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**RAINWATER COLLECTION, WATER LAW, AND CLIMATE  
CHANGE: A FLOOD OF PROBLEMS WAITING TO HAPPEN?**

*Daniel Findlay*<sup>1</sup>

*The Earth's climate is changing rapidly, affecting the distribution of and increasing the pressures placed on natural resources in entirely new and unpredictable ways. Recognizing that water in the United States is not immune to this fate, environmentally conscious citizens are increasingly turning to rainwater collection as a means of securing a precious resource for their reasonable personal use. Government encouragement of such water conservation activity has developed in the form of financial incentives, rebates, and a push for green building. However, water laws can differ significantly from one state or region to another, which can lead to frustration of these recent eco-friendly movements in parts of the country. These factors form significant obstacles to the efforts of those interested in harvesting rainwater, which at times makes such efforts illegal. This growing tension between landowners' water rights and existing legal restrictions is made even more prescient in light of what it represents in the abstract. Climate change, population growth, and a comprehensive social focus on sustainability are advancing toward an enemy seemingly ill-equipped to deal with their combined demands: existing water law.*

**I. INTRODUCTION**

Kris Holstrom lives in the arid mountains outside Telluride, Colorado, where she grows organic produce year-round for sale to local businesses.<sup>2</sup> Dedicated to a lifestyle focused on natural resource conservation, minimization of human-produced stresses on the environment, and sustainability, Kris recently sought to do

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<sup>1</sup> J.D. Candidate, University of North Carolina School of Law, 2010.

<sup>2</sup> Daniel Fitzgerald, *Can You Own the Rain?*, DENVERPOST.COM, June 29, 2008, [http://www.denverpost.com/search/ci\\_9712027](http://www.denverpost.com/search/ci_9712027) (on file with the North Carolina Journal of Law & Technology).

something seemingly quite basic and practical: collect rainwater falling on the roof of her home and greenhouse for use in times of water scarcity.<sup>3</sup> In an age of widespread environmental consciousness, the law should encourage and protect such conservation measures. However, this environmental goal is far from being met in Colorado. Not only does Colorado law deny Kris the right to divert the water and put it to beneficial use,<sup>4</sup> it imposes 500 dollar per-day fines<sup>5</sup> on her if she attempts to collect water falling on her property.

Though extreme at first glance, Kris's predicament is even more troubling for the precedent it ostensibly establishes.<sup>6</sup> Because the Colorado River originates in Colorado and is the primary water source for much of the West, Colorado water law has influenced other states' water laws.<sup>7</sup> As climate change and

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<sup>3</sup> *Id.*

<sup>4</sup> See generally COLO. REV. STAT. § 37-82-101 (2008); *Graywater Systems and Rainwater Harvesting In Colorado*, Colorado Division of Water Resources, April 2003, <http://water.state.co.us/pubs/policies/waterharvesting.pdf> (on file with the North Carolina Journal of Law & Technology). Determinations about water rights in cases like Kris's are made by a complex water court system in Colorado, which recognizes the rights of prior-in-time water claimants as superior to all other claimants, including landowners seeking to use rainwater they collect on their land. See WATERS AND WATER RIGHTS § 11.05 (Robert E. Beck & Amy K. Kelly eds., LexisNexis 1991 ed.) (2007); see also *Western States Water Laws—Colorado*, National Science & Technology Center, Aug. 15, 2001, <http://www.blm.gov/nstc/WaterLaws/colorado.html> (on file with the North Carolina Journal of Law & Technology). Thus, though not strictly based in statute, Colorado's water court system, in essence, parallels the regulatory permitting systems employed by other western states and some eastern states. WATERS AND WATER RIGHTS § 11.05 (Robert E. Beck & Amy K. Kelly eds., LexisNexis 1991 ed.) (2007).

<sup>5</sup> Fitzgerald, *supra* note 2.

<sup>6</sup> See WATERS, *supra* note 4, § 8.02(b) (indicating Colorado water law is considered the hallmark of the "pure appropriative rights" scheme and is closely mirrored by eight western states and influential to others).

<sup>7</sup> Though this Note will maintain a United States-centric focus, it should be highlighted that issues surrounding water law and rainwater collection are being dealt with internationally as well, and, like all environmental issues dealing with an ambient, interconnected resource, require some framing of the problem in the global context. See, e.g., *infra* note 87.

environmental pressures stretch water resources to new limits,<sup>8</sup> questions abound about whether existing state water laws have the capacity to skillfully cope with these new stresses. Moreover, green building,<sup>9</sup> which frequently imposes or encourages rainwater collection,<sup>10</sup> can directly conflict with existing water law.<sup>11</sup> These conflicts juxtapose the fact that green building is frequently

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<sup>8</sup> See generally D.P. Lettenmaier, *The Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity*, U.S. CLIMATE CHANGE SCIENCE PROGRAM, 121–50, May 27, 2008, [http://www.usda.gov/oce/global\\_change/files/SAP4\\_3/Water.pdf](http://www.usda.gov/oce/global_change/files/SAP4_3/Water.pdf) (discussing how climate change and variability are increasingly creating water conditions well outside historical parameters and eroding predictability) (on file with the North Carolina Journal of Law & Technology).

<sup>9</sup> “Green buildings are facilities designed, constructed, managed and disposed of using ecological principles to promote occupant health and resource efficiency, with particular attention given to three elements: a healthy indoor environment, maximum energy efficiency, and conservative, thoughtful use of natural resources.” *New York City Enacts Broad Green Building Law for Its Projects*, HOWREY LLP, Construction Weblinks, Jan. 15, 2007, [http://www.constructionweblinks.com/Resources/Industry\\_Reports\\_Newsletters/Jan\\_15\\_2007/newy.html](http://www.constructionweblinks.com/Resources/Industry_Reports_Newsletters/Jan_15_2007/newy.html) (on file with the North Carolina Journal of Law & Technology).

<sup>10</sup> In the United States, for example, incentives and rebates are increasingly being offered for rainwater collection, providing, for example, credits to water bills, partial refunds for the installation of water collection systems, and exemptions from sales taxes for the purchases of water-related equipment. See Jodi Habush Sinykin & Donna L. McGee, *Opportunities and Challenges for State Implementation of Water Conservation under the Great Lakes Compact: A Report And Toolkit*, 2006 MICH. ST. L. REV. 1193, 1237 (2006); Lora Lucero & Dan Tarlock, *Water Supply and Urban Growth in New Mexico: Same Old, Same Old or a New Era?* 43 NAT. RESOURCES J. 803, 825 (2003); *State, County and Other Local Government Ordinances You Need To Be Aware Of*, Texas Rainwater Catchment Association (“TRCA”), <http://www.texrca.org/id5.html> (last visited Feb. 15, 2009) (on file with the North Carolina Journal of Law & Technology).

<sup>11</sup> For a cursory overview of relevant state statutes and regulations, see *Regulations and Statues* [sic], HARVESTH2O.COM, Jan. 2009, [http://www.harvesth2o.com/statues\\_regulations.shtml](http://www.harvesth2o.com/statues_regulations.shtml) (on file with the North Carolina Journal of Law & Technology). See also *Western States Water Laws*, NATIONAL SCIENCE AND TECHNOLOGY CENTER, <http://www.blm.gov/nstc/WaterLaws/abstract1.html> (last visited Jan. 20, 2009) (on file with the North Carolina Journal of Law & Technology).

government-driven,<sup>12</sup> popular,<sup>13</sup> and economically and environmentally beneficial; a discrepancy that puts environmentally conscious citizens in a serious conundrum.<sup>14</sup>

Two legal regimes generally control water rights in the United States: the prior appropriation theory found largely in western states and the riparian theory found largely in eastern states.<sup>15</sup> In addition to the general lack of uniformity and harmony presented by this dual-system arrangement, the arguably antiquated principles governing both schemes suggest that neither approach may be proper for dealing with emerging problems. Specifically, the case of rainwater collection illustrates how the legal division of water rights, also termed “appropriation,” can conflict with the seemingly natural proposition that a property owner should be able to put the water falling on his or her land to reasonable, beneficial use. Even more unsettling is the possibility that these rising conflicts in the water context may only represent the tip of the iceberg of the unprecedented environmental concerns threatened by that the rapid convergence of green living in an age of growing environmental pressures.

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<sup>12</sup> See Gary J. Tulacz, *Insurers Worry About Green-Building Risks*, ENR.COM, July 9, 2008, <http://enr.construction.com/news/finance/archives/080709a.asp> (“[M]ore state and local jurisdictions are encouraging or requiring specific levels of sustainable design and construction. There are nearly 70 jurisdictions in 28 states that call for some form of green building.”) (on file with the North Carolina Journal of Law & Technology).

<sup>13</sup> See Ashley Katz, *NEWS RELEASE: National Studies Show Green Building as Key Part of America's Economic Future*, Jan. 13, 2009, [http://www.usgbc.org/Docs/News/National%20Studies%20Show%20Green%20Building%20as%20Key%20Part%20of%20America%20\(2\).pdf](http://www.usgbc.org/Docs/News/National%20Studies%20Show%20Green%20Building%20as%20Key%20Part%20of%20America%20(2).pdf) (asserting 83 percent of real estate executives are more likely to build green in the next three years) (on file with the North Carolina Journal of Law & Technology); Les Christie, *Green Goes Mainstream: High Energy Prices Can Make an Environmentalist Out of Any Homeowner*, CNNMONEY.COM, April 17, 2006, [http://money.cnn.com/2006/04/14/real\\_estate/green\\_in\\_mainstream/index.htm](http://money.cnn.com/2006/04/14/real_estate/green_in_mainstream/index.htm) (projecting that green building will constitute up to 10 percent of all new residential construction by 2010) (on file with the North Carolina Journal of Law & Technology).

<sup>14</sup> See *Catching Rain Water is Against the Law* (KSL-NBC Broadcast Aug. 12, 2008), available at <http://www.ksl.com/?nid=148&sid=4001252>.

<sup>15</sup> WATERS AND WATER RIGHTS, *supra* note 4, § 4.05.

Part II of this Note explores the definition and benefits of rainwater collection. Next, Part III turns to the expected challenges climate change poses to water resources in order to provide context for the increasing need for rainwater collection. A basic overview of United States water law follows in Part IV, including exploration of the differing legal theories for allocating possessory or use rights in water and what each approach may mean for rainwater collection and general public welfare. Lastly, this Note addresses the future of water rights in the United States and proposes possible solutions to these issues through federal legislation or increased administrative involvement.

## II. WHAT IS RAINWATER COLLECTION AND WHY IS IT BENEFICIAL?

Harvesting rainwater is generally thought to involve capturing and using rain as close as possible to where it falls.<sup>16</sup> People have harvested rainwater for thousands of years.<sup>17</sup> The practice is most commonly accomplished by collecting rain runoff from roofs or other surfaces in barrels,<sup>18</sup> tanks, or cisterns.<sup>19</sup> Additionally, soil can be shaped and landscaped into artificial collecting or storage

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<sup>16</sup> *Harvesting Rainwater by Not Letting It Go to Waste*, National Public Radio, Jan. 10, 2008, <http://www.npr.org/templates/story/story.php?storyId=94699114> (on file with the North Carolina Journal of Law & Technology). *See also* Audio File: Ted Robbins, *Tucson Man Harvests Rainwater*, National Public Radio, Sept. 17, 2008, <http://www.npr.org/templates/story/story.php?storyId=94699114> (click “Listen Now”); Audio File: *Harvesting Rainwater by Not Letting It Go to Waste*, National Public Radio, Jan. 10, 2008, <http://www.npr.org/templates/story/story.php?storyId=94699114> (click “Listen Now”).

<sup>17</sup> *See id*; *see also* Malia Wollan, *Rainwater Collectors Work to Ease Shortages*, HERALDSUN.COM, Aug. 30, 2008, <http://heraldsun.southernheadlines.com/nationworld/14-984775.cfm?> (noting the practice of rainwater collection throughout the Roman empire and the settling of the American West) (on file with the North Carolina Journal of Law & Technology).

<sup>18</sup> Evidence of the popular demand for such products can be seen in the number of vendors who provide them. *See Vendors & Organizations*, HARVESTH2O.COM, Jan. 2009, <http://www.harvesth2o.com/vendors.shtml> (on file with the North Carolina Journal of Law & Technology).

<sup>19</sup> *See Harvesting Rainwater by Not Letting It Go to Waste*, *supra* note 16.

ponds,<sup>20</sup> and plants may be used to capture rain as it falls.<sup>21</sup> “Graywater” is another method of water harvesting. Although it does not necessarily involve rain, this method is often with rainwater collection because both methods conserve water and are often employed in conjunction with each other. Graywater harvesting involves residential wastewater, which is water from drains, showers, sinks and other parts of a house that may be diverted for reuse.<sup>22</sup> As part of its charge to promote buildings that are environmentally responsible, the U.S. Green Building Council has incorporated incentives for smart water management into its vaunted and forward-thinking Leadership in Energy and Environmental Design (LEED) certification process.<sup>23</sup>

All these means of water harvesting bestow beneficial effects on the environment and society. For example, given that fifty percent of water is used for outdoor and irrigation purposes, rerouting graywater and collected rainwater for these purposes could significantly cut down on usage.<sup>24</sup> Additionally, harvesting

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<sup>20</sup> A 1964 study found one-fourth of U.S. farms employed methods of artificial water storage similar to this. WATERS AND WATER RIGHTS, *supra* note 4, § 10.03(c).

<sup>21</sup> See *Harvesting Rainwater by Not Letting It Go to Waste*, *supra* note 16.

<sup>22</sup> See *id.*; Anne Blythe, *Reuse of Water Often Illegal*, NEWS & OBSERVER, Nov. 2, 2007, at A19, available at <http://www.newsobserver.com/weather/drought/story/757968.html> (noting that graywater accounts for 50-80 percent of household wastewater and that residents employ buckets, pipes and pumps in order to conserve this water, often thinking they are acting as stewards of the environment in doing so).

<sup>23</sup> See U.S. Green Building Council: LEED, <http://www.usgbc.org/Displaypage.aspx?categoryID=19> (“The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is a third-party certification program and the nationally accepted benchmark for the design, construction and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings’ performance.” (last visited Feb. 13, 2009) (on file with the North Carolina Journal of Law & Technology); Doug Pushard, *Going Green is Building*, HARVESTH2O.COM, Jan. 2009, <http://www.harvesth2o.com/leed.shtml> (on file with the North Carolina Journal of Law & Technology).

<sup>24</sup> *Rainwater Harvesting for Changing Water Realities*, CALIFORNIA GREEN SOLUTIONS, June 13, 2008, <http://www.californiagreensolutions.com/cgi-bin/gt/>

rainwater, especially during intense storms, can prevent pollution, flooding, and excessive storm water runoff,<sup>25</sup> helping alleviate some of the biggest pressures facing the dilapidated water infrastructure in the United States.<sup>26</sup>

The enormous payoffs of harvesting rainwater have already attracted hordes of new rainwater collectors and garnered considerable governmental advocacy.<sup>27</sup> Furthermore, harvesting rainwater is an endeavor of seemingly unlimited potential. For example, one estimate projects that the country would save more than one billion gallons of water per day if rainwater harvesting could supply just fifteen percent of the country's residential irrigation.<sup>28</sup> Moreover, a goal of fifteen percent appears well within the realm of possibility considering the sizeable quantities of water that even the most modest efforts can yield. For instance, a typical family home has one thousand square feet of roof area, which can collect approximately 600 gallons of water for every

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tpl.h,content=2177 (on file with the North Carolina Journal of Law & Technology); see also *Harvesting Rainwater by Not Letting It Go to Waste*, *supra* note 16. But see Blythe, *supra* note 22 (highlighting the pollution and water quality concerns associated with graywater, which would certainly have to be addressed if graywater use were to be employed on a large scale).

<sup>25</sup> Collecting the rainwater that falls on roofs or other surfaces (especially parking lots) helps prevent or slow that water from entering the streets and gutters (where it can pick up debris) and adding additional stress to these systems.

<sup>26</sup> See *Rainwater Harvesting*, *supra* note 24; see also *Harvesting Rainwater by Not Letting It Go to Waste*, *supra* note 16; Mark Kemp-Rye, *Out of Sight, Out of Mind: America's Aging Infrastructure Definitely Needs an Overhaul*, ONTAP, Summer 2008, vol. 8 issue 2, at 17–18 (discussing dangers posed by aging water supply infrastructure), available at [http://www.nesc.wvu.edu/pdf/dw/publications/ontap/magazine/OT\\_SU08.pdf](http://www.nesc.wvu.edu/pdf/dw/publications/ontap/magazine/OT_SU08.pdf); *Poor Infrastructure Fails America*, *Civil Engineers Report*, CNN, Jan. 28, 2009, <http://www.cnn.com/2009/US/01/28/infrastructure.report.card/index.html> (citing a report card issued by The American Society of Civil Engineers giving the nation's drinking water and wastewater systems both a D-) (on file with the North Carolina Journal of Law & Technology).

<sup>27</sup> See Wollan, *supra* note 17.

<sup>28</sup> See *Rainwater Harvesting*, *supra* note 24.



inch of rain<sup>29</sup> or enough water to irrigate a standard lawn for months.<sup>30</sup>

### III. WATER IN THE AGE OF CLIMATE CHANGE

The importance of rainwater collection, in light of its exciting benefits, stands out even more when viewed in the current context of climatic uncertainty. On a global scale, the concerns about water are very real, even provoking violence and heated protests in South America, Africa, and the Philippines.<sup>31</sup> Experts predict that future water shortages due to the effects of global warming will affect 1.1 to 3.2 billion people,<sup>32</sup> with the United States fully implicated in the crisis.<sup>33</sup> Expanding human populations and progressing economies inevitably lead to competition for water resources. However, owing to the predictable nature of such competition, problems associated with these changes can be and are mitigated to some extent by proper planning and advance preparation.<sup>34</sup> The expected competition for water created by climatic change is a different matter altogether, though, precisely because of its unpredictability. Since many—if not most—human population clusters are centered near ready sources of water,<sup>35</sup> the potentially radical shifts in precipitation patterns<sup>36</sup> prompted by

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<sup>29</sup> See *id.*

<sup>30</sup> See Wollan, *supra* note 17.

<sup>31</sup> See James Salzman, *Thirst: A Short History of Drinking Water*, 18 YALE J.L. & HUMAN. (Special Issue) 94, 96 (2006).

<sup>32</sup> Lisa Shipek, *Coping With Water Scarcity*, THE CHRISTIAN SCIENCE MONITOR, Apr. 5, 2007, <http://www.csmonitor.com/2007/0405/p09s02-coop.html?page=1> (on file with the North Carolina Journal of Law & Technology).

<sup>33</sup> See *id.*

<sup>34</sup> See WATERS AND WATER RIGHTS, *supra* note 4, § 11.01.

<sup>35</sup> See Victor B. Flatt, *Let Us Drink Our Fill: The History of Water and Its Impact on Resource and Environmental Management*, 18 YALE J.L. & HUMAN. (Special Issue) 122, 126, n.24 (2006).

<sup>36</sup> See Shipek, *supra* note 32.

global warming also signals the likelihood of drastic migrations and compelled changes in consumption and behavior.<sup>37</sup>

Undeniably, various parts of the country would be affected differently by any shift in weather patterns that occur.<sup>38</sup> Not only are the amounts of precipitation expected to change, but scientists predict greater variability in precipitation and, therefore, an upswing in extreme climatic events like droughts, hurricanes, high-intensity storms, and floods.<sup>39</sup> Some citizens are already experiencing these impacts; for example, much of the West and Southeast is plagued by drought.<sup>40</sup> This reality has prompted reliance on rainwater collection as one means of coping.<sup>41</sup> However, it should be noted that, perhaps contrary to historical patterns, “water scarcity is not just a problem in arid regions” anymore; factors such as deforestation, overuse, pollution, and

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<sup>37</sup> See *Latest IPCC Report Highlights Need For Integrated Climate/Human Behavior Models*, SCIENCEDAILY, Apr. 6, 2007, <http://www.sciencedaily.com/releases/2007/04/070406111556.htm> (“Small-scale measures could include increased use of air conditioning, architectural changes for more efficient heating and cooling, better forecasting and warning systems for extreme events, and increased water usage. Larger-scale issues could vary from switching to renewable energy sources to attempts at ‘geoengineering.’”) (on file with the North Carolina Journal of Law & Technology).

<sup>38</sup> Evaporation patterns mean that changes in one region can have drastic effects on the water resources in another, even those regions located thousands of miles away. See generally INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Climate Change and Water*, CHAPTER 3: LINKING CLIMATE CHANGE AND WATER RESOURCES: IMPACTS AND RESPONSES, <http://www.ipcc.ch/pdf/technical-papers/ccw/chapter3.pdf> (last visited Mar. 6, 2009) (on file with the North Carolina Journal of Law & Technology).

<sup>39</sup> See Wollan, *supra* note 17 (“Scientists warn that climate change will result in more severe droughts and erratic storms worldwide.”); Shipek, *supra* note 32.

<sup>40</sup> See Wollan, *supra* note 17 (highlighting droughts in the West and Southeast, and an extremely dry year in California); Jeff Gunderson, *Stormwater Management in Arid and Drought-Prone Regions*, STORMWATER, January-February 2009, <http://www.stormh2o.com/january-february-2009/rainwater-harvesting-reuse.aspx> (noting eight-year drought in Southwest) (last visited Feb. 12, 2009) (on file with the North Carolina Journal of Law & Technology).

<sup>41</sup> See *Harvesting Rainwater by Not Letting It Go to Waste*, *supra* note 16; see also Wollan, *supra* note 17 (relating how it takes only a few hours to fill the 25 barrels of one rainwater collector, providing enough water to irrigate a backyard throughout the summer).

intensive agriculture are putting pressure on water sources even where water would otherwise be abundant.<sup>42</sup> Moreover, as in western states, where seventy-five percent of the water supply comes from snowpack,<sup>43</sup> the source of the resource competition may not necessarily come from changes in precipitation itself but rather from variations in the rate of snow melting and the flux in the water flow that naturally results.

#### IV. GENERAL SURVEY OF EXISTING UNITED STATES WATER LAW

American water law is characterized by two distinct approaches:<sup>44</sup> the prior appropriation doctrine in the West and the riparian doctrine in the East. The prior appropriation doctrine will be explored first.<sup>45</sup>

##### A. *Prior appropriation doctrine*

Under the prior appropriation doctrine, “the core principle is ‘first in time,<sup>46</sup> first in right.’”<sup>47</sup> Thus, in this scheme, “[t]he first

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<sup>42</sup> Shipek, *supra* note 32.

<sup>43</sup> *See id.* Snowpack is an accumulation of snow in the mountains during winter that melts off as temperatures rise during the spring and summer.

<sup>44</sup> While this gloss presents only a general accounting of the water laws in the United States and their tentative application to rainwater collection, other important nuances exist which are not explored in this Note. Some states have water laws comprising a mix of the two schemes, and some treat surface water and groundwater differently while others view them equivalently. In addition, the water law in some states, especially in the West, is affected by rights belonging to various American Indian groups and other countries. *See generally* WATERS AND WATER RIGHTS, *supra* note 4, § 4.03–.04.; 62A AM. JUR 2D WATERS § 1–366 (2005); *Water law*, WIKIPEDIA, Jan. 13, 2009, [http://en.wikipedia.org/wiki/Water\\_law](http://en.wikipedia.org/wiki/Water_law) (on file with the North Carolina Journal of Law & Technology).

<sup>45</sup> For discussion of the riparian scheme generally employed in Eastern states, *see infra* notes 68–79.

<sup>46</sup> *See* COLORADO DIVISION OF WATER RESOURCES, *Graywater Systems and Rainwater Harvesting In Colorado*, Colorado Division of Water Resources, April 2003, <http://water.state.co.us/pubs/policies/waterharvesting.pdf> (“Some priorities on major stream systems in Colorado date back to the 1850’s [sic].”) (last visited Feb. 13, 2009) (on file with the North Carolina Journal of Law & Technology).

person to put water to beneficial use . . . obtains a water right superior to all later claims to that water.”<sup>48</sup> In contrast to the riparian system, western states, perhaps due to the relative scarcity of water and the need for increased protection of the resource, often apply water rights to sources (like the rain falling on Kris’ roof) outside what a straightforward connotation of “natural streams” would normally suggest.<sup>49</sup> Together, federal statutes, state constitutions, legislative policies, and case law help formulate this arguably more liberal conception<sup>50</sup> of water rights in the West, with Colorado water law often being looked to for guiding authority.<sup>51</sup> The fact that Colorado water law plays this role in the West is particularly noteworthy to the discussion in this Note given that: (1) the Colorado River originates in Colorado and supplies much of the water that serves the West, and (2) personal rainwater collection is generally prohibited<sup>52</sup> under Colorado law.<sup>53</sup>

Consequently, the problematic and controversial water rights conflicts currently developing in Colorado are emblematic of the types of problems arising throughout the West. These conflicts are sometimes termed the “Water Wars.”<sup>54</sup> This term applies to the

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<sup>47</sup> Fitzgerald, *supra* note 2.

<sup>48</sup> *Id.*; see generally the strings of court cases beginning with Wyoming v. Colorado, 259 U.S. 419 (1922) and Arizona v. California, 283 U.S. 423 (1931), the rulings of which have been re-litigated and judicially modified throughout the past century.

<sup>49</sup> See WATERS AND WATER RIGHTS, *supra* note 4, § 4.05(b).

<sup>50</sup> See e.g., *In re German Ditch & Reservoir Co.*, 139 P. 2, 9 (Colo. 1913) (disclaiming that rights to water emanating from the state constitution should be defined “in their broadest scope”).

<sup>51</sup> See WATERS AND WATER RIGHTS, *supra* note 4 and accompanying text. See generally 62A AM. JUR 2D WATERS § 1–366 (2002); *Water law*, *supra* note 44.

<sup>52</sup> It is important to note that this prohibition is conditional. “Colorado law requires anyone wanting to use rainwater catchment to send to the stream an amount of water equivalent to 100 percent of all precipitation harvested.” Fitzgerald, *supra* note 2.

<sup>53</sup> See *supra* notes 2–5 and accompanying text; see generally Fitzgerald, *supra* note 2 (indicating unlawfulness of Kris Holstrum’s rainwater collection).

<sup>54</sup> See ARGENT COMMUNICATIONS GROUP, *About Eastern Water Law and Policy Reporter*, ARGENTCO.COM, <http://www.argentco.com/htm/n20020101>.

intense competitions over water, sometimes lasting decades or even centuries,<sup>55</sup> that have arisen in the West due to the complex intersection of private water rights arrangements, interstate compacts, and preemptive federal acts.<sup>56</sup> The eventual determinations in these cases often consist of allocating water originating in one state to downstream states according to sophisticated formulas based on usage and supply (and notably *not* directly based on need, purpose, or population).<sup>57</sup>

Some of these competitions revolve around state constitutional guarantees. Colorado's constitution, for instance, speaks broadly of the right of its citizens to divert the "unappropriated waters of any natural stream."<sup>58</sup> While collecting rainwater would seem to fall outside such terms, liberal judicial conceptions of the term "natural stream" under Colorado law<sup>59</sup> (and similar interpretations in Utah<sup>60</sup> and other western states as well<sup>61</sup>) include the rain flowing in gutters and on rooftops. Furthermore, bringing these domestic sources of water under the purview of water law often works to drastically limit the rights available to the rainwater

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000087.htm (last visited Feb. 12, 2009) (on file with the North Carolina Journal of Law & Technology).

<sup>55</sup> See WATERS AND WATER RIGHTS, *supra* note 4, § 7.05(c)(2) (discussing the no less than eight Supreme Court decisions made throughout the dispute in *Arizona v. California* and an even longer dispute between Kansas and Colorado).

<sup>56</sup> See generally WATERS AND WATER RIGHTS, *supra* note 4, § 4.03–4.05.

<sup>57</sup> See *e.g.*, *supra* notes 46–53 and accompanying text. Arguably, calculating these allocations based on need and supply would better fulfill social welfare.

<sup>58</sup> State *ex rel.* Danielson v. Vickroy, 627 P.2d 752, 757 (Colo. 1981). See also COLO. CONST. art. XVI, § 5 (2008); Fitzgerald, *supra* note 2.

<sup>59</sup> See Peterson v. Reed, 369 P.2d 981, 984 (Colo. 1962) ("River flow is as much affected by intercepting and diverting water, which otherwise would flow into it, as by directly withdrawing water from its channel" and "[d]rainage and seepage waters tributary to a natural stream could be independently appropriated by intercepting such waters before they commingled with the stream' ") (citing Comstock v. Ramsay, 133 P. 1107 (Colo. 1913)).

<sup>60</sup> See *Catching Rain Water is Against the Law*, *supra* note 14.

<sup>61</sup> For example, Washington state water law defines water resources as "all water above, upon, or beneath the surface of the earth, located within the state." WASH. REV. CODE ANN. § 43.27A.020 (2004).

collector. This is the case in Colorado, in large part because the types of waters governed by the constitutional provision are restricted by the qualifier “unappropriated.”<sup>62</sup> Due to water’s status as a coveted resource in the West, it is not uncommon for water systems in the region to be overappropriated<sup>63</sup> or fully appropriated.<sup>64</sup> What this means is that harvesting rainwater becomes especially problematic for rainwater collectors, since any use of rainwater, even from their rooftops, infringes on the water rights lawfully belonging to someone “downstream.” Essentially, this means that if citizens wish to harvest rainwater and not infringe on the law of prior appropriation, they must return every drop of water they use to the waterway, so that the legal water allocations (whether actually fully used downstream or not) remain undisturbed.<sup>65</sup> This remains true regardless of the credible argument that much—if not all—of the rain that low-scale rainwater harvesters would use in certain hot and dry parts in the West would evaporate before ever reaching the waterway in question,<sup>66</sup> thus negating the questionable legal presumption that

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<sup>62</sup> See Fitzgerald, *supra* note 2.

<sup>63</sup> *Id.* (meaning “there is often not enough water [in a river or stream] to satisfy all the claims to it. When this happens, senior water-right holders can ‘call the river’ and cut off the flow to those who filed for water rights later, so-called ‘juniors.’”); COLORADO DIVISION OF WATER RESOURCES, *supra* note 46 (“[M]ost of [Colorado’s] stream systems have been over-appropriated, meaning that at some or all times of the year, a call for water by a senior appropriator is not being satisfied.”).

<sup>64</sup> See Fitzgerald, *supra* note 2 (“Overappropriated rivers are not unique to Colorado. Most of the watercourses in the West are fully or overappropriated. Yet other western states allow or even encourage rainwater harvesting.”). Additionally, for a discussion suggesting that some of the historical flow levels used to make the initial allocations of water rights in the West were misrepresentative and included higher than actual projections, thus setting up the possibility of overappropriation from the outset, see WATERS AND WATER RIGHTS, *supra* note 4, § 9.06(b)(1).

<sup>65</sup> See COLORADO DIVISION OF WATER RESOURCES, *supra* note 46 (“[I]n most river drainages, a person cannot divert rainwater and put it to a beneficial use without a plan for augmentation that replaces the depletions associated with that diversion.”); Fitzgerald, *supra* note 2.

<sup>66</sup> The argument exists that capturing water and releasing it at night, when its evaporation point is at its lowest, would *increase* the overall water flow—yet

“all diffused waters ultimately will migrate to groundwater or surface streams.”<sup>67</sup>

*B. Riparian doctrine*

In contrast, a riparian water rights system dominates the eastern states in large part. This egalitarian theory does not treat water as personal property that can be taken away from the waterway for one's exclusive purposes but rather treats it as a common resource, the rights to which only belong to owners of land abutting a body of water, who are then entitled to the water's reasonable use.<sup>68</sup> The eastern states differ to a minor extent in the exact activities permitted as reasonable uses, but their laws are generally uniform in two important conceptual respects: (1) when not enough water is available for all claimants, riparian states allot water rights in proportion to the landowner's frontage on the water source, and (2) water rights transfers independent of the adjoining land or out of

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this approach would still appear to be illegal under Colorado law. *See* comment by Colorado Joe to Michael d'Estries, *In Colorado, Rain Barrels Are Illegal. Yup*, June 25, 2008, <http://www.groovygreen.com/groove/?p=3135> (“I let [my rain barrels] fill and then release at night when the evaporation rate is near zero. Due to the condensing of storm moisture in the mountains throughout the earlier hours of the day, the eastern part of the Front Range (Rockies) normally get's [sic] rain between 430 [sic] and 9 PM when it's hot and instantly evaporates. So the way I see it, I should be charging for my services and not letting the moisture return to clouds headed towards Kansas. Besides I may even be preventing a tornado so do you think I can get an insurance rebate from Kansas or Nebraska for risk mitigation?”).

<sup>67</sup> Fitzgerald, *supra* note 2. *See also* Peterson, 369 P.2d at 983 (“The natural presumption [is] that all flowing water finds its way to a stream.” (citing *De Haas v. Benesch*, 181 P.2d 453 (Colo. 1947))).

<sup>68</sup> *See* WATERS AND WATER RIGHTS, *supra* note 4, § 7.02(d). *See generally* United States v. Gerlach Live Stock Co., 339 U.S. 725 (1950); McLafferty v. St. Aubin, 500 N.W.2d 165 (Minn. Ct. App. 1993); *In re* Central Baptist Theological Seminary, 370 N.W.2d 642 (Minn. Ct. App. 1985); 62A AM. JUR 2D WATERS § 1–366 (2002); *Water law*, WIKIPEDIA, Jan. 13, 2009, [http://en.wikipedia.org/wiki/Water\\_law](http://en.wikipedia.org/wiki/Water_law) (on file with North Carolina Journal of Law & Technology); *Riparian water rights*, WIKIPEDIA, Dec. 10, 2008, [http://en.wikipedia.org/wiki/Water\\_law#Riparian\\_Rights](http://en.wikipedia.org/wiki/Water_law#Riparian_Rights) (on file with North Carolina Journal of Law & Technology).

the watershed are prohibited.<sup>69</sup> This doctrine has often been viewed as a system evolving from and equipped for areas that have never experienced water concerns.<sup>70</sup> But even this scheme has recently felt the ravages of population growth and climatic shifts, leading to the recent development of “Water Wars” in the East.<sup>71</sup>

At first glance, the riparian system appears to present less of a threat to rainwater collectors because the scheme exists in areas which have historically received enough rainfall to fully satisfy the needs of citizens, thus obviating any need for additional or extensive tapping into water bodies. Combined with the general inability to transfer water rights independent from land, this means that eastern waterways are not “fully claimed” or completely spoken for in a water-rights sense, which alleviates the strains inherent in a system like the West’s, where no wiggle room exists. However, the increased “reasonable uses” that come with growing populations, extended droughts, and other climatic changes seemingly threaten to test this arrangement with increasing force and frequency. Heightened reliance on rainwater collection could logically serve as one means to relieve pressure and, in turn, prompt new, adaptive legal considerations.

Unlike the West, eastern states tend to distinguish water flowing in channels from other water sources, such as rainwater. This latter category is often characterized as “diffused surface water.”<sup>72</sup> The logic in making such a legal distinction has long been questioned,<sup>73</sup> especially in light of the inherent difficulty in drawing lines where nature itself is blurry.<sup>74</sup> Regardless, property owners are generally permitted to make reasonable use of any diffused surface water, notwithstanding the state’s law governing the consumptive use of groundwater or defined bodies of surface

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<sup>69</sup> See generally WATERS AND WATER RIGHTS, *supra* note 4, § 7.02(d); *Riparian water rights*, *supra* note 68.

<sup>70</sup> See WATERS AND WATER RIGHTS, *supra* note 4, § 7.01–7.03.

<sup>71</sup> See *About Eastern Water Law*, *supra* note 54.

<sup>72</sup> See WATERS AND WATER RIGHTS, *supra* note 4, § 10.03.

<sup>73</sup> See *Gormley v. Sanford*, 52 Ill. 158 (Ill. 1869).

<sup>74</sup> See WATERS AND WATER RIGHTS, *supra* note 4, § 10.03.



water.<sup>75</sup> Notably, much of this law has developed for purposes other than rainwater collection, such as protecting water quality, preventing pollution, determining responsibility for harms caused to others' property, and determining what mitigation techniques are proper.<sup>76</sup> Therefore, the question of what types of water ownership rights may exist in a landowner attempting to put diffuse surface water to *beneficial* use is left open.<sup>77</sup> Certainly, any such conception of ownership rights would necessarily have far-reaching effects on the riparian scheme as a whole. Mass rainwater collection could drastically shrink and reduce water flows, perhaps depriving a traditional riparian owner of his or her rights completely.<sup>78</sup> Furthermore, in the face of unprecedented water shortages, the types of water uses that are considered reasonable and therefore permissible, and conversely, the types of water uses that are considered substantially harmful and therefore prohibited, may change significantly from their current conceptions.<sup>79</sup>

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<sup>75</sup> See *id.*

<sup>76</sup> See *id.*; *Diffuse surface water*, WaterWiki, Apr. 3, 2008, [http://sogweb.sog.unc.edu/Water/index.php/Diffuse\\_surface\\_water](http://sogweb.sog.unc.edu/Water/index.php/Diffuse_surface_water) (on file with the North Carolina Journal of Law & Technology).

<sup>77</sup> See WATERS AND WATER RIGHTS, *supra* note 4, § 10.03, §12.02(c)(2); *Diffuse surface water*, *supra* note 76.

<sup>78</sup> See WATERS AND WATER RIGHTS, *supra* note 4, § 7.02–7.02(a) (describing how riparian rights depend on actual contact of water with land as well as ownership of land extending into the water bed). This suggests that if a particular water body were to shrink sufficiently to affect property lines, former riparian rights owners may literally be left “high and dry.” See *id.* Moreover, courts generally recognize that “any change, regardless of how insignificant, in the volume of a waterbody is an invasion of the rights of other riparians.” *Id.* § 9.02(c)(2).

<sup>79</sup> See *id.* § 7.02(d) (stating the “only real restriction on use by any one riparian then is that a use cannot inflict a ‘substantial harm’, [*sic*] or, as courts more often say today, an ‘unreasonable injury’ on any other riparian user”). Such a determination could conceivably be skewed by a legal priority given to domestic and natural uses over artificial ones. *Id.* § 7.02–7.02(b)(1).

*C. What to do?*

The tension that now exists between rainwater harvesting and existing water law will only grow and spread to new areas as climate change prevails, demand on water sources becomes more intense, and the rainwater collection movement continues to grow in scale and popularity. However, it is hard to ignore the poorly tailored relationship between the riparian and prior appropriation schemes and the current contexts in which they are applied. Certainly, aspects of the riparian scheme make tremendous sense for areas with abundant water. Its underlying egalitarian and communal principles, though, also seem appropriate in many ways for areas where water is a scarce commodity and fair, even-handed distribution is required to ensure the welfare of the public. Along the same lines, the prior appropriation doctrine makes less than complete sense when properly contextualized. While the doctrine may have initially posed no issues in the gluttonous prospecting age in which it arose, the extreme stresses placed on water resources in today's West make for a different story.<sup>80</sup> Moreover, the fact that a beneficial use is required for the owner to maintain his or her right<sup>81</sup> encourages a use-it-or-lose-it mentality in direct opposition to the type of conservation that the times now seem to require.

Thus, it becomes necessary to develop a new national legal regime better equipped for the challenges of today. This new scheme could improve over existing legal perplexities by accounting for the seemingly natural proposition that the rain falling on one's property should in some degree belong to the landowner, who should be able to use it for his or her benefit. Additionally, embracing rainwater collection in such a manner benefits public welfare directly by giving landowners a simple means to fulfill their domestic needs and simultaneously promotes positive ancillary effects, like general conservation aims and

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<sup>80</sup> See *supra* notes 54–65.

<sup>81</sup> *Fort Morgan Land & Canal Co. v. South Platte Ditch Co.*, 30 P. 1032, 1033 (Colo. 1892) (finding a diversion unaccompanied by use gives no right); see WATERS AND WATER RIGHTS, *supra* note 4, § 12.02(c)(2), 12.02(e).

environmental impact awareness. Most importantly, a modern reformation of water law would allow for consideration of new environmental and climatic pressures at the outset, ideally helping to formulate a more efficient and comprehensive scheme capable of ensuring both the basic water requirements of every citizen as well as the needs of a burgeoning economy.

Currently, as Kris' case touches upon, significant conflicts exist between existing laws and recognized environmental aims, conflicts that must be resolved before they escalate.<sup>82</sup> Moreover, not enforcing *de minimis* distinctions<sup>83</sup> or ignoring "small fish" violators<sup>84</sup> is not a lasting answer, especially if the number of rainwater collectors and the scale of their operations increase. On the other hand, brokered compromises undertaken to ensure the legality of beneficial rainwater harvesting offer hope.<sup>85</sup> Such measures include the efforts of state and local governmental bodies working with developers and proactive citizens to grant, transfer, or procure the necessary water rights—sometimes from the town, county or state itself.<sup>86</sup> Still, while offering flexibility in the

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<sup>82</sup> Admittedly, any alterations to either the riparian or prior appropriation systems at this point, no matter how minor, would work some level of injustice on current water rights holders and others. That said, both personal rainwater collection and the rainwater harvesting integrated with green building offer telling predictors of the problems posed by the inability of static, recently-turned-anachronistic water law to cope with the ever-changing state of the environment. While consideration of these issues in the abstract can easily devolve into unanswerable conundrums, the narrow focus of this Note is the application of water law in the rainwater collection context, specifically in the instances where such a practice may violate the law. Certainly, the important interests at stake for the owners of water rights should receive due recognition, but a balance must be struck between those interests and the many benefits offered by rainwater collection.

<sup>83</sup> See WATERS AND WATER RIGHTS, *supra* note 4, § 10.03(c); Alison Gray, *Rainwater Collection in Washington*, Washington State Department of Ecology, <http://www.cascadiagbc.org/resources/newsletter/july/rainwater-collection-wa> (last visited Feb. 15, 2009) (on file with the North Carolina Journal of Law & Technology).

<sup>84</sup> See *Catching Rain Water is Against the Law*, *supra* note 14.

<sup>85</sup> See *id.*

<sup>86</sup> See *San Juan County (WRIA 2) Rainwater Collection*, Department of Ecology, State of Washington, <http://www.ecy.wa.gov/programs/wr/nwro/sjc>

interim, such an approach cannot be seen as much more than a thumb-in-the-dike solution—and one that does not fundamentally address the underlying issues. The future problems facing water resources in this country call for a more comprehensive, fundamental, and enduring approach.

While understanding and respecting the need for *some* state primacy and freedom in the regulation of water, it simply does not make sense to promote and encourage the conservation of a national ambient resource in a piecemeal, disjointed fashion. To simultaneously push or require green building and other sustainability initiatives in some states and communities and at the same time punish logical, beneficial efforts chosen by citizens in other states—or sometimes even within the same communities—stands at the edge of reason. In fact, the dearth of logic in such a scheme is revealed via the unique, *interdependent* relationship between communities, states, and their citizens with regard to water resources. In other words, to achieve any sort of durable, measurable success, states and communities must have uniform approaches to water sources—suggesting the need for at least some form of more substantial federal legislation,<sup>87</sup> whether broad or nuanced, to guide and regulate water allocation rights and rainwater collection.

Recognizing the grave importance of effective, resourceful, and healthy management of water<sup>88</sup> only shows how pressing the need for such change is, since water represents one of this nation's most critical resources. Green building and accompanying water

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[\\_rwc.html](#) (“Permits will be issued on an island-by-island basis rather than on a resident-by-resident basis. For example, all residents collecting rainwater on Lopez Island will fall under one rainwater permit. The permit will be managed by San Juan County.”) (last visited Feb. 15, 2009) (on file with the North Carolina Journal of Law & Technology).

<sup>87</sup> *Arizona v. California*, 373 U.S. 546, 564–80 (1963); *see* WATERS AND WATER RIGHTS, *supra* note 4, § 9.06(b) (noting that the Constitution authorizes the federal government “to undertake major projects to develop, control, or dispose of water.”); *Id.* § 4.03–.05;.

<sup>88</sup> *See* McTaggart v. Montana Power Co., 602 P.2d 992, 996 (Mont. 1979) (“[T]he state encourages the development of facilities which store and conserve waters for beneficial use, for the maximization of the use of those waters.”).

efficiency measures are being pushed as the wave of the future.<sup>89</sup> The federal government and the states are promoting sustainability in an age where conservationism appears critical. Financial incentives in the form of bill credits, tax breaks, discounts, and rebates are increasingly being offered for activities related to rainwater collection,<sup>90</sup> thereby further encouraging water-use consciousness and green lifestyles. In light of these concerted efforts to endorse rainwater collection, it should not be open to legal attack in certain pockets of the nation due to a failure of the law to adapt to the exigency of the times. Moreover, while the different origins of the riparian and prior appropriation systems may have once cautioned against similar or identical treatment of water issues under their respective schemes,<sup>91</sup> the common enemy of climate change requires a change of tack. There are models to follow;<sup>92</sup> perhaps it is time to adopt their successes and learn from their mistakes. Whether the best course of action lies in the administrative realm, through the increased employment of administrative discretion to modify apportionment in the event of water shortages,<sup>93</sup> or in legislative apportionment,<sup>94</sup> or possibly

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<sup>89</sup> See *Regulations and Statutes* [sic], *supra* note 11.

<sup>90</sup> See *id.*

<sup>91</sup> See *WATERS AND WATER RIGHTS*, *supra* note 4, § 9.06(b)(1) (noting such “unfettered discretion” as being within the power of the Secretary of Interior).

<sup>92</sup> Internationally, rainwater collection has played an integral role in various water resource management success stories. Parts of India and Australia have made rainwater collection mandatory through zoning and building codes, and the practice is encouraged wherever feasible, especially in small villages, new construction projects, and government buildings. See John C. Peck and Burke W. Griggs, *Groundwater Law and Management: The Asia (IWMI)-Kansas Program*, 41 CREIGHTON L. REV. 315, 356 (2008); Doug Pushard, *Harvesting Rain Downunder*, HARVESTH2O.COM, Jan. 2009, [http://www.harvesth2o.com/Interview\\_Sally.shtml](http://www.harvesth2o.com/Interview_Sally.shtml) (on file with the North Carolina Journal of Law & Technology). Additionally, rural Africa stands to reap tremendous benefits from rainwater collection, including “slowing run-off flows [to] allow water to soak back into the earth and recharge the aquifers.” Gregory J. Hobbs, Jr., *The Public’s Water Resource* as reviewed by Daniel A. Vigil, 11 U. DENV. WATER L. REV. 175, 193 (2007).

<sup>93</sup> See *WATERS AND WATER RIGHTS*, *supra* note 4, § 9.06(b)(1).

even in the courts<sup>95</sup> is a question that must be thoroughly explored. It may take a reprioritizing of values and subsequent rewriting of the laws, but if ever there were a time for legal recognition of the role rainwater collection can play in mitigating current and future threats to water resources, then that time is now—before ad-hoc or post-hoc lawmaking, with all the associated problems, is the only option left.

## V. CONCLUSION

Certainly, these points are not offered to suggest that rainwater harvesting is some magical panacea demanding complete overhaul of longstanding water law. Rather, this Note simply highlights the important role it could play in providing some relief to the ever-growing environmental pressures placed on water sources in the United States. In this vein, the relaxation of water rights where such action is needed to permit rainwater collection may actually work in the long run to relieve the tensions currently mandating strict and inflexible adherence to historical constructs. To be certain, the injustices caused by any substantial restructuring of water law would certainly be very real and undesirable. However, the threats posed by climatic change without reasoned legal adaptation are equally real and, in the worst-case scenarios, seemingly even more undesirable.<sup>96</sup> By no means does this Note purport that there is any fundamental right to collect rainwater or that rainwater harvesting should provide the sole impetus for a revamping of water law. Instead, it merely attempts to show in one instance how antiquated and arguably outdated legal schemes do not apply well in contexts for which they were not originally crafted, specifically the current context of United States water resources. Thus, rather than rigidly forcing their application in an

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<sup>94</sup> See *id.* (naming the Truckee-Carson-Pyramid Lake Water Rights Settlement Act, Pub. L. No. 101-618, 104 Stat. 3289 (1990), as one of only two instances of this method used to date).

<sup>95</sup> See *id.* discussing the role courts have played in this realm historically, often with little lasting success, and implicitly suggesting systematic changes might lead to improved adjudication).

<sup>96</sup> See *supra* notes 31-43.

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unnatural and oftentimes inconsistent manner, perhaps some flexibility or revision is called for to meet the new challenges of today—and especially tomorrow.