶ This type of government prohibition may primarily be seen in California.¹⁷ The results of various lawsuits have been mixed, with environmentalists winning in some cases and existing water rights owners winning other cases.¹⁸

12. The pure form of the prior appropriation doctrine implemented in Colorado has earned the title of the "Colorado Doctrine." VRANESH, *supra* note 4, at 32. *See generally* Bd. of Cnty. Comm'rs. v. Park Cnty. Sportsmen's Ranch, LLP, 45 P.3d 693, 704-06 (Colo. 2002).

13. *See* U.S. CONST. amend. V; U.S. CONST. amend. XIV, § 1; COLO. CONST. art. II, § 15.

14. COLO. CONST. art. II, §15 (requiring the payment of just compensation for a takings).

15. *See* U.S. CONST. amend. V; U.S. CONST. amend. XIV, § 1.

16. *See* Casitas Mun. Water Dist. v. United States, 76 Fed. Cl. 100, 100-02 (2007).

17. *See infra* Part IV.C.4.

18. *See, e.g.,* Klamath Irrigation Dist. v. United States, 67 Fed. Cl. 504, 505 (2005) (holding that the temporary reduction of water available for irrigation by the Bureau of Reclamation was not a taking); Casitas Mun. Water Dist. v. United States, 543 F.3d 1276, 1277 (Fed. Cir. 2008) (holding that a Bureau of Reclamation directive to divert water to operate a fish ladder constituted an "uncompensated physical taking").

The strength of a takings claim depends in part on the strength of the water rights owner's underlying water property right¹⁹ and the nature of the government action.²⁰ In Colorado, water property rights are stronger than they are in California,²¹ and the transfer of a water-use right from one private water user to another is a less compelling rationale than transferring water rights to maintain instream flows for an endangered species' benefit.²² Evaluating the takings potential of recent and potential Colorado legislation is an exercise in determining whether appropriative water rights can ever be considered a property right that is constitutionally protected from a regulatory taking.²³ While the answer favors the interests of water rights owners, the answer is by no means certain due to hurdles that water rights owners must cross and the murkiness of the United States Supreme Court's regulatory takings jurisprudence.²⁴

This article argues that legislation in Colorado authorizing rainwater harvesting creates the potential for a taking by effectively transferring water rights from one private party to another private party. Rainwater harvesting in Colorado thus becomes a means of testing whether property rights in water can be protected from regulatory takings due to the relatively strong protections afforded to senior water rights under Colorado law. Section I of this Article describes rainwater harvesting and its benefits. Section II explains how the application of the prior appropriation doctrine in Colorado renders rainwater harvesting illegal. Section III describes recent legislation authorizing rainwater harvesting on a limited basis in Colorado. Section IV examines whether current statutes and future legislation that expands rainwater harvesting may constitute a taking.

I. RAINWATER HARVESTING

“He causes his sun to rise on the evil and the good, and sends rain on the righteous and the unrighteous.”

19. *See infra* Part IV.A.

20. *See infra* Part IV.C.

21. *See infra* Part IV.B.

22. *See supra* note 18.

23. *See generally infra* Part IV.

24. *See* Zachary C. Kleinsasser, *Public and Private Property Rights: Regulatory and Physical Takings and the Public Trust Doctrine*, 32 B.C. ENVTL. AFF. L. REV. 421, 427 (2005).

Jesus in the Sermon on the Mount²⁵

Current Colorado rainwater harvesting statutes do not result in a taking because they were carefully drafted to work within the confines of the prior appropriation doctrine.²⁶ However, potentially broader legislation could result in a taking because such legislation would affect stronger water property rights in water and the diversion of water caused by rainwater harvesting systems brings into play a categorical rule that applies to regulations that amount to a physical taking.

Rainwater harvesting is the process of capturing and storing rainwater for later use.²⁷ Native Americans in the southwestern United States harvested rainwater for thousands of years to supplement water captured from surface water, springs, and other sources for domestic use, agricultural irrigation, and livestock watering.²⁸ Rainwater harvesting is not a new phenomenon, and the technology used to capture and store rainwater continues to be simple and inexpensive.²⁹ A typical rainwater harvesting system in the western United States uses the roof of a structure to catch rain, a first flush device to remove accumulated debris flushed from the roof by the rain, a network of gutters and drainpipes to route the water, and an above-ground tank or underground cistern to store the water.³⁰ A filtration system may also be needed if the water will be used for drinking water or other household uses.³¹

25. *Matthew 5:45* (New Int'l Version), available at <http://www.turnbacktgod.com/wp-content/uploads/2011/02/The-Holy-Bible-New-International-Version.pdf>.

26. See *infra* Part II.

27. COLO. DIV. OF WATER RES., GRAYWATER SYSTEMS AND RAINWATER HARVESTING IN COLORADO 2 (2003), <http://water.state.co.us/dwripub/documents/waterharvesting.pdf> [hereinafter GRAYWATER SYSTEMS].

28. See Troy L. Payne & Jane Neuman, *Remembering Rain*, 37 ENVTL. L. 105, 121 (2007).

29. See COURTNEY, *supra* note 2, at 5.

30. See Payne & Neuman, *supra* note 28, at 107-10; R. Waskom & J. Kallenberger, *Graywater Use and Rainwater Harvesting*, in NATURAL RESOURCE SERIES: WATER 2009 (Colo. State Univ. Extension, Ser. No. 6.702, 2009), <http://www.ext.colostate.edu/pubs/natres/06702.pdf>.

31. COURTNEY, *supra* note 2, at 2.

Several attributes make rainwater harvesting attractive as an ecologically friendly activity. For example, through the use of low tech methods, a local resource in the form of rain is harvested and used locally, thus avoiding the costs and energy use associated with transporting water over long distances.³² Rainwater harvesting is also energy efficient, justifying the inclusion of rainwater harvesting systems in the U.S. Green Building Council's Leadership in Energy and Environmental Design ("LEED") Green Building Rating System's point structure.³³ These energy efficiencies combined with the small scale, self-sufficient nature of rainwater harvesting allows property owners and building residents to lower their own energy costs by reducing or eliminating their dependence on a public water utility's grid. For public water utilities, customers going "off the grid" can relieve pressures created by capacity constraints, especially at peak periods.³⁴ With a cost structure consisting of high fixed costs and lower variable costs, the downside for public water utilities of too many customers going "off the grid" is the loss of revenue from reduced water delivery fees.³⁵ For those already "off the grid," rainwater harvesting provides an additional water source when ground water sources are not potable, reliable, or otherwise available.³⁶ Rainwater harvesting also allows property owners and building residents to use water that may not become part of surface water and ground water systems. In a Colorado Water Conservation Board study, several units of local government, including water and sanitation districts and a homeowners association, examined the fate of precipitation falling in northwest Douglas County, a populous area located in the foothills and plains east of the Rocky Mountains between Denver and Colorado Springs.³⁷ The study noted that

32. *Id.* at 3-4.

33. See Peter A. Nelson, *Measuring from the High Watermark: Defining Baselines for Water Efficiency in Green Buildings*, 11 N.Y.U. J. LEGIS. & PUB. POL'Y 105, 106-07, 117 (2008); Charles J. Kilbert, *Green Buildings: An Overview of Progress*, 19 J. LAND USE & ENVTL. L. 491, 495 (2004).

34. COURTNEY, *supra* note 2, at 3.

35. Payne & Neuman, *supra* note 28, at 133-34.

36. M. Subramanian, *Rainwater Harvesting Catches the Attention of State and Local Government*, 12 W. WATER L. & POL'Y REP. 226, 226-28 (2008) [hereinafter *Rainwater Harvesting*].

37. See generally COLO. WATER CONSERVATION. BD., *HOLISTIC APPROACH TO SUSTAINABLE WATER MANAGEMENT IN NORTHWEST DOUGLAS COUNTY* (2007),

“precipitation falling on undeveloped sites is consumed during the growing season (typically April through October at this location) by native vegetation evapotranspiration processes and is lost through evaporation and sublimation processes during the non-growing season.”³⁸ From 1950 to 2004, the average loss of water to evapotranspiration and sublimation on undeveloped sites was “equivalent to 97% of the total precipitation.”³⁹ In a wet year, the maximum evapotranspiration and sublimation rate was 85%, so that only 15% of the precipitation falling was held as moisture in the soil or returned to surface water or ground water sources.⁴⁰ In a dry year, 100% of the precipitation was lost to evapotranspiration and sublimation so that no water returned as surface or ground water.⁴¹ Rainwater harvesting thus provides an opportunity to capture water that would otherwise be lost to evaporation and similar processes in the water cycle.

Capturing water that would otherwise be lost to human consumption is also critical in the face of water shortages caused by population growth, drought, and climate change. According to the 2004 Colorado Statewide Water Supply Initiative, “[s]ignificant increases in Colorado’s population – together with agricultural water needs and an increased focus on recreational and environmental uses – will intensify competition for water.”⁴² Colorado’s population has been projected to increase from approximately 4.3 million in 2000 to approximately 7.1 million in 2030, a sixty-five percent increase, with approximately eighty-one percent living along the urbanized Front Range on the eastern slope of the Rocky Mountains.⁴³ During this same time period, urban water demands for industrial, commercial, and domestic uses will increase from almost 1.2 million acre-feet to over 1.8 million acre-feet, or an increase in demand of 630,000 acre-

<http://cwcbweblink.state.co.us/WebLink/0/doc/105705/Electronic.aspx> [hereinafter DOUGLAS COUNTY WATER STUDY].

38. *Id.* at 21.

39. *Id.* at 24.

40. *Id.* at 1, 24.

41. *Id.* at 1.

42. COLO. WATER CONSERVATION. BD., STATEWIDE WATER SUPPLY INITIATIVE ES-7 (2004), <http://cwcbweblink.state.co.us/weblink/0/doc/144066/Electronic.aspx> [hereinafter STATEWIDE WATER SUPPLY INITIATIVE].

43. *Population Totals for Colorado & Sub-State Regions; Forecast Tables*, COLO. DEP’T OF LOCAL AFF., ST. DEMOGRAPHY OFF., http://dola.colorado.gov/dlg/demog/pop_colo_forecasts.html (last updated Oct. 2010).

feet.⁴⁴ Under an optimistic scenario, approximately eighty percent of this excess demand can be met by current and future water projects and processes, leaving a shortfall of over 118,000 acre-feet.⁴⁵ Rainwater harvesting has been identified as one of the means by which to bridge this gap.⁴⁶ According to a study prepared, in part, for the Colorado Water Conservation Board, rainwater and snowmelt harvesting could reduce outdoor water demand by approximately sixty five to eighty-eight percent when combined with active water management techniques ranging from “moderate conservation” to “water wise conservation” scenarios.⁴⁷ Due to increased urban water demands and the inability of existing and planned water projects to meet those demands in Colorado, water will shift away from agricultural use since, “historically, over [ninety] percent of [Colorado]’s water use has been associated with agriculture.”⁴⁸ This percentage is expected to decrease as urban water providers purchase water rights from agricultural irrigators, thus transferring water rights from lower value uses to higher value uses.⁴⁹ However, transaction costs and an anticommons inhibit these transfers. Generally, an anticommons occurs when multiple individuals or entities have rights of exclusion or veto rights, especially when the exclusion rights are not linked to use rights.⁵⁰ Exclusion rights holders can undermine use

44. STATEWIDE WATER SUPPLY INITIATIVE, *supra* note 42, at ES-9. An acre-foot is enough water to cover an acre of land with one foot of water, or about 325,851 gallons of water. *Acre-foot*, BLACK’S LAW DICTIONARY 24 (7th ed. 1999).

45. STATEWIDE WATER SUPPLY INITIATIVE, *supra* note 42, at ES-13.

46. DAVID BEAUJON, COLO. LEGIS. COUNCIL STAFF, RAINWATER HARVESTING IN COLORADO 1 (2009), available at <http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251597990496&ssbinary=true>.

47. DOUGLAS COUNTY WATER STUDY, *supra* note 37, at 2.

48. STATEWIDE WATER SUPPLY INITIATIVE, *supra* note 42, at ES-10.

49. See generally Stephen N. Bretnen & Peter J. Hill, *Water Markets as a Tragedy of the Anticommons*, 33 WM. & MARY ENVTL. L. & POL’Y. REV. 723 (2009). This differential in value between agricultural and urban uses of water occurs at the margin (or marginal value). While the water used for agricultural irrigation in a particular location may have a high average value, the marginal value of the last unit of water used can be much lower than the average value. See *id.* at 744.

50. See Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621, 624 (1998).

rights resulting in an under-use of the resource.⁵¹ An anticommons exists in the water markets of western states due to multiple rights of exclusion. These factors include the historical development of water institutions, such as mutual ditch companies, irrigation districts, and the Bureau of Reclamation, with its public and private governance rules regarding the transfer of water rights, and the expansion of legal doctrines affecting water rights, such as the public trust doctrine.⁵² These multiple exclusion rights create opportunities for numerous parties to claim injury from a water rights transfer, which must be addressed by the use right holder through private negotiations or litigation.⁵³ By increasing the transaction costs of water transfers through the exercise of exclusion rights, the anticommons makes transfers of water from its historically predominant use in agriculture to newer and growing demands for residential, commercial, and environmental uses difficult and expensive.⁵⁴ Rainwater harvesting provides a means by which to circumvent these transaction costs, especially for small scale residential uses of water. Rainwater harvesting transfers the prior right to use rainwater from a downstream agricultural irrigator with senior water rights to a suburban rainwater harvester with junior or even no water rights.⁵⁵

II. RAINWATER HARVESTING UNDER COLORADO'S PRIOR APPROPRIATION DOCTRINE

All the water was spoken for here in the Arkansas Basin 100 years ago or more. If the water falls as rain, that's water that was going to get to the stream system, and somebody already has dibs on it, and if somebody intercepts that, it's the same as stealing

Kevin Lusk, Water Supply Engineer for Colorado Springs Utilities⁵⁶

51. See James M. Buchanan & Yong J. Yoon, *Symmetric Tragedies: Commons and Anticommons*, 43 J.L. & ECON. 1.1 (2000).

52. See generally Bretsen & Hill, *supra* note 49, at 730-56.

53. *Id.*

54. See *id.* at 726-28.

55. See GRAYWATER SYSTEMS, *supra* note 27, at 2.

56. Rappold, *supra* note 8.

Despite its benefits, rainwater harvesting is not legal since it is limited by all states.⁵⁷ Rainwater harvesting in Colorado is not legal, as it is limited by preexisting water rights held by other water users. As the Colorado Division of Water Resources notes, “in much of the state, it is illegal to divert rainwater falling on your property expressly for a certain use unless you have a very old water right or during occasional periods when there is a surplus of water in a river system.”⁵⁸ The preexisting water rights that affect rainwater harvesting in Colorado arise under the prior appropriation doctrine. In Colorado, as in other western states,⁵⁹ ownership of water resources is vested in the state. From its ratification in 1876 to the present, the Colorado Constitution has declared that “[t]he water of every natural stream, not heretofore appropriated, within the State of Colorado, is hereby declared to be the property of the public, and the same is dedicated to the use of the people of the State, subject to appropriation as hereinafter provided.”⁶⁰ Colorado has explicitly extended this constitutional declaration to rainwater and other forms of precipitation. The Colorado Weather Modification Act of 1972 states:

The general assembly declares that the state of Colorado claims the right to all moisture suspended in the atmosphere which falls or is artificially induced to fall within its borders. Said moisture is declared to be the property of the people of this state, dedicated to their use pursuant to sections 5 and 6 of article XVI of the Colorado constitution and as otherwise provided by law.⁶¹

However, this ownership interest has not given states, or the public in general, rights in water that are equivalent to public or private property rights. Thus, the Colorado Supreme Court held that Section

57. Daniel Findlay, Note, *Rainwater Collection, Water Law, and Climate Change: A Flood of Problems Waiting to Happen?*, 10 N.C. J.L. & TECH. ONLINE ED. 74, 75, 85-87 (2009), http://www.ncjolt.org/sites/default/files/Findlay_Dan.pdf.

58. COLO. DIV OF WATER RES., RAINWATER COLLECTION IN COLORADO 1, http://water.state.co.us/DWRIPub/Documents/DWR_RainwaterFlyer.pdf.

59. See *Rainwater Harvesting*, *supra* note 36, at 226-27.

60. COLO. CONST. art. XVI, § 5.

61. COLO. REV. STAT. § 36-20-103 (2010). By its terms, Colorado’s Weather Modification Act of 1972 is repealed effective July 1, 2011. § 36-20-127.

5 of Article XVI of the Colorado Constitution “was primarily intended to preserve the historical appropriation system of water rights upon which the irrigation economy in Colorado was founded, rather than to assure public access to waters for purposes other than appropriation.”⁶² However, such declarations provide the legal foundation for the state’s regulatory role in the creation and transfer of water rights.⁶³ In a state whose water law is based on the prior appropriation doctrine,⁶⁴ neither the molecules of water on or under the land nor the rights to use such water belongs to the landowner as part of his or her property right.⁶⁵ Instead, water rights are created when a user diverts surface water for a beneficial use.⁶⁶ Seniority is granted based on the concept of “first in time, first in right” so that the first to appropriate a surface water source has a senior right to the water against all subsequent or junior appropriators.⁶⁷ If a surface water source becomes over-appropriated because it carries too little water relative to all of the water rights, junior appropriators are denied access to water based on the order of seniority.⁶⁸ Surface water is considered over-appropriated when “there is not enough water in the streams [during irrigation season or at other times of the year] to satisfy all of the decreed surface appropriations.”⁶⁹ Although water rights are not permanent, a holder’s right continues unless he or she abandons the right by failing to divert the water or by failing to make beneficial use of it due to non-use or waste.⁷⁰ Every prior appropriation state, except for Colorado, which has a system of special water courts, has administrative agencies that grant water rights, adjudicate abandonments, and approve transfers of water

62. *People v. Emmert*, 597 P.2d 1025, 1028 (Colo. 1979).

63. *See id.* at 1029.

64. VRANESH, *supra* note 4, at 8.

65. *Bd. of Cnty. Comm’rs v. Park Cnty. Sportsmen’s Ranch, LLP.*, 45 P.3d 693, 707 (Colo. 2002).

66. *Fort Lyon Canal Co. v. Amity Mut. Irrigation Co.*, 688 P.2d 1110, 1112-13 (Colo. 1984). *See generally* COLO. REV. STAT. § 37-92-102 (2010) (statutory implementation of the prior appropriation doctrine).

67. *See Coffin v. Left Hand Ditch Co.*, 6 Colo. 443, 446-47 (1882).

68. *City of Colorado Springs v. Bender*, 366 P.2d 552, 555 (Colo. 1961). *See also* A. Dan Tarlock, *Prior Appropriation: Rule, Principle, or Rhetoric?* 76 N.D. L. REV. 881, 882 (2000).

69. *Hall v. Kuiper*, 510 P.2d 329, 330 (Colo. 1973).

70. *See People ex rel. Danielson v. City of Thornton*, 775 P.2d 11, 14-15 (Colo. 1989).

rights.⁷¹ The prior appropriation doctrine affects the ability of property owners and building residents to harvest rain and other forms of precipitation to protect the water rights of senior appropriators, especially when surface water sources are already over-appropriated.⁷² The majority of Colorado's streams are over-appropriated, especially those on the eastern slope of the Rocky Mountains, where most Coloradans live.⁷³ With over-appropriated conditions arising as early as the 1890s on some streams, water rights with priorities as old as 100 years can often be considered junior.⁷⁴ Although rainwater that disappears into the ground or runs off into a storm drainage system may appear to be wasted, in Colorado such water is presumed to be tributary to a surface water source and available to satisfy existing water rights, especially the water rights of senior appropriators in an over-appropriated stream system.⁷⁵ Due to historical development patterns, agricultural irrigators in Colorado tend to be senior appropriators, while residential rainwater harvesters tend to be newer appropriators who intercept rain and use rainwater for their domestic needs out of priority.⁷⁶ Although some local governments in other western states require rainwater harvesting,

71. See generally Andrew P. Morriss, *Lessons from the Development of Western Water Law for Emerging Water Markets: Common Law vs. Central Planning*, 80 OR. L. REV. 861 (2001).

72. See BEAUJON, *supra* note 46.

73. *Id.* See also *City of Thornton v. Bijou Irrigation Co.*, 926 P.2d 1, 71 n.66 (Colo. 1996) (noting that the South Platte River Basin is substantially over-appropriated); *Cache La Poudre Water Users Ass'n v. Glacier View Meadows*, 550 P.2d 288, 292 (Colo. 1976) (agreeing that the Cache La Poudre River is over-appropriated except during flood stages); *Se. Colo. Water Conservancy Dist. v. Shelton*, 529 P.2d 1321, 1323 (Colo. 1974) (noting that the Arkansas River is "greatly over-appropriated"); Matthew S. Pozanovic & Carmen S. Hall, *Surface Water Rights*, in *COLORADO WATER LAW BENCHMARK 2-1, 2-6* (Carrie L. Ciliberto & Timothy J. Flanagan eds., 1st ed. Supp. 2010).

74. Pozanovic & Hall, *supra* note 73, at 2-6.

75. See *Ready Mixed Concrete Co. v. Farmers Reservoir & Irrigation Co.*, 115 P.3d 638, 643 (Colo. 2005) ("Colorado's prior appropriation law is 'first in time first in right.' To allow junior appropriators to intercept with impunity return flows of any type upon which senior appropriations depend would result in a 'last in time first in right' doctrine."); *R.J.A., Inc. v. Water Users Ass'n of Dist. No. 6*, 690 P.2d 823, 826 (Colo. 1984) (noting that "seepage and percolation belong to the river," and "that it is presumed that all ground water finds its way to the stream in the watershed in which it lies").

76. See generally VRANESH, *supra* note 4, at 5-7, 12-15.

Colorado considered rainwater harvesting illegal prior to 2009 based on a strict application of the prior appropriation doctrine.⁷⁷ Even though Colorado had no law specifically prohibiting rainwater harvesting, such harvesting was presumed to injure the water rights of senior appropriators.⁷⁸ A potential rainwater harvester could only overcome this presumption by supplying the water court or the State Engineer with hydrological evidence, which could be expensive to develop,⁷⁹ or developing a plan of augmentation to replace 100% of the rain captured out-of-priority.⁸⁰ As residential homeowners in Colorado discovered that rainwater harvesting was essentially illegal, they began to complain to state legislators who crafted a political solution that balanced the desires of rainwater harvesters with the rights of senior appropriators.⁸¹

III. COLORADO'S RAINWATER HARVESTING STATUTES

“People are shocked that some developer or water provider owns the water that falls out of the sky.”

Colorado State Representative Marsha Looper.⁸²

77. See *Rainwater Harvesting*, *supra* note 36, at 227-28; M. Becker, *New Tucson Regulations Require Graywater Use and Harvesting of Rainwater*, 13 W. WATER L. & POL'Y REP., 15, 16 (2008).

78. See BEAUJON, *supra* note 46.

79. *Id.*

80. COLO. WATER CONSERVATION BD., AUTHORIZATION OF PILOT PROJECTS FOR THE BENEFICIAL USE OF CAPTURED PRECIPITATION IN NEW REAL ESTATE DEVELOPMENTS: CRITERIA AND GUIDELINES FOR THE “RAINWATER HARVESTING” PILOT PROJECT PROGRAM (2010), <http://cwcbweblink.state.co.us/WebLink/ElectronicFile.aspx?docid=142162&searchid=c25573eb-f1b7-4b8c-9810-6dd02adee4e2&dbid=0> [hereinafter GUIDELINES]. A plan for augmentation is a detailed program, which may be either temporary or perpetual in duration, to increase the supply of water available for beneficial use in a division or portion thereof by the development of new or alternate means or points of diversion, by a pooling of water resources, by water exchange projects, by providing substitute supplies of water, by the development of new sources of water, or by any other appropriate means. COLO. REV. STAT. § 37-92-103(9) (2010).

81. See Rappold, *supra* note 8.

82. Paulson, *supra* note 7.

“Every drop of water that hits the ground belongs to someone.”

Kevin Bommer, Lobbyist for the Colorado Municipal League.⁸³

In 2009, the Colorado General Assembly passed, and Governor Bill Ritter signed, two bills that allow rainwater harvesting under limited circumstances.⁸⁴ Senate Bill 09-080 authorizes small-scale residential rainwater harvesting⁸⁵ while House Bill 09-1129 authorizes larger, development-wide rainwater harvesting.⁸⁶ Both statutes work within the confines of the prior appropriation doctrine but point toward possible broader rainwater harvesting initiatives in Colorado in the future.

A. *Senate Bill 09-080*

Senate Bill 09-080 amends Colorado’s water code by authorizing the State Engineer to issue a permit for a small-scale rainwater harvesting system⁸⁷ if certain criteria are met:⁸⁸

First, the system must collect precipitation from the roof of a building that is primarily used as a residence.⁸⁹

Second, the building must not be served by a domestic water system that serves more than three single-family dwellings, even if the building is not connected to that system.⁹⁰ Thus, if the building

83. *Id.*

84. *See* Rappold, *supra* note 8.

85. *See* COLO. REV. STAT. § 37-90-105(1)(f), § 37-92-602(1)(g) (2010).

86. *See* § 37-60-115(6).

87. § 37-90-105(1). The statutory phrase for a rainwater harvesting system is a “rooftop precipitation collection system.” *Id.*

88. In addition to these statutory criteria, the board of any ground water management district is authorized to adopt rules that further restrict the use of rooftop precipitation collection systems. § 37-90-105(7) (2010).

89. § 37-90-105(1)(f)(I), § 37-92-602(1)(g)(I) (2010). A requirement in the original bill limiting the size of the rooftop to 3,000 square feet was later eliminated. S. B. 09-080, 1st Sess., at 1 (Colo. 2009), *available at* [http://www.leg.state.co.us/clics/clics2009a/csl.nsf/billcontainers/49D4349AC4A73794872575370071F5D4/\\$FILE/080sagr_01.pdf](http://www.leg.state.co.us/clics/clics2009a/csl.nsf/billcontainers/49D4349AC4A73794872575370071F5D4/$FILE/080sagr_01.pdf).

90. § 37-90-105(1)(f)(I) (2010), § 37-92-602(1)(g)(I).

can be supplied by a municipality, water district, or other water system, a rainwater harvesting system cannot be installed.

Third, the applicant must have a permit to use a small-capacity well in a designated ground water basin or an exempt well elsewhere, or be legally entitled to use such a well for the building served by the rainwater harvesting system.⁹¹

Finally, the water collected can only be used for ordinary household purposes, fire protection, domesticated animal watering, or the irrigation of up to one acre of gardens and lawns.⁹² However, the limitations of use contained in the well/rainwater harvesting permit trump the statutorily defined uses.⁹³ Thus, according to the Colorado Division of Water Resources, if an existing small capacity well permit is limited to household uses, the water from a rainwater harvesting system is also limited to household uses and cannot be used to water a small vegetable garden.⁹⁴

The statute also authorizes the State Engineer or the division engineers to issue implementing regulations.⁹⁵ If the statute or regulations are violated, the State Engineer can seek an injunction from the appropriate water court, and if the regulations are upheld, the violator must pay court costs, including reasonable attorney fees.⁹⁶ A violator must also pay a fine of \$500 for each violation.⁹⁷ Thus, an unauthorized rainwater harvesting system, such as rain barrels fed by a house gutter, could cost a homeowner \$500 per rain barrel and even more if the homeowner is obstinate and the use of the rain barrel must be enjoined. The statute's provisions on fines and enforcement confirm that rainwater harvesting, in the absence of a statutory authorization, is illegal in Colorado because of Colorado's relatively strict application of the prior appropriation doctrine.

B. *House Bill 09-1129*

House Bill 09-1129 amends Colorado's water code by authorizing the Colorado Water Conservation Board, in consultation with the

91. § 37-90-105(1)(f)(II) (2010), § 37-92-602(1)(g)(III).

92. §§ 37-90-105(1)(f)(I)(A)-(D), §§ 37-90-602(1)(g)(I)(A)-(D).

93. § 37-90-105(7).

94. *See Rainwater Collection in Colorado, supra* note 58.

95. § 37-92-602(1)(g)(V)(A).

96. § 37-92-602(1)(g)(V)(B).

97. § 37-92-602(1)(g)(V)(C).

State Engineer, to select up to ten new residential or mixed-use developments as pilot projects to collect precipitation from rooftops for non-potable uses.⁹⁸ The statutory goal of the ten-year pilot program is to gather information on local precipitation, return flow patterns, native plant consumption, and ground water flow, evaluate rainwater harvesting system designs, “measure precipitation capture efficiencies,” and “quantify the amount of precipitation that must be augmented to prevent injury to decreed rights.”⁹⁹ The Colorado Water Conservation Board has interpreted this goal to mean that the pilot program “is to gain additional field-verified information about the feasibility of rainwater harvesting as a water conservation measure in Colorado, through pairing it directly with advanced outdoor water demand management—particularly efficient landscaping and irrigation practices.”¹⁰⁰ The ten pilot projects are intended to represent a range of sizes, as well as different geographic areas and hydrological conditions, with priority given to projects that are in areas facing renewable water supply challenges and promote water conservation.¹⁰¹ During the initial two-year data collection period, each project must operate according to a substitute water supply plan approved annually by the State Engineer which replaces the water captured from rooftops and impermeable surfaces of the development-wide rainwater harvesting system.¹⁰² After this initial period, the pilot project may either apply to a water court for a permanent augmentation plan or permanently retire the rainwater harvesting system.¹⁰³ In both the substitute water supply plan and the permanent augmentation plan, the pilot project can reduce the amount of replacement water by the amount of precipitation that would not have entered a natural stream due to the historical consumptive use by preexisting natural vegetation.¹⁰⁴ The amount of net depletion must be proved by a preponderance of the evidence for the permanent plans of augmentation and by using the data collected through the pilot project for the substitute water supply plans.¹⁰⁵

98. § 37-60-115(6)(a).

99. *Id.*

100. GUIDELINES, *supra* note 80.

101. §§ 37-60-115(6)(b)(III)-(V).

102. § 37-60-115(6)(c)(I), § 37-92-308(4)(a).

103. § 37-60-115(6)(c)(II)(A).

104. *Id.*

105. § 37-60-115(6)(c)(II).

Prior to House Bill 09-1129, Colorado required that all rainwater captured out-of-priority be replaced in the stream system in like time and place.¹⁰⁶ The concept of net depletion used in House Bill 09-1129 reduces the amount of replacement water from 100% to a lesser percentage. Requiring less than full replacement parallels similar statutory exceptions for on-stream reservoir evaporation and gravel pit pond evaporation.¹⁰⁷ Like House Bill 09-1129, these statutes reduce the augmentation obligation by the amount of precipitation that did not historically reach a stream system due to native plant evapotranspiration.¹⁰⁸ For gravel pit ponds evaporation, the Colorado Division of Water Resources generally accepts a credit for evapotranspiration of seventy percent of the total precipitation for non-irrigated sites under the assumption that seventy percent of the precipitation did not return to a stream system due to the consumptive use by native plants.¹⁰⁹ Higher credits for evapotranspiration are possible if supported by empirical data, and a recent study suggests that higher credits may be possible based on evapotranspiration rates ranging from 85% to 97% depending on drought conditions.¹¹⁰

IV. TAKINGS OF WATER RIGHTS

Senate Bill 09-080 and House Bill 09-1129 moved quickly through the Colorado General Assembly and received unanimous votes.¹¹¹

106. Carolyn F. Burr & James N. Noble, *Rainwater Harvesting: A New Water Supply Option in Colorado?*, COLO. B. ASS'N 1 (2008), http://www.cobar.org/repository/Inside_Bar/Water%20Law/October%209,%202008/Rainwater%20Harvesting%20Handout-10-9-08.pdf.

107. *See id.* at 2 (citing COLO. REV. STAT. § 37-84-117(5), § 37-80-120(5), § 37-92-305(12) (2010)).

108. *Id.*

109. *Id.* The original bil for development-wide rainwater harvesting systems incorporated the concept of a seventy percent evapotranspiration rate but it was later removed. H. B. 09-1129, 67th Gen. Assemb., 1st Sess. 2 (Colo. 2009).

110. *See* DOUGLAS COUNTY WATER STUDY, *supra* note 37, at 1.

111. *See* COLO. ST. ASSEMB., *Summarized History for Bill Number SB09-080*, http://www.leg.state.co.us/clics/clics2009a/csl.nsf/fsbillcont3/49D4349AC4A73794872575370071F5D4?open&file=080_enr.pdf (follow "History" hyperlink) (last visited Apr. 20, 2011) (Colo. S. Bill 09-080 was introduced in the Senate on January 13, 2009 and was signed by the President of the Senate and Speaker of the House on April 14, 2009); H. B. 09-1129, 67th Gen. Assemb., 1st Sess. 2 (Colo. 2009) (H.B. 09-1129 was introduced into the House of Representatives on January

The willingness of legislators to officially legalize rainwater harvesting and the bills' contents point to the potential for even more expansive rainwater harvesting legislation, especially since House Bill 09-1129 is specifically designed to provide the empirical data to justify further developments in rainwater harvesting and reduce the amount of rainwater harvesting that is illegal.¹¹²

Except for a handful of development-wide pilot projects, rainwater harvesting in Colorado is primarily confined to single houses or small clusters of houses drawing water from small-capacity wells in designated ground water basins or exempt wells outside designated ground water basins.¹¹³ However, the demand for rainwater harvesting is likely to increase as Colorado experiences continuing population growth, a gap in identified water resources to meet this growth, and climate change.¹¹⁴ Incredulous voters in the heavily populated urban areas of the Front Range who want to harvest rainwater but discover they cannot may place political pressure for change on their state legislators. In response, future legislation could expand the authorized scope of rainwater harvesting by allowing the widespread use of rain barrels by residences in suburban areas already served by municipal and other domestic water providers and by increasing number of development-wide rainwater harvesting systems. As the authorized scope of rainwater harvesting is enlarged, the likelihood of affecting surface water flows and injuring the water rights of senior appropriators protected by the constitutional doctrine of prior appropriation also increases.¹¹⁵ In addition to mounting political opposition in the General Assembly, Colorado's ever vigilant large water rights owners would seek to employ legal tools to prevent injury to their senior water rights, such as via a takings claim.¹¹⁶ Senate Bill 09-080 and House Bill 09-1129 and this scenario of broader enabling legislation raises the issue of whether

13, 2009 and was signed by the Speaker of the House and the President of the Senate by May 18, 2009).

112. See BEAUJON, *supra* note 46, at 2.

113. See *supra* Part III.A.

114. See *supra* Part. I.

115. See *id.*

116. See, e.g., *Cent. Colo. Water Conservancy Dist. v. Simpson*, 877 P.2d 335, 340 (Colo. 1994) (analyzing claims by senior appropriators asserting a takings in connection with Senate Bill 120 that exempts preexisting sand and gravel operations from permitting and augmentation requirements despite ground water lost to evaporation).

these statutes create a takings of senior water rights to satisfy the demands of more junior users.

Under the United States and Colorado Constitutions, the government cannot take private property for public uses unless just compensation is paid to the property owner.¹¹⁷ Although the relationship between takings jurisprudence and water rights has been litigated in connection with activities such as dam building¹¹⁸ and the maintenance of instream flows to protect endangered species,¹¹⁹ this relationship has not been explored to date in connection with rainwater harvesting. Since senior water rights are constitutionally protected in Colorado through the prior appropriation doctrine,¹²⁰ applying the takings doctrine to rainwater harvesting provides a means of understanding the degree of protection water property rights can receive under the prior appropriation doctrine and the extent to which rainwater harvesting is possible vis-à-vis senior appropriative water rights.

Analyzing both of these issues in the takings context requires exploring several questions. First, does the senior water rights holder have a private property right? Second, what is the public nature of the new use of the property right? Third, if a property right exists and the use is a public use, then how has the government impaired this property right? The nature of the government action will govern the legal standard used in determining if the government action creates a taking.¹²¹ Finally, if a taking has occurred, how will the compensation be measured?

A. Property Rights in Water in Colorado

The question of whether a senior appropriator holds a valid private property right to water arises from the elusive and multifaceted nature of water rights.¹²² Water rights are a unique form of property rights for several reasons: the importance of water for survival; the scarcity

117. U.S. CONST. amend. V; U.S. CONST. amend. XIV; COLO. CONST. art. II, § 15.

118. *See* *United States v. Gerlach Live Stock Co.*, 339 U.S. 725, 728 (1950).

119. *See* *Klamath Irrigation Dist. v. United States*, 277 P.3d 1145, 1148 (Or. 2010).

120. *See supra* notes 58-71 and accompanying text.

121. *See supra* note 18 and accompanying text.

122. *See* Brian E. Gray, *The Property Right in Water*, 9 HASTING W.-NW. J. ENVTL. L. & POL'Y 1, 4 (2002).

of fresh water; the common nature of water; the dynamic nature of water due to its ability to move, be stored, evaporate, and reused; the uncertain and variable nature of water due to droughts, floods, and climate change; the historical development of water rights under the prior appropriation doctrine; and the evolution of state water laws and the limitations they place on water rights.¹²³ Since neither the United States Constitution nor the Colorado Constitution define the phrase “private property,” the private property rights that are protected from a taking are created and defined by state law.¹²⁴ In Colorado, a water right is characterized as a private property right.¹²⁵ The Colorado Constitution establishes the parameters of water property rights by stating that “the right to divert the unappropriated waters of any natural stream to beneficial uses shall never be denied.”¹²⁶ This language creates a constitutional right to appropriate water in accordance with the allowances and limitations of the Colorado Constitution.¹²⁷ The constitutional right is implemented through the Water Right Determination and Administration Act, which defines a “water right” as “the right to use in accordance with its priority a certain portion of the waters of the state by reason of the appropriation of the same.”¹²⁸ Thus, according to the Colorado Supreme Court, the property right recognized:

[A]s a Colorado water right is a right to use beneficially a specified amount of water, from the available supply of surface water or tributary groundwater, that can be captured, possessed, and controlled in priority under a

123. *See id.*; John D. Leshy, *A Conversation About Takings and Water Rights*, 83 *TEX. L. REV.* 1985, 1987-89 (2005); Scott Andrew Shepard, *The Unbearable Cost of Skipping the Check: Property Rights, Takings Compensation & Ecological Protection in the Western Water Law Context*, 17 *N.Y.U. ENVTL. L.J.* 1063, 1116 (2009); Sandra B. Zellmer & Jessica Harder, *Unbundling Property in Water*, 59 *ALA. L. REV.* 679, 691-92 (2008).

124. *See Zellmer & Harder, supra* note 123, at 701; *see also* Leshy, *supra* note 123, at 2003.

125. *See Strickler v. City of Colorado Springs*, 26 P.2d 313, 314 (Colo. 1981); *see also Gardner v. State*, 614 P.2d 357, 360 (Colo. 1980).

126. *COLO. CONST.* art. XVI, § 6.

127. *See State ex rel. Danielson v. Vickroy*, 627 P.2d 752, 757 (Colo. 1981).

128. *COLO. REV. STAT.* § 37-92-103(12) (2010). *See State ex rel. Danielson*, 627 P.2d. at 757.

decree, to the exclusion of all others not then in priority under a decreed water right.¹²⁹

Based on this language and how it has been construed by the Colorado courts, the strength of a water property right depends on the presence of unappropriated water, whether water is part of a “natural stream,” “a diversion of water, and an application of that water to a beneficial use.”¹³⁰

Since “the constitutional right to appropriate [water] is limited to unappropriated water,”¹³¹ a property right in water can only be established if such water is available for diversion and beneficial use.¹³² Surface water is overappropriated when “there is not enough water in the stream [at any given time] to satisfy all the decreed [] appropriations,” and, conversely, any excess water is considered unappropriated if the needs of all the appropriators are met.¹³³ Of course, “the problem is determining, at any given time, just how much water is available for appropriation” due to the absolute nature of the constitutional right to appropriate unappropriated waters.¹³⁴ Other western states that have adopted the prior appropriation doctrine have also adopted an administrative permit system in which a vested water right is not created until an administrative body issues a permit, which provides at least a potential check against over appropriation.¹³⁵ However, water rights subject to Colorado’s Water Right Determination and Adjudication Act vest upon the private act of appropriation and not official adjudication due to Colorado’s constitutional language.¹³⁶ Historically, in response to this situation, Colorado has taken a wait-and-see approach in which appropriators

129. *Santa Fe Trail Ranches Prop. Owners Ass’n v. Simpson*, 990 P.2d 46, 53 (Colo. 1999).

130. VRANESH, *supra* note 4, at 24-25, 32. *See generally id.*

131. VRANESH, *supra* note 4, at 27.

132. *See Empire Lodge Homeowner’s Ass’n v. Moyer*, 39 P.3d 1139, 1147 (Colo. 2001).

133. *Hall v. Kuiper*, 510 P.2d 329, 330 (1973). *See VRANESH, supra* note 4, at 27.

134. VRANESH, *supra* note 4, at 27.

135. *See id.* at 32.

136. *See Shirola v. Turkey Cañon Ranch, L.L.C.*, 937 P.2d 739, 744 (Colo. 1997). Even though a decree from a water court is not necessary to create the right, adjudication is important in Colorado since a decreed water right is necessary to “establish[] a priority date that can be enforced against other users.” *Id.*

would make their appropriations from a surface water source and if there was not sufficient water available, then “senior appropriators could protect their rights by ‘calling the river,’ and the state engineer would shut the junior appropriators’ headgates.”¹³⁷ As a result of this approach, the Colorado Division of Water Resources considers most stream systems over-appropriated.¹³⁸

The constitutional right to appropriate is also limited to the waters of “any natural stream.”¹³⁹ According to the Colorado Supreme Court, these words “were intended to be used in their broadest scope” so that intermittent streams and water that are tributary to a natural stream are included within the constitutional language.¹⁴⁰ All flowing water, whether from a spring, an underground stream, or via percolation or seepage, as well as all ground water, is presumed to be tributary to a natural stream, and the burden of overcoming the presumption by clear and satisfactory evidence is on the individual asserting that the water in question is not tributary to a natural stream to prove that fact by clear and satisfactory evidence.¹⁴¹

Finally, a valid appropriation of water must meet two requirements: “a diversion of water, and an application of that water for a beneficial use.”¹⁴² A “diversion” is statutorily defined as “removing water from its natural course or location or controlling water in its natural course or location, by means of a control structure, ditch, canal, flume, reservoir, bypass, pipeline, conduit, well, pump, or other structure or device.”¹⁴³ Generally, Colorado courts require an “actual diversion of a definite quantity of water” to make an effective appropriation.¹⁴⁴ However, a diversion may not be an absolute requirement due to the Colorado Supreme Court’s holding in the context of instream flows that Section 5 of Article XVI

137. VRANESH, *supra* note 4, at 27.

138. *See Rainwater Collection in Colorado*, *supra* note 58. *See also supra* note 73 and accompanying text.

139. *See* COLO. CONST. art. XVI, § 6; COLO. REV. STAT. § 37-92-103(13) (2010).

140. *In re German Ditch & Reservoir Co.*, 139 P. 2, 9 (Colo. 1913).

141. *Safranek v. Town of Limon*, 228 P.2d 975, 977 (Colo. 1951).

142. VRANESH, *supra* note 4, at 32. An intent to divert is also a requirement in some cases, but a diversion and application to a beneficial use alone are sufficient to create an appropriation. *Id.*

143. COLO. REV. STAT. § 37-92-103(7) (2010).

144. *Ft. Lyon Canal Co. v. Amity Mutual Irrigation Co.*, 688 P.2d 1110, 1113 (Colo. 1984).

of the Colorado Constitution did not create a constitutional requirement for an appropriation to involve a diversion.¹⁴⁵

In contrast, the beneficial use requirement is an absolute requirement based on both constitutional and statutory language.¹⁴⁶ Although the Colorado Constitution does not define the phrase “beneficial use,” Colorado courts have interpreted the term broadly to include the Colorado Constitution’s priorities of use during water shortages – domestic, agricultural, manufacturing, and mining – as well as power generation, aquaculture, recreation, irrigation of trees and grass in municipalities, and instream flows.¹⁴⁷ The statutory definition of the phrase “beneficial use” in the Water Right Determination Act affirms the broad interpretation by not limiting the range of uses.¹⁴⁸ The concept of beneficial use both creates and limits the property right in water. Beneficial use “becomes the basis, measure, and limit of the appropriation”¹⁴⁹ and is encompassed in the idea of the duty of water. “Duty of water draws a distinction between the maximum rate of diversion and the total amount of water that may be diverted. The former is controlled by the decree, while the latter is determined by the reasonable needs of the purpose for which

145. *Colo. River Water Conservation Dist. v. Colo. Water Conservation Bd.*, 594 P.2d 570, 572-76 (Colo. 1979) (noting that instream flows by definition do not involve diversions).

146. *See supra* note 129-32 and accompanying text.

147. VRANESH, *supra* note 4, at 44-45.

148. *Id.* at 44. As defined by the statute,

‘beneficial use’ is the use of that amount of water that is reasonable and appropriate under reasonably efficient practices to accomplish without waste the purpose for which the appropriation is lawfully made and, without limiting the generality of the foregoing, includes the impoundment of water for recreational purposes, including fishery or wildlife, and also includes the diversion of water by a county, municipality, city and county, water district, water and sanitation district, water conservation district, or water conservancy district for recreational in-channel diversion purposes. For the benefit and enjoyment of present and future generations, ‘beneficial use’ shall also include the appropriation by the state of Colorado in the manner prescribed by law of such minimum flows between specific points or levels for and on natural streams and lakes as are required to preserve the natural environment to a reasonable degree. COLO. REV. STAT. § 37-92-103(4) (2010).

149. *Santa Fe Trail Ranches Prop. Owners Ass’n. v. Simpson*, 990 P.2d 46, 53 (1999).

the decree was entered.”¹⁵⁰ Although the water rights of senior appropriators exist and are strengthened by continuous diversions of tributary water and applications of that water to a beneficial use, those water rights are ultimately limited in scope by historical use and return flows.¹⁵¹ Unused or waste water returns to the stream system and becomes available for use by other appropriators, especially junior appropriators.¹⁵²

Assuming the constitutional elements of a diversion for beneficial use from a natural stream of unappropriated waters are satisfied, the private property right created is a usufructuary right which gives the appropriator the right to use water that is owned by the state without impairing its substance.¹⁵³ The property right created is not an ownership right to molecules of water, but a right to divert a specified quantity of water for a specified “beneficial use with a specific priority relative to other users from the same source.”¹⁵⁴ The exact nature of the property right in water relative to common categories of property is somewhat confusing based on the various characterizations given by the Colorado courts over time:

Water rights have been characterized as a freehold, *Gutheil Park Inv. Co. v. Montclair*, 32 Colo. 420, 76 P. 1050 (1904); *Grand Valley Irrigation Co. v. Leshner*, 28 Colo. 273, 65 P. 44 (1901), see also *Comstock v. Olney Springs Drainage Dist.*, 97 Colo. 416, 50 P.2d 531 (1935); *Davis v. Randall*, 44 Colo. 488, 99 P. 322 (1908); *Monte Vista Canal Co. v. Centennial Irrigating Ditch Co.*, 22 Colo. App. 364, 123 P. 831 (1912); as an interest in real estate, *West End Irrigation Co. v. Garvey*, 117 Colo. 109, 184 P.2d 476 (1947); *Talcott v. Mastin*, 20 Colo. App. 488, 79 P. 973 (1905); as a property right lacking the dignity of an estate in fee, *Knapp v. Colorado River Water Conservation Dist.*, 131 Colo. 42, 279 P.2d 420 (1955); as personal property, *Brighton Ditch Co. v. Englewood*, 124 Colo. 366, 237 P.2d 116 (1951); and, perhaps most accurately, as a “usufructuary” right, *Coffin v. Left Hand Ditch Co.*, supra;

150. VRANESH, *supra* note 4, at 46.

151. See *id.* at 46-47.

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

153. See *id.*

154. VRANESH, *supra* note 4, at 229.

see also *Wheeler v. Northern Colo. Irrigation Co.*, 10 Colo. 582, 17 P. 487 (1887); *Monte Vista Canal Co. v. Centennial Irrigating Ditch Co.*, *supra*.¹⁵⁵

The water use right is most often treated as a real property interest in Colorado.¹⁵⁶ By law, “in the conveyance of water rights in all cases, except where the ownership of stock in ditch companies or other companies constitutes the ownership of a water right, the same formalities shall be observed and complied with as in the conveyance of real estate.”¹⁵⁷ Water rights are also deemed real property in the face of adverse possession claims.¹⁵⁸

The value of this property right can be found in its priority to use a certain amount of water from a certain diversion point in a stream system.¹⁵⁹ The owner of a decreed water right in a surface water source can enforce the priority among the hierarchy of users in the same stream system.¹⁶⁰ “More specifically, it would allow a water rights owner to make an enforceable ‘call’ to the Office of State Engineer to shut down water to undecreed and junior water right owners in favor of supplying the senior water owner’s needs.”¹⁶¹ Since a water right under the prior appropriation doctrine is not a fixed, tangible amount of water, but a right to use water, the chief value of a water right is in its priority and the expectations created by that priority.¹⁶² Thus, priority “is the most valuable stick in the

155. *Navajo Dev. Co.*, 655 P.2d at 1377.

156. Mari W. Deminski, *Water Rights: Real Property*, in COLORADO WATER LAW BENCHMARK § 7.2.3 (Carrie L. Ciliberto & Timothy J. Flanagan eds., 1st ed. Supp. 2010).

157. COLO. REV. STAT. § 38-30-102(2) (2010).

158. *Bagwell v. V-Heart Ranch, Inc.*, 690 P.2d 1271, 1273 (Colo. 1984).

159. *See Navajo Dev. Co.*, 655 P.2d at 1377; *see also* Gregory J. Hobbs, Jr., *Priority: The Most Misunderstood Stick in the Bundle*, 32 ENVTL. L. 37, 42 (2002).

160. *Navajo Dev. Co.*, 655 P.2d at 1377.

161. Demski, *supra* note 156, at § 7.2.5. However, both Professor Tarlock and Justice Hobbs note that such enforcement of priorities may be more of a theoretical exercise than an actual practice. *See* Tarlock, *supra* note 68, at 883; Hobbs, *supra* note 159, at 43.

162. *See Navajo Dev. Co.*, 655 P.2d at 1378, 1380.

bundle”¹⁶³ and to “deprive a person of his priority is to deprive him of a most valuable property right.”¹⁶⁴

Even critics of the role of priority in the prior appropriation doctrine note that priority should not be abandoned since there are no superior alternatives to its role in protecting investment-backed expectations.¹⁶⁵ Colorado statutes and case law clearly demonstrate that junior appropriators may not injure the water rights of senior appropriators. The Water Right Determination and Appropriation Act states that “water rights and uses vested prior to June 7, 1969, in any person by virtue of previous or existing laws, including appropriation from a well, shall be protected subject to the provisions of this article”¹⁶⁶ and emphasizes that “no reduction of any lawful diversion because of the operation of the priority system shall be permitted unless such reduction would increase the amount of water available to and required by water rights having senior priorities.”¹⁶⁷ Generally, an injury to a water right arises from an action “that causes or may cause the holders of decreed water rights to suffer loss of water in the time, place, and amount they are entitled to use the water.”¹⁶⁸ As a result, “a junior appropriator may not divert the water to which he is entitled by any method or means the result of which will be to diminish or interfere with the right of a senior appropriator to [the] full use of his appropriation.”¹⁶⁹ However, despite the

163. Hobbs, Jr., *supra* note 159, at 43.

164. *Navajo Dev. Co.*, 655 P.2d at 1378 (quoting *Nichols v. McIntosh*, 34 P. 278, 280 (Colo. 1893)).

165. Tarlock, *supra* note 68, at 884. Professor Tarlock points out that priority is a cause of environmental degradation, leads to inefficient use practices, and that the transaction and interpersonal costs of enforcing priorities are high. *Id.* at 887, 898 & 901. Although Professor Tarlock states that priority is less important due to the eras of federal reclamation projects and environmental management, he notes that priority is still important today to support small, direct flow irrigation communities in Colorado, Wyoming, and Utah. *See id.* at 892-95.

166. COLO. REV. STAT. § 37-92-102(2)(a) (2010). *See* § 37-82-104 (stating that water rights of senior appropriators cannot be injured by appropriations from natural springs).

167. § 37-92-102(2)(d) (2010).

168. Deminski, *supra* note 156, at 7-12 (quoting GREGORY J. HOBBS, JR., *CITIZEN’S GUIDE TO COLORADO WATER LAW* 7 (3d ed. 2009)).

169. *City of Colo. Springs v. Bender*, 366 P.2d 552, 556 (Colo. 1961). *See also* *Well Augmentation Subdistrict v. City of Aurora*, 221 P.3d 399, 415 (Colo. 2009) (“Colorado law absolutely protects senior rights from injury by junior rights and

Colorado Supreme Court's use of the phrase "full use" to refer to what is protected, senior water rights are not protected from any injury but only from a material injury.¹⁷⁰ Whether an injury rises to a material one is an issue of fact rather than law.¹⁷¹

1. Property Rights and the Current Rainwater Harvesting Statutes

Both Senate Bill 09-080 and House Bill 09-1129 were carefully drafted to accommodate the interests of constituents who wanted to harvest rainwater without impinging on the vested water rights of senior appropriators.¹⁷² To achieve this legislative tightrope act, both statutes work within the confines of the prior appropriation doctrine. As a result, existing property rights in water are not materially injured, and neither statute gives rise to a takings claim.

To address the problem of out-of-priority diversions under the prior appropriation doctrine, Senate Bill 09-080 integrates small-scale residential rainwater harvesting into Colorado's existing statutory and regulatory framework for ground water.¹⁷³ In Colorado, the administration of a "water right depends upon the category of waters to which the use right attaches."¹⁷⁴ The Colorado Constitution establishes that the prior appropriation doctrine applies to water rights in water from natural streams.¹⁷⁵ This constitutional right is implemented through the Water Right Determination and

mandates that augmentation plan applicants replace 100% of their out-of-priority depletions.").

170. COLO. REV. STAT. § 37-92-502(2)(a) (2010).

171. *Buffalo Park Dev. Co. v. Mountain Mut. Reservoir Co.*, 195 P.3d 674, 684-85 (Colo. 2008).

172. See Kirk Johnson, *It's Now Legal to Catch a Raindrop in Colorado*, N.Y. TIMES, June 29, 2009, at A1. In addition to the limited scope of the statutes, they are both limited in reach. Colo. H. Bill 09-1129 by its terms only applies to ten development-wide projects. See COLO. REV. STAT. § 37-60-115(6)(a) (2010). Colo. S. Bill 09-080 is predicted to affect 250,000 people statewide. See Johnson, *supra* at A1. However, this latter figure, while large, is less than 5% of Colorado's 2010 population of over 5,000,000. U.S. CENSUS BUREAU, POPULATION DISTRIBUTION AND CHANGE: 2000-2010, U.S. CENSUS BRIEF 2, available at <http://2010.census.gov/2010census/data/> (follow "Population Distribution and Change" hyperlink).

173. See *supra* Part III.A.

174. *Upper Black Squirrel Creek Ground Water Mgmt. Dist. v. Goss*, 993 P.2d 1177, 1181-82 (Colo. 2000).

175. COLO. CONST. art. XVI, § 6.

Administration Act of 1969 by Colorado's system of water courts and administrative agencies such as the Colorado Division of Water Resources, which includes the office of the State Engineer.¹⁷⁶

While this constitutional right to appropriate water includes both surface and ground water that is tributary to a natural stream, it does not include nontributary ground water,¹⁷⁷ which is further subdivided into designated ground water,¹⁷⁸ nontributary ground water,¹⁷⁹ and not nontributary ground water.¹⁸⁰ The rationale for excluding nontributary ground water is that its use "has a de minimus effect on any surface stream."¹⁸¹ Since nontributary ground water is by definition outside the scope of Article XVI, Section 6 of the Colorado Constitution, the Colorado General Assembly has plenary authority over the allocation and administration of this type of water.¹⁸² This authority is also exercised through administrative agencies such as the Colorado Division of Water Resources, which includes the Colorado Ground Water Commission.¹⁸³ Under its plenary authority, the General Assembly has enacted the Colorado Ground Water Management Act,¹⁸⁴ which implements a modified prior appropriation system, especially for designated ground water, to "permit the full economic development of ground water resources," to protect prior appropriations of ground water, and to protect and maintain reasonable rather than historic ground water pumping levels.¹⁸⁵ Senate Bill 09-080 takes advantage of the bifurcation in Colorado water law between tributary surface and ground water and nontributary ground water in several ways to avoid the problem of

176. See *State ex rel. Danielson v. Vickroy*, 627 P.2d 752,757 (Colo. 1981). See generally COLO. REV. STAT. §§ 37-92-101-106 (2010).

177. See § 37-92-102(1)(a); see also § 37-92-103(13).

178. § 37-90-103(6).

179. § 37-90-103(10.5).

180. § 37-90-103(10.7).

181. *Upper Black Squirrel Creek Ground Water Mgmt. Dist. v. Goss*, 993 P.2d 1177, 1182 (Colo. 2000). See *Kuiper v. Lundvall*, 529 P.2d 1328, 1331 (Colo. 1974) (holding that ground water that takes more than one hundred years to reach a natural stream is not a part of the surface stream and thus is not subject to the prior appropriation provisions of the Colorado Constitution).

182. *Black Squirrel Creek*, 993 P.2d at 1182.

183. Gregory Hobbs, *An Overview of Colorado Groundwater Law*, COLO. WATER (Colo. State Univ. Fort Collins, Colo.), Oct./Nov. 2007, at 4.

184. *Id.*

185. *Black Squirrel Creek*, 993 P.2d at 1183-84.

out-of-priority diversions. First, the rainwater harvesting systems permitted by Senate Bill 09-080 are specifically exempted from the Water Right Determination and Administration Act of 1969.¹⁸⁶ With this exemption, rainwater harvesting systems are excluded from the strict application of the prior appropriation doctrine mandated by the Colorado Constitution.¹⁸⁷ This priority system would tend to classify rainwater harvesters as junior appropriators and make their use of rainwater subject to the claims of senior appropriators.

Instead, rainwater harvesting becomes subject to an administrative permitting system tied to small capacity¹⁸⁸ wells in designated ground water basins and exempt wells elsewhere.¹⁸⁹ The statutory link to designated ground water basins reinforces the substitution of the priority system mandated by the Colorado Constitution with a modified prior appropriation system.¹⁹⁰ “Within the geographic boundaries of a designated [ground water] basin,” all ground water is presumed to be designated ground water, which is defined as ground water which is not required for the fulfillment of surface water rights and “has no more than a de minimus impact” on surface stream flows.¹⁹¹ This presumption is not an absolute one, but “the burden of proving that ground water within a designated basin is not designated ground water is on the proponent of that proposition,” usually a water

186. See COLO. REV. STAT. § 37-92-602(1)(g) (2010).

187. See § 37-92-102(1)(a).

188. See *infra* note 195 and accompanying text.

189. See § 37-92-105(1); see also § 37-90-602(g) (2010); *Rainwater Collection in Colorado*, *supra* note 58.

190. *Black Squirrel Creek*, 993 P.2d at 1184. The Colorado Ground Water Commission has established eight designated ground water basins located on the plains in eastern Colorado, well away from the urbanized areas of the Front Range and the relatively moisture rich areas of the Western Slope. *Id.* See generally COLORADO GROUND WATER COMMISSION, <http://water.state.co.us/groundwater/CGWC/Pages/default.aspx> (last visited Apr. 20, 2011); *Colorado Precipitation Map*, WORLDATLAS, <http://www.worldatlas.com/webimage/countrys/namerica/usstates/weathermaps/coprecip.htm> (last visited Apr. 20, 2011).

191. *Gallegos v. Colorado Ground Water Comm'n*, 147 P.3d 20, 21, 29 (Colo. 2006). See § 37-90-103(6)(a) (defining designated ground water). However, as *Gallegos* demonstrates, surface water rights can exist in a designated ground water basin and some of these surface rights can have priorities granted under the prior appropriation doctrine that are senior to designated ground water rights. William H. Fronczak, *Designated Basin Ground Water: A Historical and Practical Perspective*, in COLORADO WATER LAW BENCHMARK 4-14 (Carrie L. Ciliberto & Timothy J. Flanagan eds., 1st. ed. Supp. 2010).

rights holder claiming seniority under the Colorado Constitution's prior appropriation doctrine¹⁹² Satisfying this burden of proof requires costly hydrological studies to develop the necessary factual data, which tends to discourage claims from even being initiated.¹⁹³

Second, the statutory link in Senate Bill 09-080 to small capacity wells in designated ground water basins and exempt wells elsewhere, provides rainwater harvesters with further protection from senior appropriators holding vested water rights under the Colorado Constitution's prior appropriation doctrine. Generally, small capacity and exempt wells are restricted to flow rates ranging from fifteen to fifty gallons per minute and can only be used by single-family residences for typical household uses and lawn irrigation, by a single commercial business for drinking and sanitary water, or for watering livestock and fire protection.¹⁹⁴ For exempt wells, the issuance of a permit indicates an administrative judgment that pumping from the well will not cause material injury to existing water rights.¹⁹⁵ In designated ground water basins, the standard for granting permits for wells generally requires the Colorado Ground Water Commission to determine that designated ground water is available for appropriation by a new junior well and that new the appropriation "will not unreasonably impair existing water rights from the same source and will not create unreasonable waste."¹⁹⁶ If the junior well owner demonstrates compliance with permit conditions, applicable regulations, and conservation measures, the junior well is entitled to a presumption of reasonable, rather than injurious, use of designated ground water, and the burden of proving "unreasonable injury" is on the owner of the senior water right.¹⁹⁷ Small capacity well permits in designated ground water basins are issued by the State Engineer rather than the Colorado Ground Water Commission under different statutory provisions.¹⁹⁸ Under these different provisions, the material

192. *Gallegos*, 147 P.2d at 32. *Accord* *State ex rel. Danielson v. Vickroy*, 627 P.2d 752, 759 (Colo. 1981).

193. *See* § 37-90-106(1)(a).

194. *See* §§ 37-90-105(1)(a)-(e), §§ 37-92-602(1)(b)-(f).

195. § 37-92-602(6). *See also* § 602(3)(b)(I); Susan M. Curtis, *Ground Water*, in *COLORADO WATER LAW BENCHBOOK* 3-9 (Carrie L. Ciliberto & Timothy J. Flanagan eds., 1st. ed. Supp. 2010).

196. § 37-90-107(3) (2010). *Accord* *Upper Black Squirrel Creek Ground Water Mgmt. Dist. v. Goss*, 993 P.2d 1177, 1189 (Colo. 2000). *See* § 37-90-111(1)(b).

197. *Black Squirrel Creek*, 993 P.2d at 1189-90.

198. *See* § 37-90-105(1).

injury standard rather than the unreasonable impairment standard seems to apply.¹⁹⁹ Whichever standard applies, a rainwater harvesting system that meets the requirements for an exempt or small capacity well permit should enjoy the same presumption that its activities will not injure the water rights of senior appropriators.

House Bill 09-1129 has different goals than Senate Bill 09-080. As a result, House Bill 09-1129 uses a different approach to work within the confines of the prior appropriation doctrine and avoid creating a takings claim. Through use of substitute water supply plans and plans of augmentation, House Bill 09-1129 avoids the problem of out-of-priority claims by senior appropriators by replacing the amount, time, and place of the rainwater lost to harvesting activities.²⁰⁰ Even though the replacement rate is less than 100%, all of the actual depletions to a stream system are replaced due to the concept of net depletions tied to native plant evapotranspiration rates.²⁰¹ Thus, the prior use of rainwater by a pilot project as a junior appropriator should not injure the water rights of senior appropriators that vested under the prior appropriation doctrine. As the Colorado Supreme Court has noted, “water is available for appropriation if the taking thereof does not cause injury.”²⁰²

2. Property Rights and Future Rainwater Harvesting Legislation

While Senate Bill 09-080 and House Bill 09-1129 were carefully crafted to avoid a taking, the Colorado General Assembly will need to consider the takings issue before enacting broader enabling legislation. An expanded regime of rainwater harvesting could include widespread use of rain barrels in suburban residences already served by municipal water providers or retrofitting building and developments in urban areas with collection systems that capture

199. § 37-90-105(3)(c) (material injury standard established for evaluating small capacity well permits in subdivisions without a water supply plan recommended for approval by the State Engineer). *See also* DICK WOLFE, COLO. DIV. OF WATER RES., SYNOPSIS OF COLORADO WATER LAW 24 (2010), <http://water.state.co.us/DWRIPub/DWR%20General%20Documents/SynopsisOfCOWaterLaw.pdf>.

200. *See* § 37-60-115(6)(c).

201. *See* § 37-60-115(6)(c)(II).

202. *Cache La Poudre Water Users Ass’n v. Glacier View Meadows*, 550 P.2d 288, 294 (Colo. 1976) (finding that a plan of augmentation does not have to replace 100% of the water when only 25% of the water returned to the stream after use).

rainwater instead of allowing it to runoff into storm drains and stream systems. Imposing a regimen of net depletions or requiring replacement water via plans of augmentation make rainwater harvesting more complicated.²⁰³ However, if such requirements are not imposed, then increased rainwater harvesting would begin to alter and diminish surface water flows. This state of affairs would bring the rainwater harvester into conflict with the water rights owner with the strongest property rights under Colorado's prior appropriation doctrine – an appropriator with a final decree from a water court for a diversion from a surface water source with a priority dating from the mid to late nineteenth century.²⁰⁴ For example, the rebuttable presumption under the Colorado Constitution and the Water Right Determination and Adjudication Act that water is part of “any natural stream”²⁰⁵ would begin to work against any broader legislation. As the places where rainwater can be collected become more widespread, the collected rainwater will be presumed to be part of the waters that are subject to the prior appropriation doctrine. Since in most of Colorado these waters are part of stream systems that are already over-appropriated, legislation liberalizing rainwater harvesting risks authorizing activity that materially injures constitutionally and statutorily protected senior water rights associated with surface water sources.²⁰⁶ Unlike the designated ground water used in Senate Bill 09-080, which, by definition is outside the scope of the prior appropriation doctrine and subject to the plenary authority of the Colorado General Assembly because it is nontributary, surface water sources are squarely within the prior appropriation doctrine and the protections it provides to senior water rights.²⁰⁷ Although valid governmental power to regulate a property right, such as the power represented by the Ground Water

203. Senate Bill 120 provides precedent for authorizing an activity that affects surface water rights without requiring a plan of augmentation. *See* § 37-90-137(11) (exempting preexisting sand and gravel operations from permitting and augmentation requirements despite tributary ground water lost to evaporation due to excavations).

204. *Laws Inconsistent in their Support of Rainwater Harvesting*, 17 ARIZ. WATER RES. 1 (2008), available at <http://ag.arizona.edu/azwater/awr/septoct08/d3e789d0-7f00-0101-0097-9f670a768b94.html>.

205. *See supra* notes 126-28.

206. *See generally Rainwater Collection in Colorado*, *supra* note 58.

207. *See Upper Black Squirrel Creek Ground Water Mgmt. Dist. v. Goss*, 993 P.2d 1177, 1182 (Colo. 2000).

Management Act, weakens the strength of that property right for takings purposes, constitutional protection for a property right has the opposite effect.

The senior water rights owner asserting a takings in response to expanded legislation has the burden to prove that he or she holds a valid property right to water, such as proving that it originally diverted unappropriated waters of a natural stream and demonstrating the extent of its historical beneficial use and the absence of waste or an abandonment.²⁰⁸ However, once proven, the decree would establish the priority of its real property right to use a certain amount of water.²⁰⁹ As a junior appropriator, a rainwater harvester is using the water out of priority, and, if the stream system is over appropriated, using water in a way that could materially injure the water rights of senior appropriators. Thus, future legislation that increases the scope of rainwater harvesting beyond the confines of Senate Bill 09-080 and House Bill 09-1129 has the potential for creating a valid takings claim by senior water rights owners absent the incorporation of concepts such as net depletion and replacement water.

B. Public Use

The United States Constitution contains an absolute requirement that a taking be for a public use.²¹⁰ The Colorado Constitution states that “private property shall not be taken or damaged, for public or private use, without just compensation.”²¹¹ The Colorado Constitution further addresses the condemnation of private rights, stating that “private property shall not be taken for private use unless by consent of the owner, except for private ways of necessity, and except for reservoirs, drains, flumes or ditches on or across the lands of others, for agricultural, mining, milling, domestic or sanitary purposes.”²¹² Since a rainwater harvesting system cannot be characterized as a reservoir, drain, flume, or ditch across the land of others without stretching the ordinary meaning of those words, broader rainwater harvesting via legislation that extends beyond the

208. See Gray, *supra* note 122, at 12; see also § 37-92-304(6).

209. See §§ 37-92-304(6)-(7).

210. U.S. CONST.. amend. V.

211. COLO. CONST. art. II, § 15.

212. *Id.* at § 14.

confines of Senate Bill 09-080 and House Bill 09-1129 cannot be justified as a private use taking under the Colorado Constitution. A taking that is not for a public use is unconstitutional and cannot be cured by the payment of just compensation.²¹³

According to Justice Chase's seriatim opinion in *Calder v. Bull*,²¹⁴ property taken by the state from one private individual that is then transferred to another private individual is not for the "common good."

An act of the Legislature (for I cannot call it a *law*) contrary to the *great first principles of the social compact*, cannot be considered a *rightful exercise of legislative authority*. The obligation of a law in governments established on *express compact, and on republican principles*, must be determined by *the nature of the power*, on which it is founded. A few instances will suffice to explain what I mean. A law that takes . . . *property* from A. and gives it to B: It is against all reason and justice, for a people to entrust a Legislature with such powers; and, therefore, it cannot be presumed that they have done it.²¹⁵

Despite this early concern about public takings for private use, the United States Supreme Court's decisions on the public use requirement of the Takings Clause clearly allow transfers from citizen A to citizen B as long as the government has identified a public purpose.²¹⁶ Under the United States Constitution, public purposes are ultimately as broad as the government's police power to regulate for the health, safety, and general welfare of its citizens.²¹⁷

213. See *Kelo v. City of New London*, 545 U.S. 469, 477 (2005).

214. 3 U.S. 386 (1798).

215. *Id.* at 388.

216. See generally *Kelo*, 545 U.S. at 469 (holding that city's exercise of eminent domain for an economic development plan satisfied the public use requirement); *Hawaii Housing Auth. v. Midkiff*, 467 U.S. 229 (1984) (stating that Act which created land condemnation scheme to reduce concentration of land ownership was not unconstitutional when granted power to condemn for public use); *Berman v. Parker*, 348 U.S. 26 (1954) (noting that once public purpose is found, the amount and character of land to take is under the discretion of the legislative branch).

217. See *Hawaii Housing Auth.*, 467 U.S. at 240. In Colorado, the property owner has the burden of proving that the taking is not for a public purpose. *Pub. Serv. Co. v. Shaklee*, 784 P.2d 314, 315 (Colo. 1989).

The Colorado Constitution and Colorado statutes describe public uses for which water may be diverted and appropriated and from which water rights can be created; these uses constitute “public uses” because they are beneficial uses.²¹⁸ Furthermore, the language of the Colorado Constitution setting forth priorities among beneficial uses in times of drought prefers water rights for domestic purposes over all other purposes, including agricultural purposes, implying that this private use has a public purpose.²¹⁹ Although Colorado does not have a statute conferring the right to condemn water, Colorado implicitly recognizes an individual right to condemn water rights in connection with the preferences established in the Colorado Constitution.²²⁰ A junior appropriator can condemn the water rights of a senior appropriator as long as the junior appropriator’s use is higher or equal to the senior appropriator’s use in the constitutional order of preferences, and compensation is paid for the taking.²²¹ However, the Colorado courts’ interpretation is not a bright-line preference for using water for domestic purposes over using water for agricultural purposes in proceedings to condemn water rights.²²² Thus, the domestic and other uses of captured rainwater have a public purpose, but they do not have a constitutional preference over the agricultural uses by the downstream senior appropriators who might claim a taking.

State constitutional and statutory declarations concerning the public ownership of water and doctrines associated with public ownership, such as the statutory public interest standard and the

218. See *supra* note 147-48 and accompanying text.

219. See COLO. CONST. art. XVI, § 6

(“Priority of appropriation shall give the better right as between those using water for the same purpose; but when the waters of any natural stream are not sufficient for the service of all those desiring the use of the same, those using the water for domestic purposes shall have the preference over those claiming for any other purpose, and those using the water for agricultural purposes shall have preference over those using the same for manufacturing purposes.”)

220. See VRANESH, *supra* note 4, at 572-74.

221. See *Black v. Taylor*, 264 P.2d 502, 506 (Colo. 1953).

222. See *Armstrong v. Larimer Cnty. Ditch Co.*, 27 P. 235 (Colo. App. 1891); *Black v. Taylor*, 264 P.2d 502 (Colo. 1953); *Town of Sterling v. Pawnee Ditch Extension Co.*, 94 P. 339 (Colo. 1908); *Montrose Canal Co. v. Loutsenhizer Ditch Co.*, 48 P. 532 (Colo. 1896); VRANESH, *supra* note 4, at 572-74 (citing *Strickler v. City of Colorado Springs*, 26 P. 313 (Colo. 1891)).

judicially created public trust doctrine, also support the proposition that reductions in a senior appropriator's water rights can serve a public purpose. Fourteen of the seventeen western states require state administrative agencies to consider the public interest (or public welfare) when evaluating new water right applications²²³ and a number of states apply the public interest standard to water transfers and other changes in water rights.²²⁴ Originally, the public interest concept protected the property rights of downstream users or junior appropriators.²²⁵ However, the concept is now interpreted broadly as an affirmative duty to "secure the greatest possible benefit from [the public waters] for the public,"²²⁶ such as through the preservation of aesthetic and environmental values.²²⁷ Similarly, under the judicially-created public trust doctrine, the government is a trustee of a broadly conceived public interest in water as a public resource.²²⁸ The public trust becomes an affirmative standard imposed on state legislatures and administrative agencies to use their police powers, either on their own initiative or when directed by a court in response to litigation initiated by exclusion rights holders, to protect this public interest against the private property rights of use-holders.²²⁹ As described by the California Supreme Court "the state as sovereign retains continuing supervisory control over its navigable waters and the lands beneath those waters[, which] . . . prevents any party from acquiring a vested right to appropriate water in a manner harmful to the interests protected by the public trust."²³⁰ This continuing power

223. See ARIZ. REV. STAT. § 45-153 (LexisNexis 2008); CAL. WATER CODE § 1255 (West 2007); IDAHO CODE ANN. § 42-203A(5)(e) (2008); KAN. STAT. ANN. § 82a-711 (2008); NEB. REV. STAT. § 46-234 (2008); NEV. REV. STAT. ANN. § 533.370(5) (LexisNexis 2008); N.M. STAT. ANN. § 72-5-7 (2008); N.D. CENT. CODE § 61-04-06(4) (2008); OR. REV. STAT. § 537.170(6) (2007); S.D. CODIFIED LAWS § 46-2A-9 (2008); TEX. WATER CODE ANN. § 11.134(b)(3)(C) (West 2007); UTAH CODE ANN. § 73-3-8(1)(a)(iii) (LexisNexis 2010); WASH. REV. CODE ANN. § 90.03.290(1) (West 2008); WYO. STAT. ANN. § 41-4-503 (2009).

224. See, e.g., IDAHO CODE ANN. § 42-222(1) (2010); N.M. STAT. ANN. § 72-5-23 (LexisNexis 2010); *Bonham v. Moran*, 788 P.2d 497 (Utah 1989).

225. See *Bretsen & Hill*, *supra* note 49, at 743-45.

226. *Young & Norton v. Hinderlider*, 110 P. 1045, 1050 (N.M. 1910).

227. *Shokal v. Dunn*, 707 P.2d 441, 448 n. 2 (Idaho 1985).

228. See James L. Huffman, *Speaking of Inconvenient Truths: A History of the Public Trust Doctrine*, 18 DUKE ENVTL. L. & POL'Y F. 1, 97 (2007).

229. See *id.* at 96-97.

230. *Nat'l Audubon Soc'y v. Super. Ct. of Alpine Cnty.*, 658 P.2d 709, 727 (Cal. 1983).

“extends to the revocation of previously granted rights or to the enforcement of the trust against lands long thought free of the trust,” such as Los Angeles’ rights to divert water from Mono Lake for municipal needs pursuant to its water rights and a state permit.²³¹ In balancing competing interests, the California Supreme Court stated that “all uses of water, including public trust uses, must now conform to the standard of reasonable use.”²³² Legal scholars, perhaps more so than courts, have used concepts, such as the public trust and reasonable use, to justify altering the water rights of the most senior appropriators, protecting endangered species, and improving water quality without creating an unconstitutional taking.²³³ In states that have adopted the public trust doctrine, “there is no taking of private property where the governmental interference imposes no greater limitations than does the public trust” because the public trust defines the limits of private property rights.²³⁴ In essence, the public trust doctrine and similar public interest standards can eliminate or downgrade existing beneficial uses of water and create new beneficial uses (with higher priorities or preferences), even if the result is to undermine longstanding vested water rights.²³⁵ Since the public trust doctrine is dynamic and the nature and extent of what it protects changes with public policy, vested water rights will also be in flux because of the broad power of government to regulate water rights as needed to further the values represented by the public trust. However, the public trust doctrine has limits. The United States Supreme Court “has cautioned that, while the law that governs private property may change over time, the takings clause imposes limits on the state’s power to redefine property rights.”²³⁶ Thus, the Court declared that “a State by *ipse dixit*, may not transform a private property [right] into public property without compensation This is the very kind of thing that the Takings Clause . . . was meant to

231. *Id.* at 723.

232. *Id.* at 725.

233. *See generally* Leshy, *supra* note 123.

234. James H. Davenport & Craig Bell, *Governmental Interference with the Use of Water: When Do Unconstitutional Takings Occur?*, 9 U. DENV. WATER L. REV. 1, 55 (2005). *See* Shepard, *supra* note 123, at 1072.

235. *See* Gray, *supra* note 122, at 9-10; Leshy, *supra* note 123, at 1997-99.

236. Gray, *supra* note 122, at 14.

prevent.”²³⁷ The tension between private and public rights is especially evident with water rights. Specifically:

The application of the reasonable use and public trust doctrines to limit the exercise of water rights for the benefit of endangered species and other environmental uses thus presents its own takings question: When the government restricts the impoundment or diversion of water to prevent unreasonable use or to protect the public trust, is it simply asserting a public servitude (or some other type of limitation) that inheres in the water right, or is it effectively changing the definition of the property right in water to impose a new limitation on the exercise of that right?²³⁸

If no normative definition of property rights can be applied to water rights, then the nature of the interests in water will be as fluid as water itself and not be protected by the constitutional limitation on takings.²³⁹

237. *Webb’s Fabulous Pharmacies, Inc. v. Beckwith*, 449 U.S. 155, 164 (1980).

238. Gray, *supra* note 122, at 14. See also Shepard, *supra* note 123, at 1094-96. A legal scholar has noted that “the individual-centered ‘bundle of sticks’ analogy is difficult to apply to water rights because the property right in water is unique, stemming from water’s singular ability to sustain life and nature as a common resource.” Ling-Yee Huang, *Fifth Amendment Takings & Transitions in Water Law: Compensation (Just) for the Environment*, 11 U. DENV. WATER L. REV. 49, 54 (2007).

239. At least two other legal scholars would redefine the nature of property rights in water by redefining the nature of property rights. See generally Zellmer & Harder, *supra* note 123. Instead of using the traditional “bundle of rights metaphor,” property rights would be envisioned as a “web of interests.” *Id.* at 684. In the case of water rights, the outer webframe consists of societal norms in the form of the public interest doctrine, the concentric circles of the web represent the interests of various users of water, and the spoke-like strands radiating from the center of the web represent “elemental incidents of property.” *Id.* at 684-85. “If the interest in question is not an irrevocable interest in the exclusive possession and use of a discrete and marketable asset” it is “property for the purposes of due process or common law claims, but not a full property right for purposes of regulatory takings law.” *Id.* at 680, 686. Under this redefinition of property rights, appropriative water rights are classified as limited property rights rather than full property rights due to the requirements of beneficial use and issues related to transferability. *Id.* at 686. Thus, even water rights in Colorado would not be full property rights protected from regulatory takings.

Using public trust and other related public servitude doctrines to justify the public purposes for rainwater harvesting or expanding its authorized scope in Colorado will be challenging for several reasons. First, Colorado, like most western states, has not adopted the public trust doctrine, and Colorado is one of the few prior appropriation states that has not incorporated a public interest standard into its statutory provisions on water rights.²⁴⁰ Even the Colorado General Assembly's policy of promoting the conjunctive use of ground and surface water is "subject to the preservation of other existing vested rights in accordance with the law."²⁴¹ Second, the interests protected by rainwater harvesting legislation are not endangered species or the aquatic health of a watershed, but simply the ability of property owners and building residents to capture the first right to use water for household purposes and small-scale domestic irrigation.²⁴² Instead of protecting the public interest broadly, rainwater harvesting legislation favors the narrower private interests of residential property owners as junior appropriators over the private interests of more senior appropriators, who are likely to be either agricultural irrigators or their transferees. Although the notions of a public purpose may be broad enough to encompass such transfers and satisfy the constitutional requirement of a public use, a taking for a public use is still a taking that triggers the requirement that the government pay just compensation for the transfer.

C. Takings of Water Rights

As private property, water rights are protected from a takings under the United States Constitution and the Colorado Constitution by both the public use requirement and the just compensation requirement.²⁴³ The Colorado Constitution provides even greater protection than the United States Constitution because the latter requires just

240. Marcus J. Lock, *Braving the Waters of Supreme Court Takings Jurisprudence: Will the Fifth Amendment Protect Western Water Rights from Federal Environmental Regulation?*, 4 U. DENV. WATER L. REV. 76, 85-86 (2000). See *People v. Emmert*, 597 P.2d 1025, 1027-29 (Colo. 1979); Zellmer & Harder, *supra* note 123, at 733-34.

241. *Bd. Of Cnty. Comm'n'rs v. Park County Sportsmen's Ranch, LLP.*, 45 P.3d 693, 704-05 (Colo. 2002). *Accord* COLO. REV. STAT. § 37-92-102(2)(b) (2010).

242. See *supra* Part III.

243. See generally U.S. CONST. amend. V; U.S. CONST. amend. XIV, COLO. CONST. art. II, §§ 14-15.

compensation for a taking of private property while Colorado requires just compensation if property is “taken or damaged.”²⁴⁴ The common requirement of a taking in both federal and state constitutions raises the issue of whether the nature of the government action rises to the level of a taking. Colorado protects water rights from outright condemnation by both individuals and public entities because the priority given to the use of water is a property right that is protected under the constitutional language protecting property in general.²⁴⁵ While the status of water rights as compensable property rights in the face of an outright condemnation are clear under Colorado law, Colorado’s current rainwater harvesting statutes do not condemn any water rights and potentially more expansive statutes are unlikely to do so.²⁴⁶ Instead, rainwater harvesting systems are authorized and regulated.²⁴⁷ The United States Supreme Court has used three separate standards to be used to analyze the nature of a government regulatory action in response to a takings claim:

Our precedents stake out two categories of regulatory action that generally will be deemed *per se* takings for Fifth Amendment purposes. First, where government requires an owner to suffer a permanent physical invasion of her property—however minor—it must provide just compensation. . . . A second categorical rule applies to regulations that completely deprive an owner of “all

244. Compare COLO. CONST. art. II, § 15 (“[P]rivate property shall not be taken or damaged, for public or private use, without just compensation.”), with U.S. CONST. amend. V (“[N]or shall private property be taken for public use, without just compensation.”),

245. *Game and Fish Comm. v. Farmers Irrigation Co.*, 426 P.2d 562, 565 (Colo. 1967). See § 31-15-708(b)(I) (2010) (recognizing that condemnation of water rights by municipal water districts are takings that involve a private property right). The Colorado statute states that:

if the taking of such water in such quantity materially interferes with or impairs the vested right of any person residing upon such creek, gulch, or stream or doing any milling or manufacturing business thereon, the governing body shall first obtain the consent of such person or acquire the right of domain by condemnation as prescribed by law and make full compensation or satisfaction for all the damages thereby occasioned to such person. *Id.*

246. See *supra* Part III.

247. *Id.*

economically beneficial us[e]” of her property. . . . We held in *Lucas* that the government must pay just compensation for such “total regulatory takings,” except to the extent that “background principles of nuisance and property law” independently restrict the owner’s intended use of the property.

Outside these two relatively narrow categories (and the special context of land-use exactions. . .), regulatory takings challenges are governed by the standards set forth in *Penn Central Transp. Co. v. New York City*.

Although our regulatory takings jurisprudence cannot be characterized as unified, these three inquiries (reflected in *Loretto*, *Lucas*, and *Penn Central*) share a common touchstone. Each aims to identify regulatory actions that are functionally equivalent to the classic taking in which government directly appropriates private property or ousts the owner from his domain. Accordingly, each of these tests focuses directly upon the severity of the burden that government imposes upon private property rights.²⁴⁸

If the taking can be characterized as regulatory taking that falls short of a physical occupation or a “total regulatory taking,” then the government is likely to succeed in a complex balancing of the burdens and benefits of the regulatory scheme. However, if the regulatory taking can be characterized as a *per se* taking, then the takings claimant is likely to succeed based on the application of a categorical rule.²⁴⁹ The rainwater harvester and the state will want to characterize the legislative authorization as the former, while senior water rights holders will seek to apply the latter. As in other areas of

248. *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 539 (2005). Although the language of the Colorado Constitution’s taking clause differs from the language of the United States Constitution’s taking clause, the Colorado courts have “considered decisions of the United States Supreme Court construing the federal takings clause as a guide in determining what constitutes a taking under the comparable provision of the Colorado Constitution.” *Central Colo. Water Conservancy Dist. v. Simpson*, 877 P.2d 335, 346 (Colo. 1994).

249. See James E. Holloway & Donald C. Guy, *Weighing the Need to Establish Regulatory Takings Doctrine to Justify Takings Standards of Review and Principles*, 34 WM. & MARY ENVTL. L. & POL’Y REV. 315, 330 (2010).

constitutional law related to individual rights, the legal standard that is used determines the outcome.

1. Total Regulatory Takings of Water Rights

According to the United States Supreme Court in *Lucas v. South Carolina Coastal Council*, a total regulatory taking caused by a “confiscatory regulation” is a *per se* taking requiring the payment of just compensation.²⁵⁰ Confiscatory regulations are “regulations that prohibit all economically beneficial use of land”²⁵¹ and are subject to the *per se* rule because “the total deprivation of beneficial use is, from then landowner’s point of view, the equivalent of a physical appropriation.”²⁵² As the Court noted:

Any limitation so severe cannot be newly legislated or decreed (without compensation), but must inhere in the title itself, in the restrictions that background principles of the State’s law of property and nuisance already place upon land ownership. A law or decree with such an effect must, in other words, do no more than duplicate the result that could have been achieved in the courts—by adjacent landowners (or other uniquely affected persons) under the State’s law of private nuisance, or by the State under its complementary power to abate nuisances that affect the public generally, or otherwise.²⁵³

The *per se* nature of a total regulatory taking is nullified “only if the logically antecedent inquiry into the nature of the owner’s estate shows that the proscribed use interests were not part of [the owner’s] title to begin with.”²⁵⁴ Thus, both restrictions on uses that constitute nuisances and restrictions on uses supported by the “background principles” of state property law do not result in a compensable taking even if the regulation prohibits all economically beneficial use

250. 505 U.S. 1003, 1029 (1992).

251. *Id.* Similarly, Colorado courts recognize that a government regulation that prohibits all reasonable use of property is a taking. *Williams v. City of Central*, 907 P.2d 701, 703 (Colo. App. 1995).

252. *Lucas*, 505 U.S. at 1017.

253. *Id.* at 1029.

254. *Id.* at 1027.

of the property. The senior appropriators who are likely to claim that their vested water rights have been taken by rainwater harvesting are downstream agricultural irrigators or purchasers of their water rights. These senior appropriators should be able to demonstrate the validity of their water property rights under *Lucas* due to the strength of property rights in water in Colorado.²⁵⁵ Uses that are recognized as “beneficial” by law should not be considered a nuisance,²⁵⁶ especially since Colorado has historically prioritized such beneficial uses.²⁵⁷ As the United States Supreme Court has noted, “the fact that a particular use ha[d] long been engaged in by similarly situated owners ordinarily imports a lack of any common-law prohibition.”²⁵⁸

A more fundamental issue is whether the *per se* rule for a total regulatory taking applies to water rights based either on real or personal property. In *Lucas*, the Court distinguished personal property from real property and specifically focused on land noting:

[I]n the case of personal property, by reason of the State’s traditionally high degree of control over commercial dealings, [the property owner] ought to be aware of the possibility that new regulation might even render his property economically worthless (at least if the property’s only economically productive use is sale or manufacture for sale). In the case of land, however, we think the notion pressed by the Council that title is somehow held subject to the “implied limitation” that the State may subsequently eliminate all economically valuable use is inconsistent with the historical compact recorded in the Takings Clause that has become part of our constitutional culture.²⁵⁹

Critics of applying a regulatory takings analysis to water rights assert that “the peculiarly limited character of property rights in water more closely resembles personal property rights than real property rights.”²⁶⁰ These limitations include the loss of water rights due to non-use or waste, the need to submit to a state approval process to

255. See *supra* Part IV.A.

256. Shepard, *supra* note 123, at 1105.

257. COLO. CONST. art XVI, § 6. See generally VRANESH, *supra* note 4, at 3-8.

258. *Lucas*, 505 U.S. at 1031 (citations omitted).

259. *Id.* at 1027-28.

260. Leshy, *supra* note 123, at 2013.

transfer a water right, and the limitations placed on transferability through the no-injury rule.²⁶¹ In Colorado, water rights give rise to both personal and real property interests.²⁶² However, despite this potential for confusion, the Colorado Supreme Court clearly stated that “water in possession is personal property; the right to divert water from a stream is an interest in real estate.”²⁶³ Since the primary property interest affected by rainwater harvesting is the right to the prior use of water (via a diversion from a tributary surface or ground water source), senior appropriators asserting takings claims in response to more expansive rainwater harvesting legislation should be able to overcome *Lucas*’s personal property/real property dichotomy. However, these senior appropriators will encounter difficulties in overcoming *Lucas*’s requirement that the regulation be “confiscatory,” and prohibit all of a property’s economically beneficial use.²⁶⁴ A rainwater harvester who obtains the first use rights deprives a downstream senior appropriator of his prior use rights conferred by his seniority. In addition, to the extent that the rainwater harvester uses the water consumptively beyond what would be lost to evapotranspiration, the senior appropriator also loses the opportunity to use the full amount of water represented by its water right. By doing so, pursuant to statutory authority, the rainwater harvester seizes a usufructuary property right from the senior appropriator, and this seized property right is recognized as a real property interest under Colorado law.²⁶⁵

In an over-appropriated stream system, such losses could represent material injury to the water right.²⁶⁶ However, even if the senior appropriator can prove the material injury, and thereby constitutionally protect the property right, the materiality standard for water rights is lower than the absolute standard of a total regulatory takings. Even if materially injurious, the loss caused by rainwater harvesting does not deprive the senior appropriator of *all* economically beneficial use of the water right.²⁶⁷ The water right and its accompanying priority continue to exist in the face of expanded

261. *See id.* at 1994-98, 2007-08.

262. VRANESH, *supra* note 4, at 30.

263. *West End Irrigation Co. v. Garvey*, 184 P.2d 476, 479 (Colo. 1947).

264. 505 U.S. at 1029.

265. *See id.* *See also supra* notes 265-66 and accompanying text.

266. *See supra* notes 168-71 and accompanying text.

267. *See supra* notes 251-52 and accompanying text.

rainwater harvesting. The priority can be enforced against all other junior appropriators except for the rainwater harvester.²⁶⁸ In addition, the senior appropriator receives the benefit of any return flow from the rainwater harvester's authorized uses of the captured rainwater based on the priority of its water right.²⁶⁹

2. Partial Regulatory Takings of Water Rights

A partial regulatory taking occurs when the regulation, although retaining some economically beneficial use, ultimately "goes too far" in its impact on the use of the property.²⁷⁰ Unlike a total regulatory taking, a partial regulatory taking is not a *per se* taking.²⁷¹ Instead, as set forth in the United States Supreme Court's decision in *Penn Central Transportation Co. v. New York City*, courts are instructed to balance the following factors: "[i] the economic impact of the regulation on the claimant . . . [(ii)] the extent to which the regulation has interfered with [the claimant's] distinct investment-backed expectations . . . [and (ii)] the character of the government action."²⁷² "The first factor requires examining the change in the fair market value of the property, accounting for realistic and probable uses."²⁷³ Further, understanding the extent of the regulation's interference with "distinct investment-backed expectations" includes examining the reasonableness of the expected uses of the property given the regulations in place at the time the property was acquired and the foreseeability of further regulations.²⁷⁴ The third factor "considers the retroactive effect of the regulation and whether the regulation targets an individual."²⁷⁵ In connection with the third factor, the United States Supreme Court noted that "a 'taking' may more readily be found when the interference with property can be characterized as a physical invasion by government, than when interference arises from

268. See *supra* Part II.

269. See VRANESH, *supra* note 4, at 224-28.

270. *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 415 (1922).

271. *Lingle v. Chevron U.S.A., Inc.*, 544 U.S. 528, 538 (2005).

272. 438 U.S. 104, 124 (1978). *Accord* *Animas Valley Sand & Gravel, Inc. v. Bd. of Cnty. Comm'rs of La Plata*, 38 P.3d 59, 65 (Colo. 2001).

273. Huang, *supra* note 238, at 62.

274. See *id.*; see also Kathryn M. Casey, Comment, *Water in the West: Vested Water Rights Merit Protection under the Takings Clause*, 6 CHAP. L. REV. 305, 346 (2003).

275. Huang, *supra* note 238, at 62.

some public program adjusting the benefits and burdens of economic life to promote the common good.”²⁷⁶ A downstream senior appropriator asserting a taking under legislation that expands the scope of rainwater harvesting beyond the confines of Senate Bill 09-080 and House Bill 09-1129 will struggle to sustain that claim under a partial regulatory taking analysis. Even if the existence of a property right that is constitutionally protected from a takings can be demonstrated by showing a material injury to a senior water right, satisfying the materiality standard does not necessarily satisfy the multi-factor test for a partial regulatory takings.

Since the first prong of the partial regulatory taking analysis involves a fact-specific inquiry into the economic impact of the claim,²⁷⁷ the quantity of water lost to rainwater harvesting will likely become as relevant as the loss of the priority. The absolute quantities of water lost due to rainwater harvesting can be small. A rainwater harvesting system for a typical family home with a 1,000 square foot roof will at least collect “approximately 150 gallons of water from a quarter inch of rain.”²⁷⁸ When the quantities of water lost due to rainwater harvesting are measured in the hundreds of gallons while the quantities represented by a downstream senior appropriator’s water rights are typically measured in acre-feet (i.e., hundreds of thousands or millions of gallons or more),²⁷⁹ the disproportionate relationship between the two is obvious. Further, with rainwater lost due to evapotranspiration, only a fraction of the quantities lost due to rainwater harvesting is part of the senior appropriator’s water right.²⁸⁰ Until rainwater harvesting becomes widespread in an over-appropriated stream system, this small percentage of a small quantity

276. *Penn Central*, 438 U.S. at 124 (citation omitted).

277. *See id.*

278. BEAUJON, *supra* note 46, at 1. *See Findlay, supra* note 57, at 80-81 (stating that 1,000 square feet roof area can collect 600 gallons for every inch of rain).

279. *See supra* notes 44-45.

280. The Colorado State Engineer uses a seventy percent evapotranspiration rate for native vegetation while a study indicates that evapotranspiration rates are even higher. *See supra* notes 37-41, 108-10 and accompanying text. As more liberal legislation allows rainwater harvesting in established urban areas, the evapotranspiration rates may be even higher for water-hungry lawn grasses and other non-native vegetation. Potential rainwater harvesters who do not fall within the authorizations of Senate Bill 09-080 should hope that the pilot studies produced under House Bill 09-1129 will support high evapotranspiration rates. *See supra* Part III.

suggests the economic impact of rainwater harvesting on senior appropriators is *de minimus*. Under the *per se* standard for physical takings, the quantity of water taken in violation of the senior appropriator's priority of use is an issue of damages and not liability, even if it is *de minimus*.²⁸¹ However, the partial regulatory analysis' examination of economic impact and interference with expectations would make the quantity of water affected part of the liability analysis, which would work against the senior appropriator in the balancing of interests.

In addition, a senior appropriator's loss of priority to the use of water due to rainwater harvesting alone will not be sufficient to sustain a takings claim under the partial regulatory takings analysis. As the United States Supreme Court noted in *Penn Central*:

“Taking” jurisprudence does not divide a single parcel into discrete segments and attempt to determine whether rights in a particular segment have been entirely abrogated. In deciding whether a particular governmental action has effected a taking, this Court focuses rather both on the character of the action and on the nature and extent of the interference with rights in the parcel as a whole²⁸²

In *Penn Central*, the Court refused to solely examine the “takings” effect of designating Grand Central Terminal as a landmark site on the property interest in the airspace above the train station, even though Penn Central had air rights and accompanying development rights over the existing structure before the regulation and had lost them as a result of the regulation.²⁸³ As the Court noted in a subsequent case, “at least where an owner possesses a full ‘bundle’ of property rights, the destruction of one ‘strand’ of the bundle is not a taking, because the aggregate must be viewed in its entirety.”²⁸⁴ The emphasis on the “property-as-a-whole” in a partial regulatory takings

281. See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 434-35 (1982).

282. *Penn Cent. Transp. Co.*, 438 U.S. at 130-31.

283. See generally *id.* Prof. Epstein criticizes that conclusion noting that the Penn Central's loss of air rights was no different from Pennsylvania Coal's loss of mineral rights. RICHARD A. EPSTEIN, *TAKINGS: PRIVATE PROPERTY AND THE POWER OF EMINENT DOMAIN* 64 (1985).

284. *Andrus v. Allard*, 444 U.S. 51, 65-66 (1979).

analysis places the senior water rights owner asserting a takings claim at a disadvantage. The most important stick in the bundle of rights a senior appropriator loses to rainwater harvesting is the priority. For a downstream senior appropriator who is also an agricultural irrigator, his investment-backed expectations arising from this priority include capital investments in land, irrigation infrastructure, and farm equipment. For a municipality who purchases the agricultural irrigator's water rights because of the agricultural irrigator's water rights seniority, the investment-backed expectations encompass even broader development issues. Priority protects the security of these investment-backed expectations.²⁸⁵ However, the priority of a senior appropriator's water right would not be completely affected by expanded rainwater harvesting legislation because the senior appropriator retains his priority against all users except for the rainwater harvester.

Furthermore, priority is not the only stick in the bundle of rights. Other sticks include the amount of water, the place of diversion, the nature of the beneficial use, and the ability to sale, lease, or encumber the water right.²⁸⁶ Until rainwater harvesting becomes more widespread, the quantity of water affected is minimal and the remaining rights continue unaffected.²⁸⁷ When placed in this larger context, a court would likely find, as the Court found in *Penn Central Transportation Co. v. City of New York*, that no taking occurred because the claimant could still earn a reasonable return on its investment.²⁸⁸

Without a categorical rule, the senior appropriator asserting the takings claim risks having more expansive rainwater harvesting

285. Tarlock, *supra* note 68, at 884. Priority is also essential to the proper functioning of water markets. See Hobbs, *supra* note 159, at 44, 50-51.

286. See notes 122-52 and accompanying text.

287. See *id.*

288. 438 U.S. 104, 136 (1978). The Colorado Constitution's taking clause does not guarantee a maximum profit from the use of property. *Nopro v. Town of Cherry Hills Vill.*, 504 P.2d 344, 350 (Colo. 1972). See *infra* Section IV.C.3 for the problems senior water rights owners encounter bringing a claim for substantial damages, which uses the partial regulatory takings analysis. Prof. Leshy also notes that the senior appropriator's investment-backed expectations are limited by the vagaries of weather and drought as well as elements of the prior appropriation doctrine, such the forfeiture or abandonment of water rights due to non-use or waste. See Leshy, *supra* note 123, at 2007. See generally Huang, *supra* note 238, at 77-79.

legislation characterized as merely a regulatory “interference [that] arises from some public program adjusting the benefits and burdens of economic life to promote the common good” subject to a partial regulatory takings analysis.²⁸⁹ The common good that arises from impacting established water rights to allow rainwater harvesting may not be as compelling as the common good that arises from impacting established water rights to protect endangered species and the aquatic health of entire watersheds and ecosystems.²⁹⁰ However, rainwater harvesting has its virtues as an inexpensive, low tech, efficient, and green practice that enhances the domestic use of water.²⁹¹ In a balancing test where the economic impact on senior appropriators and their investment-backed expectations is minimal due to the quantity of water affected, at least until rainwater harvesting becomes more widespread and is done on a larger scale, the virtues of rainwater harvesting could very well tip the balance in favor of the rainwater harvester.

3. Damage to Water Rights

A downstream senior appropriator who wants to challenge legislation expanding rainwater harvesting may encounter difficulties asserting a takings claim under the additional language of the Colorado Constitution, which prohibits damaging of private property without just compensation.²⁹² Courts note that this language provides a property owner with a greater degree of protection than afforded under the United States Constitution, which only uses the word “taken.”²⁹³ The word “damaged” in the Colorado Constitution provides relief for property rights that have not been physically taken by the government but have been substantially damaged,²⁹⁴ and “a priority to the use of water for irrigation or domestic purposes is a property right” constitutionally protected from damage.²⁹⁵ “In

289. *Penn Central*, 438 U.S. at 124.

290. *See infra* note 351 and accompanying text.

291. *See supra* Part I.

292. COLO. CONST. art. II, § 15.

293. *See Cent. Colo. Water Conservancy Dist. v. Simpson*, 877 P.2d 335, 347 (Colo. 1994) (noting that Colorado Constitution prohibits a governmental conduct that the federal Constitution might not deemed as a taking).

294. *Claasen v. City & County of Denver*, 30 P.3d 710, 714 (Colo. App. 2000); *see also City of Northglenn v. Grynberg*, 846 P.2d 175, 179 (Colo. 1993).

295. *Game & Fish Comm’n v. Farmers Irrigation Co.*, 426 P.2d 562, 565 (1967).

determining whether government action results in substantial damage to property, [the Colorado courts] have employed a multi-factor balancing test similar to the analytical framework adopted by the United States Supreme Court to resolve federal takings clause issues,²⁹⁶ i.e., the partial regulatory takings analysis of *Penn Central*. Thus, for the same reasons why a senior appropriator would likely fail in asserting a partial regulatory taking claim, the senior appropriator would probably not succeed in bringing a claim for substantial damages under the Colorado Constitution.

The Colorado Supreme Court's analysis in *Central Colorado Water Conservancy District v. Simpson*,²⁹⁷ which addressed the constitutionality of Senate Bill 120, reveals the challenges presented in making a substantial damage claim. Senate Bill 120, adopted in 1989 by the Colorado General Assembly, exempted preexisting sand and gravel operations from permitting and augmentation requirements, despite the fact that excavating sand and gravel can expose ground water to evaporation.²⁹⁸ Water rights owners claimed that they were substantially damaged by this exemption, even though they admitted that they could not prove that any particular water right owner had been injured and that such proof was not scientifically possible.²⁹⁹ Instead, junior appropriators argued that the South Platte River basin was over-appropriated making injuries to existing water rights inevitable since there was already insufficient water to satisfy all the water rights in dry years.³⁰⁰ The Court refused to consider a small decrease in the amount of water available for use as a substantial damage and did not allow potential injuries to be equated with substantial damages.³⁰¹ Merely affecting the priorities of and reducing the amount of water available to junior appropriators, especially intermittently during periods when water levels were low, did not constitute a "substantial diminution of the economic value" of existing water rights.³⁰² Instead, to meet this standard, the existing water rights owners had to introduce evidence demonstrating a difference in the value of the water rights before and after the

296. *Colo. Water Conservancy Dist.*, 877 P.2d at 347.

297. 877 P.2d 335 (Colo. 1994).

298. *See* COLO. REV. STAT. § 37-90-137(11) (2010).

299. *Colo. Water Conservancy Dist.*, 877 P.2d at 347.

300. *Id.*

301. *Id.*

302. *Id.*

legislation was adopted, which they admittedly could not do.³⁰³ In addition, the Court noted that “any impact . . . on the flows [of] the South Platte River would be minimal.”³⁰⁴

While a senior appropriator concerned about rainwater harvesting could show “a unique or special injury which is different in kind from, or not common to, the general public”³⁰⁵ because of the unique right to the use of water acquired by its priority of appropriation, the senior appropriator would have difficulty showing substantial damages under the fact-specific inquiry associated with the *Penn Central* multi-factor balancing test. Of course, differences between a taking claim resulting from rainwater harvesting and a taking claim resulting from sand and gravel operations can be highlighted to distinguish the decision *Central Colorado Water Conservancy District* case. In the case of rainwater harvesting, the injury is to senior water rights rather than to junior water rights, increasing the likelihood that the injury is permanent rather than intermittent based on water levels. In addition, unlike the sand and gravel operators whose operations increased evaporation rates, the rainwater harvester gains a first use of water in violation of the senior appropriators’ priorities.³⁰⁶ However, like the plaintiffs in *Central Colorado Water Conservancy District*, the existing water rights owners in a rainwater harvesting case will have trouble showing a substantial loss in the value of their water rights as a result of more expansive rainwater harvesting legislation and will face the argument that the amount of

303. *Id.* at 347-48

(The historical fluctuations in the water levels of the river ranged from a low of 329,927 acre-feet to a high of over 1,000,000 acre-feet measured at the Kersey gauge. Estimates of the amount of water lost through evaporation from sand and gravel pits exempted by the provisions of S.B. 120 ranged from 6,296 acre-feet to 9,825 acre-feet. In light of the variance in the South Platte’s flows of approximately 700,000 acre-feet, the water court’s finding that the loss of 6,296 acre-feet through evaporation was relatively minor is supported by the evidence and will not be disturbed on appeal.)

304. *Id.* at 348

305. *City of Northglenn v. Grynberg*, 846 P.2d 175, 179 (Colo. 1993). See generally *Penn Cent. Transp. Co. v. City of New York*, 438 U.S. 104 (1978) (describing the multi-factor balancing test).

306. *Colo. Water Conservancy Dist. v. Simpson*, 877 P.2d at 338.

water affected is minimal, both due to the nature of the rainwater harvester's authorized uses and due to evapotranspiration rates.³⁰⁷

4. *Per Se* Physical Takings of Water Rights

A fourth type of analysis is available to a senior water rights owner asserting a takings claim based on legislation expanding the scope of rainwater harvesting beyond the confines of Senate Bill 09-080 and House Bill 09-1129. A *per se* takings analysis is the most promising for senior appropriators in Colorado but is also the most controversial when applied to water rights. According to *Loretto v. Teleprompter Manhattan CATV Corp.*, a permanent physical occupation of private property, however minor, results in a *per se* taking, regardless of the public interest advanced by the occupation.³⁰⁸ The United States Supreme Court has noted:

Property rights in a physical thing have been described as the rights "to possess, use and dispose of it." To the extent that the government permanently occupies physical property, it effectively destroys *each* of these rights. First, the owner has no right to possess the occupied space himself, and also has no power to exclude the occupier from possession and use of the space. The power to exclude has traditionally been considered one of the most treasured strands in an owner's bundle of property rights. Second, the permanent physical occupation of property forever denies the owner any power to control the use of the property; he not only cannot exclude others, but can make no nonpossessory use of the property. Although deprivation of the right to use and obtain a profit from property is not, in every case, independently sufficient to establish a taking Finally, even though the owner may retain the bare legal right to dispose of the occupied space by transfer or sale, the permanent occupation of that space by a stranger will ordinarily empty the right of any value, since

307. *See id.*

308. 458 U. S. 419, 434-35 (1982).

the purchaser will also be unable to make any use of the property.³⁰⁹

With this type of *per se* taking, compensation is due even if the taking does not result in the owner's total loss of the right to use the property or has a minimal economic impact on the property owner.³¹⁰ The United States Supreme Court subsequently noted that permanent physical occupations resulting in a *per se* taking are "relatively rare, easily identified, and usually represent a greater affront to individual property rights."³¹¹ Despite the assurance that this type of taking is easily identified, legal scholars and courts have disagreed over whether the *per se* takings rule that applies to physical occupations applies to an interference with a senior appropriator's water rights.³¹² This point of conflict is critical. If a *per se* takings has occurred, the only issue is the amount of just compensation. If not, then the more complex partial regulatory takings analysis needs to be undertaken to determine liability. As one Court of Federal Claims judge noted:

Despite the seeming simplicity of the question before us, we do not find it an easy one to decide. Defendant, as we have said, would have us start with the premise that a takings claim arising out of regulatory restrictions on the use of property must be evaluated under the *Penn Central* criteria. Yet, those criteria—the character of the government's action, its economic impact on the claimant, and the extent to which it interferes with the claimant's investment-backed expectations—and the balancing of considerations those criteria require, bring us almost immediately to the point plaintiff emphasizes here and the point the court finds most troubling: that which defendant labels simply as a passive restriction on use in reality

309. *Id.* at 435-36 (citations omitted).

310. *See id.* at 434-35.

311. *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency*, 535 U.S. 302, 324 (2002).

312. *See infra* notes 313-67. Prof. Epstein notes that his analysis of the rights to possession and use of land, which affirms the importance of the right to exclude, "can be extended with equal force to water rights cases," although he primarily focuses on riparian water rights rather than appropriative water rights. EPSTEIN, *supra* note 283, at 67.

amounts to a transfer of value through which plaintiff's right of use is diminished and the public right of use is simultaneously enlarged. For plaintiff, then, this restriction on use is seen as the functional equivalent of a physical taking. Thus, the question becomes whether the restrictions on plaintiff's water diversion, like a permanent physical invasion, and the accompanying loss those restrictions engender, constitute "government action of such a unique character that it is a taking without regard to other factors a court might ordinarily examine."³¹³

The current battle over whether a *per se* physical takings analysis applies to water rights involves government-mandated reductions in diversions by agricultural irrigators to maintain instream flows to protect endangered species, primarily in California.³¹⁴ Rainwater harvesting may potentially be the next battleground, with senior appropriators and rainwater harvesters each hoping to build on court decisions regarding the current battle between property rights and environmental concerns.³¹⁵

A trio of pre-*Loretto* United States Supreme Court cases establishes that a physical diversion of water affecting existing water rights constitutes a *per se* physical taking.³¹⁶ *International Paper* involved a government requisition of hydroelectric power during World War I that resulted in a physical redirection of water from a mill used by the International Paper Company.³¹⁷ In *Gerlach and Dugan*, the takings claims of downstream water rights owners arose when a dam was built that interfered with the full, natural flow of a

313. *Casitas Mun. Water Dist. v. United States*, 76 Fed. Cl. 100, 105 (2007) (quoting *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 432 (1982)).

314. *See, e.g., Casitas Mun. Water Dist. v. United States*, 543 F.3d 1276, 1281-82 (Fed. Cir. 2008).

315. *See, e.g., id.*

316. *See Dugan v. Rank*, 372 U.S. 609, 623 (1963) (stating that any invasion to any part of claimed water right amounted to a taking); *United States v. Gerlach Live Stock Co.*, 339 U.S. 725, 752-53 (1950) (recognizing water as a private property right that is subject to a taking); *Int'l Paper Co. v. United States*, 282 U.S. 399, 408 (1931) (holding that a taking occurred when government took all the use of the water power in a canal).

317. *See* 282 U.S. at 404-06.

river.³¹⁸ The dam had been built by the Bureau of Reclamation as part of a larger project to impound and divert water to supply other water users.³¹⁹ In each case, the Court found a physical taking: in *International Paper* based on the loss of the right to use the water,³²⁰ in *Gerlach* due to the loss of beneficial use,³²¹ and in *Dugan* based on the interference with the water right.³²² As the Court noted in *Dugan*:

A seizure of water rights need not necessarily be a physical invasion of land. It may occur upstream, as here Therefore, when the Government acted here “with the purpose and effect of subordinating” the respondents’ water rights to the Project’s uses “whenever it saw fit,” “with the result of depriving the owner of its profitable use [there was] the imposition of such a servitude [as] would constitute an appropriation of property for which compensation should be made.”³²³

Therefore, a physical invasion is sufficient, but not necessary, at least in cases involving a direct appropriation of water by the government for its own use or for redistribution to third parties that interferes with existing use rights. This rationale was recently used by the United States Court of Appeals for the Federal Circuit in *Casitas Municipal Water District v. United States*.³²⁴ This takings claim arose

318. See *Dugan*, 372 U.S. at 614-16; *Gerlach*, 339 U.S. at 729-30.

319. See *Dugan*, 372 U.S. at 614-16; *Gerlach*, 339 U.S. at 729-30.

320. See *International Paper*, 282 U.S. at 407.

321. See *Gerlach*, 339 U.S. at 752-53.

322. *Dugan*, 372 U.S. at 625.

323. *Id.* *Dugan* relied, in part, on *United States v. Causby*, in which a takings was found in the absence of a physical invasion. 328 U.S. 256 (1946). *Causby* involved the effect of low-level flights by military planes from an airfield leased by the federal government on a small chicken farm. See *id.* at 258-59. The Court concluded that the flights resulted in “an intrusion so immediate and direct as to subtract from the owner’s full enjoyment of the property and to limit his exploitation of it” and was essentially a taking of an easement of airspace. *Id.* at 265.

324. See 543 F.3d 1276, 1275 (Fed. Cir. 2008). A decision by the Federal Circuit is especially noteworthy because of its intermediate appellate function over the United States Court of Federal Claims, which has exclusive jurisdiction via the Tucker Act over takings claims brought against the United States. See 28 U.S.C. § 1491 (2010).

when Bureau of Reclamation (“BOR”) required the plaintiff to construct a fish ladder at a diversion dam and divert water through it to protect an endangered trout in California.³²⁵ The water-rights owner claimed that the diversion resulted in a permanent water loss.³²⁶ The *Casitas* Court found that the BOR’s requirements constituted a *per se* physical taking because the BOR’s requirements physically directed water away from the plaintiff’s use, permanently taking the water and the right to use that water.³²⁷ Instead of merely restricting water use, the BOR requirements directly appropriated water to protecting an endangered species, a public purpose.³²⁸ This decision highlights a critical distinction between partial regulatory takings and *per se* physical takings since the parcel-as-a-whole rule³²⁹ does not apply, and the size, scope, and economic impact of the physical invasion are immaterial to whether a takings has occurred.³³⁰ As the majority noted, “[a]lthough *Casitas*’ right was only partially impaired, in the physical taking jurisprudence any impairment is sufficient.”³³¹

Tulare Lake Basin Water Storage District v. United States demonstrates the application of the *per se* physical takings standard to find a taking in the absence of a permanent physical occupation or diversion.³³² In *Tulare*, irrigation districts which received water from the California Department of Water Resources’ State Water Project (“California Water Department”) experienced shortages when the California Water Department reduced deliveries to provide instream flows for migrating salmon in the Sacramento-San Joaquin Delta.³³³ This reduction complied with provisions of the water service contracts incorporating the requirements of the Endangered Species Act.³³⁴ The court concluded that “[t]he federal government is certainly free to preserve the fish; it must simply pay for the water it

325. *See Casitas Mun. Water Dist.*, 543 F.3d at 1282.

326. *Id.* While *Gerlach* and *Dugan* primarily or exclusively involved riparian water rights, the water rights affected in *Casitas* were clearly appropriative use rights. *See id.* at 1292.

327. *See id.* at 1295.

328. *Id.* at 1293.

329. *See supra* note 282.

330. *Casitas Mun. Water Dist.*, 543 F.3d at 1288.

331. *Id.* at 1292.

332. *See* 49 Fed. Cl. 313, 319-20 (2001).

333. *See id.* at 314-16.

334. *See id.* at 314-15.

takes to do so.”³³⁵ As in *Dugan*, the court relied on *Causby*³³⁶ and *Causby*’s application of *per se* reasoning to the taking of airspace to address the thorny issue of how a usufructuary right can be physically occupied:

While water rights present an admittedly unusual situation, we think the *Causby* example is an instructive one. In the context of water rights, a mere restriction on use—the hallmark of a regulatory action—completely eviscerates the right itself since plaintiffs’ sole entitlement is to the use of the water. See *Eddy v. Simpson*, 3 Cal. 249, 252-253 (1853) (“the right of property in water is usufructuary, and consists not so much of the fluid itself as the advantage of its use.”). Unlike other species of property where use restrictions may limit some, but not all of the incidents of ownership, the denial of a right to the use of water accomplishes a complete extinction of all value. Thus, by limiting plaintiffs’ ability to use an amount of water to which they would otherwise be entitled, the government has essentially substituted itself as the beneficiary of the contract rights with regard to that water and totally displaced the contract holder. That complete occupation of property—an exclusive possession of plaintiffs’ water-use rights for preservation of the fish—mirrors the invasion present in *Causby*. To the extent, then, that the federal government, by preventing plaintiffs from using the water to which they would otherwise have been entitled, have rendered the usufructuary right to that water valueless, they have thus effected a physical taking.³³⁷

Per *Tulare*, when *Loretto* is read in conjunction with *Causby*, the physical occupation of the property becomes irrelevant when the government interferes with the full right to use a vested water right.³³⁸

335. *Id.* at 324.

336. See *supra* note 323.

337. *Tulare*, at 319.

338. See *Casey*, *supra* note 278, at 337-38. *Tulare* has been discounted for failing to properly analyze whether a property right exists under California law as an initial question given the language of the water service contracts, California’s reasonable

Tulare recognizes the rights conferred on a water user by the prior appropriation doctrine: the right to divert water from a certain place; the right to a certain quantity of water at a certain time or over time; the right to put this water to a certain beneficial use; and the right to a certain priority for this use³³⁹ Given the importance of the water right's priority, if that priority is taken, then the water right itself has been taken, even if the government action is for the laudable goal of facilitating rainwater harvesting by a junior appropriator.³⁴⁰ While protecting the right of exclusion was one of the rationales given in the *Loretto* case for imposing a *per se* taking rule, the priority-of-use plays a similar role in water rights and thus allows water rights to be included within *Loretto*'s *per se* taking rule.³⁴¹ Not only has the use right been violated, but the right of possession, mentioned in *Loretto v. Teleprompter Manhattan CATV Corp.*,³⁴² is at risk. If not all the

use doctrine, and its adoption of the public trust doctrine. See Gray, *supra* note 122, at 9-11. See also Huang, *supra* note 240, at 84-85; Zellner & Harder, *supra* note 123, at 739-40. A few years later in *Klamath Irrigation District v. United States*, the Court of Federal Claims examined similar takings claims by agricultural irrigators arising from a drought and the need for the Bureau of Reclamation to reduce water deliveries to satisfy obligations under the Endangered Species Act. 67 Fed. Cl. 504, 512-14 (2005). The court granted the federal government's motion for summary judgment, arguing that the irrigators' water interest was based on water service contracts with the Bureau of Reclamation and those contracts had not been breached due to state water law principles, the language of the contracts, and sovereign defenses. *Id.* at 534, 536. Since the water rights at issue were vested in United States and the United States was acting in a proprietary capacity when it entered into the water service contracts rather than a sovereign capacity, the court determined that the irrigators' cause of action for the reduced water deliveries was for based on breach of contract rather than a takings. *Id.* at 523, 531-32. The court criticized *Tulare* for not similarly examining the nature of the underlying property rights in water, noting that "with all due respect, *Tulare* appears to be wrong on some counts, incomplete on others and, distinguishable, at all events." *Id.* at 538. However, in a telling comment on the complexity of water rights as property rights, the United States Federal Circuit was required to certify questions of law to the Oregon Supreme Court on the nature of the property right in water. See generally *Klamath Irrigation Dist. v. United States*, 348 Ore. 15, 227 P.3d 1145 (2010); *Klamath Irrigation Dist. v. United States*, 532 F.3d 1376 (Fed. Cir. 2008).

339. See *supra* Section IV.A; see also Gray, *supra* note 122, at 28; Leshy, *supra* note 123, at 2010 (arguing as a devil's advocate); Shepard, *supra* note 123, at 1095-96.

340. See Leshy, *supra* note 83, at 2010 (arguing as a devil's advocate).

341. See *id.* at 2011.

342. See 458 U.S. 419, 435-36 (1982).

water captured by a rainwater harvester is returned to the water system and if the water source is already over-appropriated, then the quantity of water the senior appropriator is allowed to divert and use will be reduced. Thus, the application of the *per se* takings rule associated with physical occupations to water rights is a logical extension of the rule since the rationale of *Loretto* also applies to appropriative water rights as usufructuary rights.³⁴³

Both *Casitas* and *Tulare* have been criticized,³⁴⁴ and, while some of the criticisms may be valid, especially in the context of maintaining instream flows to protect endangered species in California, these arguments do not apply to rainwater harvesting in Colorado.³⁴⁵ One criticism is that *Casitas* and *Tulare* go too far in protecting property rights in water because California water rights are subject to the reasonable use and public trust doctrines.³⁴⁶ However, Colorado does not recognize the public trust doctrine and it only applies the reasonable use doctrine to nontributary ground water.³⁴⁷ Therefore, these doctrines would not apply to legislation expanding the scope of rainwater harvesting.³⁴⁸ Furthermore, the public interest in preserving rainwater harvesting is less compelling than the public interest in preserving endangered species.³⁴⁹

Critics also argue that water rights contain nothing for the government to physically possess or occupy because a water right is a use right and the water-right owner does not own the molecules of

343. In an exercise in analogical reasoning, advocates of applying the *per se* physical takings analysis of *Loretto* to regulatory takings of water rights note that when the government reduces the water rights of an appropriator by diverting water for other purposes or other users, the government has taken physical command of the water right. See Shepard, *supra* note 123, at 1112. In the instream flow context, this physical command becomes equivalent to a physical occupancy. *Id.*

344. See 543 F.3d 1276,1297-1300 (Mayer, J., dissenting in part); *supra* note 338. See generally John D. Echeverria, *Is Regulation of Water a Constitutional Taking?*, 11 VT. J. ENVTL. L. 579 (2010).

345. See *supra* Part IV.A.1, IV.B.

346. See *Casitas Mun. Water Dist.*, 543 F.3d at 1297 (Mayer, J., dissenting in part); see also Echeverria, *supra* note 344, at 592-93.

347. See *supra* Part IV.B.

348. See *supra* Part IV.A.-B.

349. See 16 U.S.C. 1531(a) (encouraging the states through federal financial assistance and other system of incentives to protect endangered species).

water.³⁵⁰ Thus, the rights of possession and exclusion, the essential property rights that the *per se* physical taking rule is designed to protect, are nonexistent or limited within the water rights context.³⁵¹ However, *Gerlach* and *Dugan* demonstrate that a water right can be physically possessed behind a dam and exclude a downstream water rights owner from the use of its vested property right.³⁵² Similarly, rainwater harvesting involves physical diversions and possessions via the infrastructure of the collection system.³⁵³

Critics further note an anomaly in applying a *per se* takings rule to a water use right. A *per se* takings rule would provide a water use right with more protection than a real property interest because, if use right restrictions on real property were considered *per se* takings, zoning laws and most environmental regulations restricting the use of land would result in categorical takings.³⁵⁴ In addition, critics argue that deeming any interference with the use of water a *per se* taking would trigger just compensation requirements for even the interference with a teaspoonful of water.³⁵⁵ However, these criticisms themselves do not justify a taking, especially for a property right that has been long recognized as “more valuable than the land [on] which the water is applied” due to Colorado’s semiarid conditions.³⁵⁶

The United States Supreme Court’s decision in *Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg’l Planning Agency*³⁵⁷ also renders the legal viability of applying a *per se* takings analysis to appropriate water rights uncertain. *Tahoe-Sierra* did not involve water rights, but temporary moratoria on new residential development in Lake Tahoe Basin to permit a government agency to study the impact of development and to create a strategy for environmentally sound

350. See *Casitas Mun. Water Dist.*, 543 F.3d at 1298 (Mayer, J., dissenting in part); Echeverria, *supra* note 344, at 591-92; Leshy, *supra* note 123, at 2009. A related criticism is the practical difficulty in effecting a permanent physical occupation of water given its migratory nature. Huang, *supra* note 240, at 61.

351. See Echeverria, *supra* note 344, at 592; Leshy, *supra* note 123, at 2009. See also Zellner & Harder, *supra* note 123, at 685-86.

352. See *supra* notes 316-23. See generally *United States v. Gerlach Live Stock Co.*, 339 U.S. 725 (1950); *Dugan v. Rank*, 372 U.S. 609 (1923).

353. See COURTNEY, *supra* note 2, at 3-4.

354. See Leshy, *supra* note 123, at 2010-11.

355. *Id.* at 2011.

356. *City of Colo. Springs v. Yost*, 249 P.2d 151, 153 (Colo. 1952).

357. 535 U.S. 302 (2002).

growth.³⁵⁸ In response to a claim that a thirty-two month moratorium constituted a takings, the Court refused to use the *per se* takings analysis of *Loretto* noting:

This longstanding distinction between acquisitions of property for public use, on the one hand, and regulations prohibiting private uses, on the other, makes it inappropriate to treat cases involving physical takings as controlling precedents for the evaluation of a claim that there has been a “regulatory taking,” and vice versa. For the same reason that we do not ask whether a physical appropriation advances a substantial government interest or whether it deprives the owner of all economically valuable use, we do not apply our precedent from the physical takings context to regulatory takings claims. Land-use regulations are ubiquitous and most of them impact property values in some tangential way—often in completely unanticipated ways. Treating them all as *per se* takings would transform government regulation into a luxury few governments could afford. By contrast, physical appropriations are relatively rare, easily identified, and usually represent a greater affront to individual property rights. “This case does not present the ‘classi[c] taking’ in which the government directly appropriates private property for its own use,” . . . instead the interference with property rights “arises from some public program adjusting the benefits and burdens of economic life to promote the common good. . . .”³⁵⁹

As a result of *Tahoe-Sierra*, the *per se* takings rule only applies in “the ‘extraordinary case’ in which a regulation permanently deprives property of all value”³⁶⁰ so that the property owner is only left with a “token interest,”³⁶¹ or where a physical appropriation due to the regulation is “obvious and undisputed.”³⁶² Not surprisingly, critics of

358. *Id.* at 306.

359. *Id.* at 323-25.

360. *Id.* at 332.

361. *Palazzolo v. Rhode Island*, 533 U.S. 606, 631 (2001).

362. *Tahoe-Sierra*, 533 U.S. at 322 n. 17.

applying the *per se* takings rule for physical occupations to water rights see a close connection between regulatory reductions of appropriative water rights and the rationale of *Tahoe-Sierra*.³⁶³

The dilemma faced by Judge Wiese, the trial court judge in both *Tulare* and *Casitas*, reveals the possible precedential effect of *Tahoe-Sierra* on takings claims. In *Casitas*, Judge Wiese refused to apply the *per se* physical takings rule as he did in the earlier *Tulare* case, arguing that *Penn Central*'s multi-factor balancing test for a partial regulatory takings was the appropriate framework.³⁶⁴ Although Judge Wiese's rationale in *Tulare* had been criticized, he did not disavow his application of the *per se* takings rule in *Tulare* to reductions in water use rights.³⁶⁵ However, Judge Wiese ultimately felt constrained from using the rationale in *Tulare* by *Tahoe-Sierra*.³⁶⁶ However, on appeal, Judge Wiese's holding was overruled by the United States Federal Circuit with respect to his revised takings analysis and decision.³⁶⁷ Thus, the limitations *Tahoe-Sierra* placed on applying the *per se* rule to regulatory takings do not apply to physical diversions of water subject to vested water rights, such as the fish ladder in *Casitas* or rainwater collection systems in Colorado.

An additional argument against applying the *per se* takings rule focuses on the Court's refusal in *Tahoe-Sierra* to apply a *per se* takings analysis based on the temporary nature of the government regulation.³⁶⁸ Critics of equating a regulatory taking to a physical taking point to the temporary nature of any restriction on an appropriator's water right, especially in the context of reductions in water deliveries or diversions during droughts to maintain instream flows for the benefit of endangered species.³⁶⁹ The effect on water rights in such circumstances is temporary since full water deliveries later resume.³⁷⁰ However, given the importance of timing with a

363. See Leshy, *supra* note 123, at 2014-15.

364. *Casitas Mun. Water Dist. v. United States*, 76 Fed. Cl. 100, 100, 105-06 (2007).

365. See *id.*

366. *Id.* at 106.

367. *Casitas Mun. Water Dist. v. United States*, 543 F.3d 1276, 1296-97 (Fed. Cir. 2008).

368. See *Casitas Mun. Water Dist.*, 76 Fed. Cl. at 105-06.

369. See Leshy, *supra* note 123, at 2007-08.

370. *Id.* See also *PruneYard Shopping Ctr. v. Robins*, 447 U.S. 74, 74 (1980) (holding that a state constitutional provision requiring shopping center owners to permit individuals on their property to exercise free speech and petition rights

water right, especially with growing seasons in agricultural irrigation, a temporary occupation of a water right can be seen as an oxymoron because the lost right to use the water is permanently lost at the point and time the water is needed.³⁷¹ Further, the taking created by rainwater harvesting is not temporary since the statutory right to capture rainwater would likely continue indefinitely.³⁷² As long as rainwater is harvested, the full water right of the downstream senior appropriator is affected in an over-appropriated stream system since the priority is superseded. In addition, the full amount of water is not allowed to enter the stream system since some of the uses that would be authorized on an expanded basis, such as animal watering and household purposes, are consumptive and thus, not temporary.³⁷³

While the core issue of whether the *per se* takings rule can be applied to government actions affecting water rights may be a close one in the context of maintaining instream flows for endangered species in California, the outcome is much clearer in the context of rainwater harvesting in Colorado. As *International Paper*, *Gerlach*, *Dugan*, and *Casitas* all indicate, a physical interference or diversion of water authorized by the government is equivalent to a physical occupation and subject to a *per se* takings analysis.³⁷⁴ Even critics of *Tulare* and *Casitas* concede that “taking water from one group of farmers and giving it to another group of farmers” creates a more compelling takings case than a “government’s limitation on

represented an invasion that was temporary and limited in nature and was not a taking).

371. Shepard, *supra* note 123, at 1113-14.

372. See *supra* Part III. But compare S.B. 09-080, 1st Sess. 1 (Colo. 2009) (permanent nature) with H.B. 09-1129, 67th Gen. Assemb., 1st Sess. 2 (Colo. 2009) (temporary nature).

373. See, e.g., *supra* Part III.A (discussing the uses authorized by Senate Bill 09-080). If expanded legislation allowed rainwater harvesting by suburban homeowners without requiring replacement water, the consumptive use would be heightened as water from downspouts that ordinarily would have run off into storm drains and surface water sources is captured and used. See generally *supra* Part III. This effect would be further compounded for run off that would otherwise be channeled into storm drains via impermeable surfaces, such as driveways and parking lots, but is instead used consumptively. *Id.*

374. See *supra* notes 322-31 and accompanying text. But see Echeverria, *supra* note 350, at 582, 611-14 (“[T]he ultimate question [in *Casitas*] of whether a compensable taking occurred should be resolved based on the *Nollan/Dollan* ‘exactions’ tests, and the United States can easily meet the requirements of those tests.”).

diversion[s] [] to protect the health of the aquatic environment as a whole,” even under a water law regime like the one in California that has weaker property rights in water than Colorado.³⁷⁵

Assuming that the *per se* takings rule applies to rainwater harvesting generally and, in particular, future legislation that expands the authorized scope of rainwater harvesting, a senior appropriator claiming a taking faces another hurdle related to the scope of his water property right. For Senate Bill 09-080, the senior appropriator’s water rights are presumed not to be affected because the rainwater harvesting is limited to collection systems linked to small capacity wells in designated ground water basins and exempt wells elsewhere.³⁷⁶ For House Bill 09-1129, the senior appropriator’s water rights are not affected since replacement water must be supplied for any water lost from the development-wide rainwater collection system.³⁷⁷ Further rainwater harvesting legislation will only result in a *per se* taking of the senior appropriator’s water rights if the expanded government authorization causes material injury to those rights.³⁷⁸

In Colorado, the concept of material injury limits the ability of senior appropriators to block the activities of junior appropriators and thus defines the outer limits of the private property right in water. While even a *de minimus* impairment of a property right may be sufficient for a physical takings, a water right affected by a physical taking must be materially injured to first qualify as a property right protected by the *per se* takings rule.³⁷⁹ Ironically, for a takings claim involving water rights in Colorado and other prior appropriation

375. See Leshy, *supra* note 123, at 2008; see also Echeverria, *supra* note 350, at 597 (noting that restrictions on water use that result in the actual transfer of water interests from one private owner to a new private owner involve “just the kind of property restrictions ‘of an unusually serious character’ [citing Loretto, 458 U.S. at 426] which, according to the Supreme Court, warrants *per se* takings treatment” (quoting Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 426 (1982))).

376. See *supra* Section III.A.

377. See *supra* Section III.B.

378. See COLO. REV. STAT. § 37-92-502(2)(a) (2010).

379. The material injury standard and the existence of a protectable property right would also be a key factor in both the total and partial regulatory takings analyses if the standards themselves did not pose such difficult challenges for a senior appropriator making a takings claim against a rainwater harvester. See *supra* Part IV.C.1., IV.C.2.

states that use the material injury standard, the application of a *per se* takings standard ultimately requires an analysis of the size, scope, and economic impact of the physical invasion.³⁸⁰ However, the material injury requirement of Colorado water law is not necessarily a “Trojan horse” that allows the partial regulatory takings analysis, with its deference to government action, to replace the *per se* physical takings standard. Instead, what constitutes a material injury by a rainwater harvester as a junior appropriator to the water right of a downstream senior appropriator and how materiality is proven are separate matters of state law.³⁸¹ In determining whether a junior appropriator’s diversions should be discontinued in whole or in part due to the materiality of the injury, the Colorado Division of Water Resources must examine:

[A]ll factors which will determine in each case the amount of water such discontinuance will make available to such senior priorities at the time and place of their need. Such factors include the current and prospective volumes of water in and tributary to the stream [flow] from which the diversion is being made; distance and type of stream bed between the diversion points; the various velocities of this water, both surface and underground; the probable duration of the available flow; and the predictable return flow to the affected stream.³⁸²

380. See *supra* note 330 and accompanying text. Determining whether a senior water right has been materially injured reinforces the difficulty in keeping a *per se* physical takings analysis separated from a partial regulatory takings analysis. See Robert Meltz, *Takings Law Today: A Primer for the Perplexed*, 34 *ECOLOGY L.Q.* 307, 364 (2007) (noting the powerful incentive of takings claimants to argue a physical rather than a regulatory theory of the case to avoid the evidentiary burden of the multi-factor balancing test, contributing to the blurring between the two).

381. See *COLO. REV. STAT.* § 37-92-502(2)(a) (2010).

382. *Id.* The material injury standard applies whether the diversions are directly from the surface stream, via a well pumping tributary ground water, or a well pumping what was originally thought to be nontributary designated ground water. See generally *Gallegos v. Colo. Ground Water Comm’n*, 147 P.3d 20, 33 (Colo. 2006) (well pumping designated ground water); *SRJ I Venture v. Smith Cattle, Inc.* 820 P.2d 341, 346 (Colo. 1991) (well pumping tributary ground water); *City of Colo. Springs v. Bender*, 366 P.2d 552, 556 (Colo. 1961) (diversion from stream).

As this nonexclusive statutory list of factors indicates, the issue of material injury is highly fact specific and requires technical information developed by hydrologists, water engineers, and other experts.³⁸³ In an application for a new diversion, the burden of proof shifts between the junior appropriator applying for decreed water right and the senior appropriator opposing the application. The junior appropriator bears the initial burden of producing evidence sufficient to establish a *prima facie* case that the proposed diversion will be non-injurious.³⁸⁴ If the junior appropriator establishes a *prima facie* case, then the burden shifts to the senior appropriator who must present evidence that the proposed diversion will injure his or her water right.³⁸⁵ However, “the ultimate burden of showing absence of injurious effect by a preponderance of the evidence where contrary evidence of injury has been presented continues to rest on the applicant [i.e., the junior appropriator].”³⁸⁶ If the senior appropriator cannot meet its burden, then water is available for appropriation and the senior appropriator cannot preclude the diversion.³⁸⁷ If the junior appropriator cannot meet its burden, then the application for a decreed water right must be denied.³⁸⁸

The viability of a takings claim by a downstream senior appropriator in response to legislation that expands the scope of rainwater harvesting depends on who has the burden of proof and how that burden can be satisfied. Even in a shifting burden of proof scheme, placing the ultimate burden of proof on the state rather than the senior appropriator in the rainwater harvesting context is equitable since the takings is a physical one.³⁸⁹ In addition, shifting the burden of proof between the state as the initiator and the senior appropriator as objector is consistent with other areas of Colorado water law that place the ultimate burden of proof on the party

383. *See, e.g., State Eng’r v. Castle Meadows, Inc.*, 856 P.2d 496, 508 (Colo. 1993).

384. § 37-92-304(3).

385. *See Danielson v. Castle Meadows, Inc.*, 791 P.2d 1106, 1115 (Colo. 1990).

386. *Simpson v. Yale Invs., Inc.*, 886 P.2d, 689, 697 (Colo. 1994).

387. *See, e.g., Cache La Poudre Water Users Ass’n v. Glacier View Meadows*, 550 P.2d 288, 293-94 (Colo. 1976).

388. *See WATER CT. COMM., COLO. SUP. CT., NON-ATTORNEY’S GUIDEBOOK TO COLORADO WATER COURTS* 16, 19-20, http://www.courts.state.co.us/userfiles/File/Self_Help/Non-Attorneys_Guidebook_to_Colorado_Water_Courts_Final.pdf.

389. *See supra* note 74.

initiating a change in water rights.³⁹⁰ In these scenarios, such as a transfer of a water right where the senior appropriator is typically the applicant and the junior appropriator is typically the objector, the change potentially impairs vested water rights.³⁹¹ The primary purpose of a change proceeding is to ensure that the change to a water right is limited in quantity to the appropriator's "historic beneficial consumptive use."³⁹² "One of the basic tenets of Colorado water law is that junior appropriators are entitled to maintenance of conditions on the stream existing at the time of their respective appropriations."³⁹³ Because the water property right is limited to actual, historical use and junior appropriators are entitled to rely on the return flow from the activities of upstream appropriators, a change in a water right cannot enlarge an existing water right, especially if doing so will injure the water rights of junior appropriators.³⁹⁴ To prevent such injury, protective conditions can be attached to the change in the water right.³⁹⁵ Just as this no-injury rule in the context of changes in water rights protects the expectations of junior appropriators, the material injury rule in the context of new diversions protects the expectations of senior appropriators to the priority and amount of water represented by their water rights. Applying the same scheme of burden of proof shifting in both cases reinforces these protections. Given the rationale behind burden of proof shifting, the same scheme should apply when evaluating the nature and extent of the injury to water rights in the context of a regulatory takings analysis.

Similarly, "the right to store water [from] a natural stream for later application to a beneficial use," which is analogous to rainwater harvesting, is a right protected under the prior appropriation doctrine established by the Colorado Constitution.³⁹⁶ However, "no water

390. See COLO. REV. STAT. § 37-92-305(3) (2010); see also *City of Thornton v. Bijou Irrigation, Co.*, 926 P.2d 1, 87-8 (Colo. 1996).

391. See *City of Boulder v. Boulder & Left Hand Ditch Co.*, 557 P.2d 1182, 1184 (Colo. 1976).

392. *Trail's End Ranch LLC v. Colo. Div. of Water Res.*, 91 P.3d 1058, 1063 (Colo. 2004).

393. *City of Thornton*, 926 P.2d at 80.

394. See *City of Boulder*, 557 P.2d at 1184; see also *Santa Fe. Trail Ranches Prop. Owners Ass'n. v. Simpson*, 990 P.2d 46, 54 (Colo. 1999).

395. See § 37-92-305(4)(a).

396. § 37-87-101(1)(a). Although water storage is within the prior appropriation doctrine and the rainwater harvesting contemplated by Senate Bill 09-080 is

storage facility may be operated in such a manner as to cause material injury to the senior appropriative rights of others.”³⁹⁷ In an application for a decree allowing the artificial recharge and storage of water in an underground aquifer, the applicant bears the burden of demonstrating that such activity will not materially injure the decreed water rights of the aquifer’s senior surface or ground water users.³⁹⁸ Again, the burden of proof is placed on the initiator of the activity, which is the state in cases regarding rainwater harvesting.³⁹⁹

Whether the ultimate burden of proof is placed on the senior appropriator, as the party asserting the takings claim, or a scheme of shifting burdens of proof between the state and the senior appropriator is used, the senior appropriator must meet its evidentiary burden. Given the cost of developing technical information, the evidentiary presumptions that a court is willing to make become crucial.⁴⁰⁰

In the context of plans of augmentation, which employ the same scheme of burden of proof shifting as new diversions and changes in water rights,⁴⁰¹ the Colorado Supreme Court has stated that “injury ‘must be demonstrated by evidential facts and not potentialities.’”⁴⁰² However, with plans of augmentation, the Colorado Supreme Court has presumed that tributary ground water depletions injure senior

exempt from the prior appropriation doctrine, even a seemingly exempt activity can still injure senior water rights. *See Gallegos v. Colo. Ground Water Comm’n*, 147 P.3d 20, 32 (Colo. 2006). *See generally* §§ 37-92-602 (1)(a)-(g) (enumerating exemptions).

397. *See* § 37-87-101(1)(a).

398. *Bd. of Cnty. Comm’n’s v. Park County Sportsmen’s Ranch, LLP.*, 45 P.3d 693, 705 (Colo. 2002).

399. *See e.g., id.*

400. *See supra* note 193 and accompanying text. The information developed by the ten pilot programs authorized by House Bill 09-1129, such as precipitation capture efficiencies, return flow patterns, and native plant consumption, would provide the state with the necessary evidence, especially for an expanded rainwater harvesting scheme that avoids injuring vested water rights based on net depletions and augmentations. *See supra* Section III.B. One issue is whether information from ten widely scatter sites will be sufficient to meet the state’s burden of proof for additional sites in other locations.

401. *See* COLO. REV. STAT. § 37-92-305(3) (2010).

402. *Simpson v. Yale Invs.*, 886 P.2d 689, 696 (Colo. 1994) (quoting *Brighton Ditch Co. v. City of Englewood*, 237 P.2d 116, 119-20 (Colo. 1951)).

surface water rights when a stream system is over-appropriated.⁴⁰³ In addition, a prima facie case of material injury to senior water rights can be established by a preponderance of evidence of injury to senior appropriators generally rather than to a particular senior water rights owner.⁴⁰⁴ Thus, relative to the burden placed on the senior appropriator to show substantial damage to water rights via a multi-factor balancing test used in partial regulatory takings, the burden of proving material injury to water rights in the physical takings context is lower based on the presumptions that Colorado courts are willing to make. With this lower burden, the material injury issue should not prevent a senior appropriator from taking advantage of the *per se* physical takings standard.

D. *Just Compensation*

As the United States Supreme Court noted in *Loretto v. Teleprompter Manhattan CATV Corp.* “the issue of the amount of compensation that is due, on which we express no opinion, is a matter for the state courts to consider on remand.”⁴⁰⁵ In Colorado, the legal remedy of damages is usually the appropriate remedy and the preferred method of calculating damages, at least in eminent domain actions, is the fair and reasonable market value of the property.⁴⁰⁶ The property right holder bears the burden of “establishing the existence of damages and the amount of compensation.”⁴⁰⁷ Possible methods of calculating market value include looking at comparable sales transactions or the replacement value for the amount of water taken out of priority at the time of the taking.⁴⁰⁸ For a claim involving rainwater harvesting, this amount will be small and difficult to trace from the activities of rainwater harvesters to a given senior water rights owner. A downstream senior appropriator who asserts that rainwater harvesting constitutes a taking may not seek just compensation for a total regulatory taking and will likely fail under either a claim for a partial regulatory taking or substantial

403. *Buffalo Park Dev. Co. v. Mountain Mut. Reservoir Co.*, 195 P.3d 674, 685 (Colo. 2008).

404. *See id.* at 684-85.

405. 458 U.S. 419, 441 (1982).

406. *Leadville Water Co. v. Parkville Water Dist.*, 436 P.2d 659, 660 (Colo. 1967); *see also City of Colo. Springs v. Crumb*, 364 P.2d 1053, 1054 (Colo. 1961).

407. *Troiano v. Colo. Dept. of Hwys*, 463 P.2d 448, 451 (Colo. 1969).

408. *See Davenport & Bell*, *supra* note 177, at 60-63, 65.

damages.⁴⁰⁹ The *de minimus* nature of the quantity of water appropriated undermines a claim for liability as well as damages. In the multi-factor balancing test used in both a partial regulatory takings and a substantial damages analysis, the small quantities of water at issue minimize both the economic impact of any more expansive rainwater harvesting legislation and the extent of its interference with senior appropriator's investment-backed expectations and the substantiality of damages.⁴¹⁰ By definition, *de minimus* damages are not substantial enough to trigger the requirement of just compensation.⁴¹¹

By contrast, in a *per se* physical taking analysis, the small quantities of water at issue can lead to damages. In *Loretto*, the fact that the physical invasion arguably increased the value of New York City apartments by allowing them to be wired for cable television, did not prevent the United States Supreme Court from declaring that the requirement amounted to taking that constitutionally required just compensation.⁴¹² In *Dugan*, the United States Supreme Court explicitly declined to hold that "the absence of specificity as to the amount of water to be taken prevents the assessment of damage."⁴¹³ In *Tulare*, the fact that "the restrictions resulted in an overall reduction in water availability of approximately 0.11% and 2.92%" did not prevent a ruling in favor of the senior appropriators.⁴¹⁴ Given the presumptions that favor the senior appropriator in determining the materiality of the injury, the small quantities of water affected are only relevant to the issue of damages, at least until rainwater harvesting becomes more widespread and involves more and larger collection systems.

However, determining damages and just compensation is no small hurdle for senior appropriators challenging expanded rainwater legislation in Colorado. Unless a court could be persuaded that

409. See *supra* Part IV.C.3.

410. See *Cent. Colo. Water Conservancy Dist. v. Simpson*, 877 P.2d 335, 346-48 (Colo. 1994).

411. See, e.g., *id.* at 348; *Animas Valley Sand & Gravel, Inc. v. Bd. of County Comm'rs of La Plata*, 38 P.3d 59, 65-66 (Colo. 2001).

412. See LEE EPSTEIN & THOMAS G. WALKER, *CONSTITUTIONAL LAW FOR A CHANGING AMERICA: INSTITUTIONAL POWER AND CONSTRAINTS* 655 (6th ed. 2007).

413. 372 U.S. 609, 623 (1963).

414. Melinda Harm Benson, *The Tulare Case: Water Rights, the Endangered Species Act, and the Fifth Amendment*, 32 ENVTL. L. 551, 560 (2002).

rainwater harvesting obliterates a senior appropriator's priority and destroys the water right,⁴¹⁵ the cost of developing evidence to meet the burden of establishing the fact and amount of damages could outweigh the damages, especially for a more junior appropriator as the more senior water rights are taken into account.⁴¹⁶ Downstream senior appropriators would need to show that the stream system was over-appropriated, use discovery to determine the amount of rainwater captured by each rainwater harvester in the stream system, develop or take advantage of existing technical evidence to account factors such as runoff and evapotranspiration rates, and establish market values.⁴¹⁷ Given the problem of proving damages and the costs of litigation for all involved, incorporating market solutions with the state acting as a market maker in any expanded rainwater harvesting legislation may be a better alternative than simply allowing that legislation to be challenged by takings claims.

CONCLUSION

Recent scholarship at the intersection of water rights and regulatory takings focuses on reductions in water diversions imposed on senior agricultural appropriators required by the Endangered Species Act to maintain instream flows on rivers and streams to protect aquatic species, primarily in California.⁴¹⁸ The right to water in the American West and the control of that water are critical and contentious issues, so it is not surprising that the scholarship on the issue of whether such regulatory action amounts to a takings has produced divergent views. The outcome of various lawsuits brought by agricultural irrigators parallels the divide among legal scholars.⁴¹⁹ However, the most recent cases in key appellate courts, such as *Casitas* in the Federal Circuit and the Tenth Circuit's decision vacating multiple district court opinions relating to instream flows to protect the Rio Grande silvery minnow on mootness grounds,⁴²⁰

415. See Lock, *supra* note 240, at 100.

416. See *supra* notes 79, 303 and accompanying text.

417. See generally Part IV.C (discussing factors necessary to show total and partial takings).

418. See *supra* notes 16-18 and accompanying text.

419. See *supra* notes 344-75 and accompanying text.

420. See *Rio Grande Silvery Minnow v. Bureau of Reclamation*, 601 F.3d 1096, 1097, 1133 (10th Cir. 2010); see also *Casitas Mun. Water Dist. v. United States*,

benefit the interests of senior water rights holders. The recent passage of rainwater harvesting legislation in Colorado provides a new opportunity to explore whether water property rights are protected from a regulatory taking. The public interest at stake with rainwater harvesting is weaker than with instream flows, since the goal is not to protect the environment and endangered species.⁴²¹ Instead, rainwater harvesting legislation places the interests of residential property owners and lessees before the interests senior water rights owners, who tend to be agricultural irrigators and their transferees.⁴²² Under the prior appropriation doctrine, senior appropriators are entitled to the amount of water and priority of use represented by their water rights, so rainwater harvesting legislation circumvents senior water rights by allowing a rainwater harvester as a junior appropriator to have the prior, consumptive use of rainwater.⁴²³ By effectively transferring water property rights from one private party to another private party, such legislation potentially creates a takings. Current Colorado rainwater harvesting statutes avoid this problem of creating out-of-priority diversions by working within the confines of the prior appropriation doctrine.⁴²⁴ However, the current statutes contemplate further rainwater harvesting legislation.⁴²⁵

The two key issues that determine the outcome in a regulatory takings favor the senior water rights owner – the nature of the private property right and the nature of the government action.⁴²⁶ Private property rights in water in Colorado are clear and strong, and even the requirement of material injury is satisfied by burdens of proof and presumptions that favor the senior water rights owner.⁴²⁷ The normally difficult issue of determining the nature of the government action in connection with water rights is less difficult with rainwater harvesting given the physical diversion of rainwater and the importance placed on protecting a water right's priority in

543 F.3d 1276, 1277 (Fed. Cir. 2008) (holding that a Bureau of Reclamation directive to divert water to operate a fish ladder constituted an “uncompensated physical taking”).

421. See *supra* note 375 and accompanying text.

422. *Id.*

423. See *supra* Part II. .

424. *Id.*

425. See *supra* Part IV.A.2.

426. See *supra* Part IV.C.

427. See *supra* notes 382-404 and accompanying text.

Colorado.⁴²⁸ These two factors indicate that a *per se* physical takings standard should apply, and, under this standard, the property rights owner tends to prevail over the state.

Despite these advantages, the outcome is far from certain. The senior water rights owner still has the difficult issue of proving damages to obtain just compensation.⁴²⁹ An even larger issue is whether the *per se* physical takings standard even applies to water rights given the United States Supreme Court's decision and rationale in *Tahoe-Sierra*.⁴³⁰ If not, then the senior water rights owner must pursue its takings claim under the less favorable partial regulatory takings standard of Penn Central or the similar substantial damages standard under the Colorado Constitution.⁴³¹ In the absence of a categorical rule, rainwater harvesting in Colorado could be freed from the full effect of the prior appropriation doctrine. However, given the United States Supreme Court's decisions in *Gerlach* and *Dugan* and the physical diversion and storage of water with a rainwater collection system, the risk of losing the *per se* rule appears to be lower for takings in the context of rainwater harvesting than takings in the context of maintaining instream flows for endangered species.⁴³²

The political clout of Colorado's urban areas combined with over appropriated water systems and climate change will pressure the state legislature to broaden rainwater harvesting beyond the confines of Senate Bill 09-080 and House Bill 09-1129. The Colorado General Assembly would do well to heed property rights in water and the protections afforded water rights by the prior appropriation doctrine in crafting future rainwater harvesting legislation. Failing to include concepts such as net depletion and to require replacement water via plans of augmentation risks a backlash by senior water rights owners in the form of a valid claim for a regulatory taking based on the *per se* physical taking standard. Despite the frustrations of suburban homeowners who want to install rain barrels, rainwater harvesting legislation should not be an occasion to weaken property rights in water because doing so carries a larger cost. Uncertain priorities in appropriative water rights undermine water markets and inhibit water

428. See *supra* notes 159-64, 374 and accompanying text.

429. See *supra* Part IV.C.3.

430. See *supra* notes 357-63 and accompanying text.

431. See *supra* Part IV.C.4.

432. See *id.*

transfers in response to demands by urban water users, further locking water rights into their historical agricultural uses.