

# Wasting Water: Why the Supreme Court should consider climate change when apportioning water-rights between states.

*Matthew Hayes\**

## INTRODUCTION

For the past 114 years, the Supreme Court of the United States has resolved water rights disputes between states through the doctrine of equitable apportionment.<sup>1</sup> Given the current climate crisis, the Supreme Court should consider a state's effect on climate change—and count it against the state contributing more to climate change—when it rules on inter-state water rights disputes. The Court should also consider this when it determines if—and how—it should equitably apportion water-rights among the states. Such an evolution in the doctrine of equitable apportionment would force states, which are responsible for causing climate change, to take on the risk of being comparatively worse off regarding water-rights when compared to states seeking to minimize climate change. And such a doctrinal development would align with the moral belief that those causing harm should be punished for that harm. As the Sixth Assessment Report of the Intergovernmental Panel on Climate Change has documented, today climate change has increased the frequency of droughts as compared with their frequency in the 1950s.<sup>2</sup>

With global temperatures set to reach an average of 1.5 degrees Celsius above average temperatures from before the industrial revolution by 2052, it is imperative that measures combating climate change be adopted.<sup>3</sup> Failing to address climate

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\* Senior Staff, Vol. 15 of the KY. J. EQUINE, AGRIC., AND NAT. RES. L.; B.A. Philosophy, 2020, George Mason University; J.D. expected 2023, University of Kentucky J. David Rosenberg College of Law.

<sup>1</sup> Lauren D. Bernadett, *Equitable Apportionment in the Supreme Court: An Overview of the Doctrine and the Factors Considered by the Supreme Court in Light of Florida v. Georgia*, 29 J. ENV'T L. & LITIG. 511, 512 (2014).

<sup>2</sup> IPCC, CLIMATE CHANGE: THE PHYSICAL SCIENCE BASIS, 4 (2021), [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_SPM\\_final.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf) (last viewed June 5, 2022) [<https://perma.cc/4PA6-WDEQ>].

<sup>3</sup> IPCC, SUMMARY FOR POLICYMAKERS, IN: GLOBAL WARMING OF 1.5°C, 4 (2018), [https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15\\_SPM\\_version\\_report\\_HR.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_HR.pdf), (last viewed June 5, 2022) [<https://perma.cc/XD2X-DHFM>].

change leaves the world at risk of crossing irreversible climate tipping points—climatic events which cannot be easily reversed.<sup>4</sup> Two particularly prominent examples of climatic tipping points are ice sheet collapse and ocean circulation changes.<sup>5</sup> The former, insofar as it is terrestrial, has caused—and will continue to cause—rising ocean levels.<sup>6</sup> But the effects of ice sheet collapse is not limited to higher ocean levels.<sup>7</sup> For instance, ice sheet collapse has already caused increased disease in animal populations.<sup>8</sup> The effect of radical changes in ocean circulation patterns is uncertain, although reduced rainfall across swaths of Africa, changes in tropical monsoon systems, and stronger hurricanes in the Southeastern United States are all possible consequences.<sup>9</sup>

The Supreme Court of the United States first articulated the doctrine of equitable apportionment in *Kansas v. Colorado*.<sup>10</sup> That doctrine determines how the Supreme Court resolves disputes between states concerning water rights in flowing bodies of water such as rivers.<sup>11</sup> The court recently decided to extend the doctrine to groundwater rights disputes.<sup>12</sup> The doctrine requires the Supreme Court to weigh all factors which create equities in favor of any state involved in the dispute.<sup>13</sup> First, a state seeking equitable apportionment must show that the state against which relief is being sought has caused the state seeking equitable apportionment harm of significant magnitude.<sup>14</sup> Second, for a state to obtain a remedy, the benefits of equitable apportionment must substantially outweigh the harm that might result from

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<sup>4</sup> For an informative description of Climate Change Tipping Points, see Chapter 5 (titled Tipping Points in the Climate Casino) William Nordhaus, *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World*, (New Haven & London ed. 2013).

<sup>5</sup> *Id.* at 56.

<sup>6</sup> *Quick Facts on Ice Sheets*, NAT'L SNOW & ICE DATA CTR., <https://nsidc.org/cryosphere/quickfacts/icesheets.html> (last viewed June 5, 2022) [<https://perma.cc/CXD3-NEFN>].

<sup>7</sup> Matt McGrath, *Climate Change: Sea Ice Loss Linked to Spread of Deadly Virus*, B.B.C. (Nov. 8, 2019), <https://www.bbc.com/news/science-environment-50333627> [<https://perma.cc/5666-W8UQ>].

<sup>8</sup> *Id.*

<sup>9</sup> Heather Murphy, *A Crucial System of Ocean Currents is Faltering, Research Suggests*, N.Y. TIMES, (Aug. 5, 2021), <https://www.nytimes.com/2021/08/05/us/gulf-stream-collapse.html> [<https://perma.cc/Y6ZA-GYSD>].

<sup>10</sup> Bernadett, *supra* note 1; *Kansas v. Colorado*, 206 U.S. 46, 118 (1907).

<sup>11</sup> *Florida v. Georgia*, 138 S. Ct. 2502, 2509 (2018).

<sup>12</sup> *Mississippi v. Tennessee*, 142 S. Ct. 31, 31 (2021).

<sup>13</sup> *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945).

<sup>14</sup> *Florida v. Georgia*, 141 S. Ct. 1175, 1180 (2021).

apportionment.<sup>15</sup> But if a state does not show that its substantial interests are being injured, the Court will not grant relief.<sup>16</sup> If a state wastes water, that state's water rights will not be protected by the Supreme Court unless the other state involved in the dispute is also wasting water.<sup>17</sup>

This Note shall argue that a state's effect on climate change should affect how the Supreme Court allocates water rights among states. Part I argues that a firm basis in precedent exists for considering a state's effect on climate change when equitably apportioning water among states. Part II explores possible doctrinal evolutions that could incorporate climate change considerations into equitable apportionment jurisprudence, before concluding that the factorial approach is most supported by precedent. Part III explores the effects that those potential doctrinal developments could have on mitigation and adaptation climate change goals, ultimately concluding that the complete bar approach is the best doctrinal approach as matter of policy. Part IV examines how a state's impact on climate change could be measured by the Court, concluding that a state's efforts to mitigate climate change, as opposed to their actual effects on climate change should be considered by the court when equitably apportioning water. Finally, Part V argues that the burden-shifting approach should be adopted by the Supreme Court going forward when it settles interstate water rights disputes between states.

#### I. PRECEDENTIAL BASIS FOR CONSIDERING CLIMATE CHANGE WHEN EQUITABLY APPORTIONING WATER RIGHTS BETWEEN STATES

Considering a state's effect on climate change when equitably apportioning water rights has precedential support in the Supreme Court's past decisions. In *Colorado I*, the Court held that when a state can either reasonably conserve its own water but is not so conserving, or when the state is blatantly wasting water, the state will not have its otherwise-valid water rights protected.<sup>18</sup> In *Colorado II*, the Court established that the rule from *Colorado I*

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<sup>15</sup> *Id.*

<sup>16</sup> *Kansas v. Colorado*, 206 U.S. at 118.

<sup>17</sup> *Colorado v. New Mexico*, 459 U.S. 176, 184 (1982); *Colorado v. New Mexico*, 467 U.S. 310, 320–21 (1984).

<sup>18</sup> *Nebraska v. Wyoming*, 325 U.S. at 589.

does not apply when the other state involved in a water rights dispute has not taken reasonable steps to minimize the required diversion of water.<sup>19</sup>

Those cases originated because of an allocation dispute regarding the Vermejo River.<sup>20</sup> Despite the Vermejo originating in Colorado, New Mexico had fully appropriated the river's waters.<sup>21</sup> Colorado brought an action seeking an equitable apportionment of the river's water by way of the Supreme Court's original jurisdiction.<sup>22</sup> The Court ultimately rejected Colorado's request for equitable apportionment because the state failed to carry its burden of showing that New Mexico could—but did not—make water-preserving administrative improvements for water it took from the Vermejo River.<sup>23</sup> Although Colorado demonstrated certain actions that New Mexico could take such as “improve its administration of stock ponds, fishponds, and water detention structures,” Colorado's vague propositions failed to identify any concrete steps New Mexico could take to reduce the amount of water it used.<sup>24</sup> Additionally, the Court noted that Colorado had not engaged in efforts to minimize the amount of water originating in the Vermejo River which would need to be diverted from New Mexico.<sup>25</sup>

In concluding that consideration should be given to a state's inefficient use of water when equitably apportioning water rights, *Colorado I* relied on the Supreme Court's previous decision in *Wyoming v. Colorado*.<sup>26</sup> In *Wyoming v. Colorado*, Wyoming sued Colorado and two Colorado corporations to enjoin a proposed diversion from the Laramie River.<sup>27</sup> As the Court noted, the total acre-footage of water flowing through the Laramie River varied year to year.<sup>28</sup> Colorado implicitly argued that the court should use the average yearly flow as the relevant amount of available water per year from the Laramie River.<sup>29</sup> The court declined to take this approach, instead establishing that survey data should be grouped

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<sup>19</sup> *Colorado v. New Mexico*, 467 U.S. at 320.

<sup>20</sup> *Colorado v. New Mexico*, 459 U.S. at 177.

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

<sup>23</sup> *Colorado v. New Mexico*, 467 U.S. at 318, 319.

<sup>24</sup> *Id.* at 319.

<sup>25</sup> *Id.* at 320.

<sup>26</sup> *Colorado v. New Mexico*, 459 U.S. at 185.

<sup>27</sup> *Wyoming v. Colorado*, 259 U.S. 419, 455 (1922).

<sup>28</sup> *Id.* at 485, 486.

<sup>29</sup> *Id.* at 476.

in segments containing no less than three years because—assuming that water could be stored in one year for use in the next year—a low-flow year is not necessarily preceded by a year with a high flow of water.<sup>30</sup> In rejecting the use of average water flows, the Court reasoned that some years may have such a high water supply that, “the flow [is] so extraordinary that... much of it... could [not] be used.”<sup>31</sup> Additionally, the court noted that relying on average water flows in deciding if, and how, to equitably apportion water would lead the Court to use “water which is not part of the available supply ... in measuring that supply [of water].”<sup>32</sup> The Court also held—according to *Colorado I*—that states have an “affirmative duty to take reasonable steps to conserve and augment the water supply.”<sup>33</sup> In *Wyoming v. Colorado*, the Court explained that Wyoming was required to, within financially and physically feasible limits, store water in reservoirs, so that it could conserve the water flow from higher than average years to use in years with less water flow.<sup>34</sup>

What constitutes the waste of water was also briefly addressed in *Washington v. Oregon*, in which the Court declined to find that Oregon—which was accused of wasting water—actually did waste water.<sup>35</sup> There, Oregon had used water to irrigate land which was arid during the latter half of the year.<sup>36</sup> The Special Master appointed to the case found that a substantial part of the water used by Oregon for irrigation later returned to the river whose water was in dispute by way of groundwater sources.<sup>37</sup> Since a substantial portion of the water returned to the river, it eventually reached Washington.<sup>38</sup> The Supreme Court declined to disturb the Special Master’s findings about these facts.<sup>39</sup> Ultimately by relying upon the findings of the Special Master, the court affirmed that Oregon’s use of the water was “not

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<sup>30</sup> *Wyoming v. Colorado*, 259 U.S. at 483.

<sup>31</sup> *Id.* at 476 (discussing within the context of Colorado’s reliance on the flow of the Poudre River, which had several extraordinarily high yearly flows; these extraordinarily high yearly flows included the flow in 1884).

<sup>32</sup> *Id.*

<sup>33</sup> *Colorado v. New Mexico*, 459 U.S. at 185.

<sup>34</sup> *Wyoming v. Colorado*, 259 U.S. at 484, 485.

<sup>35</sup> *Washington v. Oregon*, 297 U.S. 517, 523–24 (1936).

<sup>36</sup> *Id.* at 520, 523–24.

<sup>37</sup> *Id.* at 524.

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*

unduly wasteful [and]...under the circumstances...[was] reasonable, beneficial, and necessary.”<sup>40</sup>

To summarize, a state wastes water when they use water in excess of the necessary amount to achieve some beneficial goal. Two examples of beneficial goals are farming and mining. To demonstrate the existence of waste, the state alleging waste must show some concrete step the other state could have taken to reduce the amount of water used to achieve a beneficial use. If a state uses water for a non-beneficial use, the state wastes water. Finally, a state wastes water if, it is financially and physically feasible to conserve water, yet the state fails to do so. But failing to conserve water when it is not physically or financially feasible to do so is not equated with wasting water.<sup>41</sup>

Similarly, considering how a state actively wastes—or refuses to minimize the necessary use of—water, considering how a state impacts climatic forces that eventually lead to water scarcity ensures that scarce water resources are equitably apportioned between states. Just as Wyoming’s failure to store excess water flow from one year reduced the amount of available water in following years, states that fail to address climate change today reduce the amount of water available in future years.

But *Colorado II* established that, “[n]o state can use its lax administration to establish its claim to water.”<sup>42</sup> *Colorado II* involved the same dispute as *Colorado I*. Although that statement from *Colorado II* was meant to deflect criticisms made by Justice Stevens’s dissent discussing how it was undisputed that New Mexico could have reduced its needed water use through the adoption of a closed stock and domestic water system, it could equally apply if Colorado had been less stringent in its administration of water use.<sup>43</sup>

Furthermore, an earlier case indicated that physical and climatic conditions were two of several factors to be considered by the Supreme Court when it decided whether to equitably apportion water.<sup>44</sup> That case—*Nebraska v. Wyoming*—indicated

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<sup>40</sup> *Id.*

<sup>41</sup> *Wyoming v. Colorado*, 259 U.S. 419, 476 (1922).

<sup>42</sup> *Colorado v. New Mexico*, 467 U.S. at 321.

<sup>43</sup> *Id.* at 310, 321.

<sup>44</sup> *Nebraska v. Wyoming*, 325 U.S. 589, 618 (1945).

“physical and climatic considerations, the consumptive use of water, the character and rate of return flows, the extent of established uses, the availability of water storage, the practical effect of wasteful uses on downstream areas, and the damage to upstream areas as compared to the benefits to downstream areas if a limitation is imposed on the former,”

were all relevant factors in determining whether to equitably apportion water and how to do so.<sup>45</sup>

In *Nebraska v. Wyoming*, Nebraska brought suit against Wyoming seeking equitable apportionment of the North Platte River Basin.<sup>46</sup> Colorado was later impleaded by Wyoming, and the United States intervened.<sup>47</sup> The underlying dispute questioned whether Wyoming and Colorado were depriving Nebraska of its equitable share of water by diverting water from the river for irrigation.<sup>48</sup> That case was precipitated by a thirteen year drought.<sup>49</sup> All three states had arid land conditions.<sup>50</sup> The Court held that Wyoming and Colorado were depriving Nebraska of its equitable share of water.<sup>51</sup> Therefore, the Court equitably apportioned water rights between the three states.<sup>52</sup>

The case of *Nebraska v. Wyoming* also supports the Supreme Court’s consideration of a state’s effect on climate change when determining how to equitably apportion water rights. While consideration of the practical effects of wasteful use of water are not the same as a state’s effect on climatic conditions, they are similar in that both involve interstate disputes requiring the Court to intervene. Like how the Court must consider the secondary effects that the use of water by one state has on another when the Court considers the practical effects of a state or its citizens wastefully using water, consideration of a state’s climate change impact requires the Court to inquire into how a state’s regulatory action affects the climate as a whole.

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<sup>45</sup> *Id.*

<sup>46</sup> *Id.* at 589, 591.

<sup>47</sup> *Id.* at 591, 658.

<sup>48</sup> *Id.*

<sup>49</sup> *Id.* at 597.

<sup>50</sup> *Nebraska v. Wyoming*, 325 U.S. 589, 594 (1945).

<sup>51</sup> *Id.* at 607.

<sup>52</sup> *Id.* at 655.

## II. POTENTIAL DOCTRINAL EVOLUTIONS, NON-SCIENTIFIC CONSIDERATIONS SUPPORTING THOSE EVOLUTIONS, & PRECEDENTIAL SUPPORT FOR ADOPTION

The Supreme Court could make several different doctrinal evolutions when incorporating climate change considerations into its equitable apportionment jurisprudence. First, the Court could adopt a burden shifting approach where the state seeking apportionment would show that the state opposing apportionment had not taken reasonable measures to combat climate change.<sup>53</sup> If such a showing was successfully made, then the state opposing equitable apportionment would not be allowed to oppose it on the grounds that the opposing state would be harmed by the apportionment if that state would not have been harmed but for climate change.<sup>54</sup> If such a showing was made, then the state opposing equitable apportionment could show that the state seeking equitable apportionment had not made even minimal efforts to combat climate change. If the opposing state could make this showing, then that would effectively defeat the first state's request for equitable apportionment. Assuming both states are making reasonable efforts at combating climate change, or the plaintiff state is making minimal efforts to combat climate change, then the Court would proceed to consider the previously enumerated factors in deciding whether to equitably apportion water. This approach will be referred to as the burden-shifting approach.

Second, the Court could adopt a standard where—in order to seek equitable apportionment—a state must make reasonable efforts to reduce greenhouse gas emissions. If a state failed to make those reasonable efforts, that failure would cause a state to forfeit its right to seek equitable apportionment. This approach will be referred to as the complete bar approach.

Third, the Court could just incorporate the effect that states have on climate change as another factor to consider when determining the equitable apportionment of water rights. This approach will be referred to as the factorial approach. Of the three approaches, the factorial approach is best supported by Supreme

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<sup>53</sup> *Colorado v. New Mexico*, 459 U.S. at 185.

<sup>54</sup> *Id.* at 185; *Nebraska v. Wyoming*, 325 U.S. at 618.

Court precedent, while being unhindered by practical problems assuming that the Court considers the factor in good faith.

The first approach—burden-shifting—is strongly supported by *Colorado I* and *Colorado II*. Those two cases established a burden-shifting test for reasonable conservation of water similar to the first possible doctrinal evolution that this Note proposes could be adopted by the Supreme Court.<sup>55</sup> In fact, *Colorado II* established that a state opposing equitable apportionment must fail to take reasonable efforts to conserve water.<sup>56</sup> This rule can be equally applied to a state seeking equitable apportionment. Therefore, the minimal efforts standard is even more deferential to a state's equality of right.<sup>57</sup> A state's equality of right is—in the equitable apportionment context—its right to presumptively not be subject to an equitable apportionment decree.<sup>58</sup> This approach would prevent states that fail to take reasonable efforts to combat climate change from invoking defensively that they will be harmed by the Supreme Court equitably reapportioning water to the extent that, absent climate change, no harm would be inflicted upon the defending state by losing access to the water in question. However, if the state seeking equitable apportionment was not attempting to combat climate change even minimally, the state would be able to claim they would be harmed by the equitable apportionment even if the defending state had not taken reasonable efforts to reduce its negative impact on climate change.<sup>59</sup>

For example, assume that Nevada sought equitable apportionment of waters it shared with California. Further assume that California opposed the equitable apportionment on the ground that the benefits of equitable apportionment to Nevada would not substantially outweigh the harms that equitable apportionment would cause for California. Assume that Nevada was able to show that California had failed to take reasonable efforts to combat climate change. In that case, when assessing the harm to California, the Court would assume California retained the water that it would have had if the state had taken reasonable efforts to combat climate change. But if California were able to

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<sup>55</sup> *Colorado v. New Mexico*, 467 U.S. at 320.

<sup>56</sup> *Id.*

<sup>57</sup> *Id.* at 320; *Wyoming v. Colorado*, 259 U.S. at 465.

<sup>58</sup> *Wyoming v. Colorado*, 259 U.S. at 465.

<sup>59</sup> *Colorado v. New Mexico*, 467 U.S. at 321.

show that Nevada had taken no efforts to reduce its negative effect on climate change, then this presumption would be rebutted.

Using a burden-shifting approach for the effects states have on climate change in interstate water rights disputes would be substantially similar, and have the same justifications, as the burden-shifting approach. Both tests would be justified by the policy rationale that states should not be able to act in a manner which reduces their water supply only to prevent other states from using that water.<sup>60</sup> But, as it is a burden-shifting test, the approach is complex. Its reliance on a rebuttal standard of minimal efforts to combat climate change means that a state opposing equitable apportionment will not be denied its water rights even though the state might not be doing as much as it needs to do to prevent even the harshest effects of climate change.

The second approach—the complete bar approach—is at first glance, the cleanest approach in terms of its application when it has not been satisfied. But for the approach to be cleanly applied, the Court must first determine what constitutes an adequate approach to combatting climate change. The Court could accomplish this in several ways. The Court could determine an amount of CO<sub>2</sub> emissions per capita that a state could not produce more than if the state wished to adequately combat climate change. This determination would be in some sense arbitrary, but it would be possible. For example, since emissions projections exist detailing the maximum amount of emissions the world can emit before certain threshold temperature increases are inevitable, the Court could use the emissions projections to determine the amount any one state could emit in a given year before that state is barred from seeking equitable apportionment the following year. However, the inability to accurately measure emissions from any given location means this method is likely flawed.<sup>61</sup> The Court could also rely on the policies a state has adopted to determine if a state has adequately combatted climate change. However, adopting this approach runs the risk of causing the Court to be accused of legislating from the bench, particularly if the Court

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<sup>60</sup> Colorado v. New Mexico, 459 U.S. at 184.

<sup>61</sup> Fred Pearce, *Paris Conundrum: How to Know How Much Carbon is being admitted*, YALE SCHOOL OF THE ENV'T (Sept. 10, 2018), <https://e360.yale.edu/features/paris-conundrum-how-to-know-how-much-carbon-is-being-emitted> [https://perma.cc/4JDD-HHM3].

favors certain state policies over others.<sup>62</sup> Furthermore, the Court could also base their determination on a state-by-state basis, taking into account the unique position of each, while looking at the various characteristics of a state such as pre-existing industries to determine if a state's efforts to combat climate change are adequate. Unfortunately, such an approach may signal favoritism, which undermines the important role the Supreme Court plays in resolving disputes between state—being a neutral arbiter.<sup>63</sup>

Regardless of the determinative facts that establish if a state has failed to adequately mitigate climate change, if the complete bar approach was utilized, the test's application would be relatively straightforward. Imagine State A, who has unreasonably failed to take action to combat climate change. State B, who is in a water rights dispute with State A, is sued by State A. State A alleges that State B's water use has significantly harmed State A. The case would be dismissed because of State A's failure to combat climate change.

Nonetheless, unlike the other proposed approaches, this approach lacks precedential support. *Wyoming v. Colorado* and *Colorado I* provide an analogous proposition—that an affirmative duty is imposed upon states, “to conserve and augment the water supply of an interstate stream.”<sup>64</sup> In *Wyoming v. Colorado*, Colorado had authorized two corporations to divert water from a river that eventually entered Wyoming to a corporate project.<sup>65</sup> Wyoming sued Colorado and the two corporations in the Supreme Court, seeking to enjoin the diversion of water.<sup>66</sup> The Court permitted Colorado to divert the difference between the dependable supply of water available from the natural flow of the river and the more senior appropriated (rights that vested earlier in time) water rights in Wyoming to that project.<sup>67</sup> In reaching this conclusion, the court rejected the position that a state should only permit its citizens to divert water if such a diversion would not interfere with the more senior appropriated water rights in another state in a

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<sup>62</sup> See Bruce G. Peabody, *Legislating from the Bench: A Definition and a Defense*, 11 LEWIS & CLARK L. REV., 185, 197 (2007).

<sup>63</sup> Erwin Chemerinsky, *Federal Jurisdiction*, 738 (Rachel E. Barkow et al. eds., 8<sup>th</sup> ed. 2021).

<sup>64</sup> *Colorado v. New Mexico*, 459 U.S. at 185; *Wyoming v. Colorado*, 259 U.S. at 564.

<sup>65</sup> *Wyoming v. Colorado*, 259 U.S. at 554.

<sup>66</sup> *Id.* at 455.

<sup>67</sup> *Id.* at 470–71.

year that has the lowest observed natural flow of water.<sup>68</sup> Instead, the Court required each state to enact measures to conserve and equalize the natural flow of water that were both financially and physically reasonable.<sup>69</sup> From this affirmative duty, a natural inference is that a state which fails to take steps to conserve water – possibly because climate change causes water scarcity – or any state that fails to take action against climate change, cannot seek equitable apportionment. However, if a state subsequently took action to mitigate climate change, this bar would be lifted.

The third possible approach—the factorial approach—finds strong precedential support in the list of relevant factors first proffered in *Nebraska v. Wyoming*. The factors listed in *Nebraska v. Wyoming* were later reaffirmed as a non-exhaustive list of relevant factors by the Supreme Court in *Florida v. Georgia*.<sup>70</sup> As noted in Part I, “the practical effect of wasteful uses on downstream areas” factor is sufficiently similar to considering the effects that a state has on the climate to justify the consideration of its efforts to combat climate change.<sup>71</sup> Given the expressed non-exhaustive list of factors the court may consider when determining how to equitably apportion water rights between states, once there is a showing that a state is suffering a real or substantial injury, the Court could simply hold that a state’s effect on climate change is a previously unarticulated factor considered in equitable apportionment cases. Since the list is expressly non-exhaustive, the ideal circumstance to claim that climate change considerations are considered when making equitable apportionment determinations, is the list.

An example of how this approach would work is as follows: State A refuses to adopt policies that will mitigate climate change. State B does adopt such policies. If State A and State B were to get into a dispute over water rights, holding all else equal, State B would be more likely to get an equitable apportionment if it asked for one than State A would. Any apportionment between the two states would be more favorable to State B than it otherwise would have been.

Nonetheless, two major downsides to this approach include: (1) making a state’s impact on climate change one factor to be

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<sup>68</sup> *Id.* at 484.

<sup>69</sup> *Id.*

<sup>70</sup> *Florida v. Georgia*, 138 S. Ct. at 2515.

<sup>71</sup> *Id.*

considered out of many may render it easy to ignore if the Court so desires and, more broadly, (2) Supreme Court decisions, despite claiming to adhere to the multi-factorial approach, fail to explicitly apply the factors.<sup>72</sup> Inserting the consideration as a new factor would not present the administrative difficulties that the other two approaches currently present.

### III. MITIGATION AND ADAPTATION EFFECTS OF DOCTRINAL EVOLUTIONS OF EQUITABLE APPORTIONMENT DESIGNED TO COMBAT CLIMATE CHANGE

Of the three proposed doctrinal evolutions, each would have a different impact on a state's efforts to both mitigate against and adapt to climate change. The most effective approach, however, is the complete bar approach. Each approach should be judged against a baseline set of effects that would come with no doctrinal evolution incorporating the causes of climate change into the doctrine of equitable apportionment. Before determining what doctrinal development is most desirable on the basis that it would incentivize states to pass legislation combatting climate change, it is prudent to give an overview of the two main goals of climate change measures: (1) adaptation and (2) mitigation.

Climate change adaptation strategies are those that seek to ensure that humans can survive on a warmer earth.<sup>73</sup> In effect, adaptation strategies to deal with climate change seek to make adjustments that avert or reduce the damaging effects that climate change has on humans and other living species.<sup>74</sup> For example, repealing the National Flood Insurance Program would be an adaptation policy because the program incentivizes individuals to rebuild homes in flood zones created by climate change.<sup>75</sup> Similarly, painting roofs in cities the color white is another

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<sup>72</sup> William Nordhaus, *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World*, 149 (New Haven & London ed. 2013).

<sup>73</sup> Brendan Rivers, *Your Flood Insurance Premium Will Probably Rise. Climate Change and Coastal Development are to Blame*, WUSF PUB. MEDIA (Sept. 8, 2021, 5:00 AM), <https://wusfnews.wusf.usf.edu/environment/2021-09-08/your-flood-insurance-premium-will-probably-rise-climate-change-and-coastal-development-are-to-blame> [https://perma.cc/T2C5-EGDD].

<sup>74</sup> *Id.* at 150.

<sup>75</sup> Rivers, *supra* note 73.

adaptation strategy to deal with climate change since white roofs are known to reduce temperatures inside buildings.<sup>76</sup>

Climate change mitigation strategies seek to take actions that reduce emissions and atmospheric concentrations of greenhouse gases, including CO<sub>2</sub>.<sup>77</sup> For example, a carbon tax is the preeminent mitigation policy for climate change.<sup>78</sup> A carbon tax mitigates the effects of climate change by increasing the cost of engaging carbon emitting activities.<sup>79</sup> Since increasing the cost reduces an individual's willingness to engage in those activities, carbon emissions are reduced by implementing a carbon tax.<sup>80</sup> It also incentivizes the creation of new energy-efficient technologies.<sup>81</sup> Another set of mitigation policies are those which directly subsidize clean and effectively clean energy sources such as solar and nuclear power.<sup>82</sup>

Some states will adopt policies that will mitigate climate change regardless of what approach the Supreme Court adopts.<sup>83</sup> In fact, twenty-four states and the District of Columbia have already adopted specific targets to reduce greenhouse gas emissions.<sup>84</sup> For example, California adopted the California Global Warming Solutions Act of 2006, also known as AB 32, in 2006.<sup>85</sup> AB 32 instituted a cap on greenhouse gas emissions and required California to reduce greenhouse gas emissions to 1990 levels

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<sup>76</sup> Fred Pearce, *Urban Heat: Can White Roofs Help Cool World's Warming Cities?*, YALE SCHOOL OF THE ENV'T. (Mar. 7, 2018), <https://e360.yale.edu/features/urban-heat-can-white-roofs-help-cool-the-worlds-warming-cities> [<https://perma.cc/S34U-76E4>].

<sup>77</sup> Nordhaus, *supra* note 72 at 149.

<sup>78</sup> Kyle Pomerleau & Elke Asen, *Carbon Tax and Revenue Recycling: Revenue, Economic, and Distributional Implications*, TAX FOUND. (Nov. 6, 2019), <https://taxfoundation.org/carbon-tax/> [<https://perma.cc/6V89-WQ5N>].

<sup>79</sup> *Id.*

<sup>80</sup> *Id.*

<sup>81</sup> Jonathan Marshall, *Carbon Taxes: Accelerating Innovation While Cutting Emissions*, CITIZENS CLIMATE LOBBY (Mar. 1, 2020), <https://citizensclimatelobby.org/carbon-taxes-accelerating-innovation-while-cutting-emissions/> [<https://perma.cc/N6G9-M6TQ>].

<sup>82</sup> Benjamin Storrow, *Congress Eyes \$235B in Clean Energy Subsidies. Here They Are*, E&E NEWS, (Oct. 26, 2021), <https://www.eenews.net/articles/congress-eyes-235b-in-clean-energy-subsidies-here-they-are/> [<https://perma.cc/72S6-VJJB>].

<sup>83</sup> CTR. FOR CLIMATE & ENERGY SOL., *State Climate Policy Maps*, <https://www.c2es.org/content/state-climate-policy/> (last viewed Jan. 3, 2022) [<https://perma.cc/ALG4-LCJC>].

<sup>84</sup> *Id.*

<sup>85</sup> ENV'T DEF. FUND, *California Leads Fight to Curb Climate Change*, <https://www.edf.org/climate/california-leads-fight-curb-climate-change> (last viewed Jan. 3, 2022) [<https://perma.cc/VAE8-6B38>].

within fourteen years.<sup>86</sup> The law also mandated the adoption of regulatory standards to achieve this goal.<sup>87</sup> Massachusetts adopted two cap-and-trade programs for the power sector of the economy in an effort to reduce greenhouse gas emissions.<sup>88</sup>

Presumptively, other states will implement anti-mitigation policies regardless of the version of equitable apportionment jurisprudence adopted by the Supreme Court. One reason behind this presumption is the support for fracking in some states, most notably, North Dakota.<sup>89</sup> The election of politicians that deny human-caused climate change indicate that some states may refuse to adopt climate change mitigation policies. In fact, there are 139 elected officials in the 117<sup>th</sup> Congress who refuse to acknowledge climate change.<sup>90</sup>

But the response of other states will likely depend on the circumstances of their water supply. A doctrinal development that would leave a state exposed to having inadequate water resources if that state fails to take action to mitigate climate change will make it more likely that the state implements mitigation measures in the future. However, if a doctrinal development would leave a state's exposure unchanged, then the state will be unlikely to alter its climate change mitigation policies based on equitable apportionment jurisprudence.

To illustrate the effects of each of the three proposed policies on such states, this Note will make a temporary assumption that there are four types of states. First, there are states with surplus water resources that are surrounded by other states with surplus water resources. Second, there are states which have a surplus of water resources with at least one bordering state that has a water resource deficit. Third, there are states with water resource deficits that are surrounded by other states with water resource deficits. Fourth, there are states that

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<sup>86</sup> CAL. AIR RES. BD., *AB 32 Global Warming Solutions Act of 2006* <https://ww2.arb.ca.gov/resources/fact-sheets/ab-32-global-warming-solutions-act-2006> (last viewed Jan. 3, 2022) [<https://perma.cc/5AFH-DB2T>].

<sup>87</sup> *Id.*

<sup>88</sup> CTR. FOR CLIMATE & ENERGY SOL., *supra* note 83.

<sup>89</sup> Linley Sanders, *How Americans Feel About Fracking*, YOUGov (Oct. 19, 2020). <https://today.yougov.com/topics/politics/articles-reports/2020/10/19/how-americans-feel-about-fracking> [<https://perma.cc/233T-G3PE>].

<sup>90</sup> Ari Drennan & Sally Hardin, *Climate Deniers in the 117<sup>th</sup> Congress*, CTR. FOR AM. PROGRESS (Mar. 30, 2021). <https://www.americanprogress.org/article/climate-deniers-117th-congress/> [<https://perma.cc/8MZ4-NP3G>].

have water deficits with at least one bordering state that has a water surplus.

Under any approach, states with a water surplus that are surrounded by states with a water surplus would probably not change their climate change policies because they are not likely to be part of an equitable apportionment lawsuit. Under the complete bar approach, states which are expected to need to seek equitable apportionment—that is, states with water deficits regardless of whether the surrounding have water deficits or surpluses—are more inclined to adopt climate change mitigation strategies. But states that have adequate water resources are unlikely to change their policies because the doctrinal development will not affect them. The factorial approach would likely cause all states other than those states with water surplus that are surrounded by other states with water surpluses to be more willing to implement climate change mitigation policies. However, the factorial approach would not necessarily catalyze the adoption of such policies. The burden-shifting approach would probably motivate states contiguous with at least one state with a water deficit to adopt climate change mitigation policies, but this incentive would be more pronounced in states with their own water deficits instead of in states with water surpluses.

Ultimately, the best policy approach is the complete bar approach because the effect of failing to combat climate change and therefore being completely barred from seeking equitable apportionment, is the most severe, and therefore, the most likely to spur action. As previously mentioned, this is the best course of action considering the number of elected officials who do not believe in climate change.<sup>91</sup> The best way to ensure these politicians take action to mitigate climate change is to adopt a harsher rule against permitting states that have not acted to mitigate climate change.

Although an argument can be made that a doctrinal development that has the potential to moderately affect more states is preferable to one that severely impacts a few states, this argument overlooks that, from 2000 to 2020, roughly 70 percent of the U.S. experienced abnormally dry conditions.<sup>92</sup> Therefore, the

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<sup>91</sup> *Id.*

<sup>92</sup> Env't Prot. Agency, *Climate Change Indicators: Drought* (Apr. 2021), <https://www.epa.gov/climate-indicators/climate-change-indicators-drought> [https://perma.cc/2NHY-PV78].

complete bar approach will likely have the potential to affect many states. Consequently, the burden-shifting and factorial approach's wider reach does not justify either approach being adopted, as both approaches will have a smaller effect on state's climate change policy than the complete bar approach.

#### IV. HOW THE SUPREME COURT COULD DETERMINE HOW TO MEASURE A STATE'S IMPACT ON CLIMATE CHANGE FOR THE PURPOSE OF DETERMINING WHETHER TO EQUITABLE APPORTION WATER RIGHTS

Even if the Court incorporates a state's impact on climate change into their equitable apportionment jurisprudence, measurement problems would likely remain. Two problems would need to be addressed. First, should the Supreme Court rely on the efforts of states to combat climate change? Or should the Supreme Court rely on the effects a state has on climate change? Second, how should a state's efforts and/or effects be measured? Because of inadequate measuring technology, the Court should rely on the efforts of states to mitigate climate change instead of the effects a state has on climate change.

The first issue is derivative of the deontological-consequentialist debate. The deontological-consequentialist debate is between individuals who think that actions should be judged for their consequences (the consequentialists) and individuals who think that certain actions should be taken regardless of their effects (the deontologicalists).<sup>93</sup>

The deontological approach has one important benefit in the climate change context—it would ensure that greenhouse gas emissions a state could not have reasonably prevented will not be held against the state. The recent wildfires in California are one example.<sup>94</sup> Assuming California did not fight them incompetently, it would not be held against California under an approach that emphasizes the efforts a state takes to mitigate climate change.<sup>95</sup> Therefore, the deontological approach would align with the

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<sup>93</sup> STANFORD ENCYCLOPEDIA OF PHIL., Deontological Ethics (Oct. 30, 2020), <https://plato.stanford.edu/entries/ethics-deontological/> [<https://perma.cc/GTB8-WMPQ>].

<sup>94</sup> See generally Lauren Le, *The Impact of Climate Changes on California's Wildfires*, NEW UNIV. (Jan. 10, 2022), <https://www.newuniversity.org/2022/01/10/the-impact-of-climate-change-on-californias-wildfires/> (Describing the relationship between climate change and California's wildfires) [<https://perma.cc/DPN8-8LVV>].

<sup>95</sup> *Id.*

widespread belief that to be morally culpable for an action, one must have been able to do otherwise.<sup>96</sup> However, the deontological approach does have shortcomings. By focusing on the efforts a state takes to mitigate climate change, the effect that a state has on climate change may be lost. This approach would conflict with the reason for the doctrinal development by undermining the incentive the development would impose on states to reduce greenhouse gas emissions.

In contrast, the consequentialist approach focuses solely on the amount of greenhouse gas emissions produced by a state. Therefore, the consequentialist approach would maximize the incentive to reduce greenhouse gas emissions. This approach does have negative aspects to consider. The most important shortfall of this approach dovetails into the second problem of measurement. As recently as 2018, no way to verify if national governments were meeting Paris accord goals existed.<sup>97</sup> The Paris accord is an international treaty nations may join if they agree to make efforts to keep global warming to no more than two degrees Celsius over preindustrial temperatures.<sup>98</sup> Since the pitfalls in verifying emissions data from national governments—including natural fluctuations in emissions affecting results—would be just as detrimental to accurate measurements of a state's effect on climate change, using a consequentialist approach would expose states to the risk of erroneous findings of fact.<sup>99</sup> This risk would be in tension with the Supreme Court's *previously* articulated requirement that for a state to obtain equitable apportionment, it must show by clear and convincing evidence it has suffered a serious invasion of rights.<sup>100</sup>

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<sup>96</sup> See Shaun Nichols & Joshua Knobe, *Moral Responsibility and Determinism: The Cognitive Science of Folk Institutions* pp. 12–13, <https://cpb-us-w2.wpmucdn.com/campuspress.yale.edu/dist/3/1454/files/2016/02/Nichols-Knobe-179dmot.pdf> (Finding that 86 percent of individuals think that in a deterministic universe, individuals cannot be morally responsible for their actions when asked if individuals can be morally responsible for their acts in a deterministic universe in an abstract manner) (last viewed June 5, 2022) [<https://perma.cc/68JE-HFGP>].

<sup>97</sup> Fred Pearce, *Paris Conundrum: How to Know How Much Carbon is Being Admitted*, YALE SCH. OF THE ENV'T (Sept. 10, 2018), <https://e360.yale.edu/features/paris-conundrum-how-to-know-how-much-carbon-is-being-emitted> [<https://perma.cc/HQ8E-4Y26>].

<sup>98</sup> UNITED NATIONS, *The Paris Agreement*, <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> (last viewed Jan. 10, 2022) [<https://perma.cc/MDL6-4LM4>].

<sup>99</sup> Pearce, *supra* note 97.

<sup>100</sup> *Florida v. Georgia*, 138 S. Ct. at 2514.

In fact, these pitfalls mean that the United States still estimates the emissions for many different sectors of the economy.<sup>101</sup> The use of emissions estimates is common, even in the developed world.<sup>102</sup> Given these imperfect measurements, if the court adopts a consequentialist approach, they will have to rely on potentially inaccurate estimates.

However, if the Supreme Court chooses a deontological approach, measuring the efforts a state puts into mitigating the effects of climate change could prove just as fraught. For example, if the Court were to adopt the deontological factorial approach, would one state's carbon tax and another's cap and trade system be weighed differently? And would a state investing in new green technology be considered differently from encouraging the private sector to invest in such technology?

Despite these difficult questions, until better ways of measuring emissions accurately are developed, the Court should rely on the deontological approach. It should do so out of respect for the equal dignity of states. This respect for each state's equal dignity is what underlies the clear and convincing evidence requirement.<sup>103</sup> And until more accurate methods of measuring emissions are developed, the rudimentary ones we currently use leave states at risk of being erroneously subjected to a decree which interferes with their rightful exercise of state sovereignty. Plus, the Court could switch to a consequentialist approach if reliable measuring devices became available. It has changed doctrinal approaches in this area previously for such technological-advancement reasons.<sup>104</sup> It can do so again.

#### V. THE SUPREME COURT SHOULD ADOPT THE BURDEN-SHIFTING APPROACH

Of the three approaches presented, the best is the burden-shifting approach. Therefore, the Supreme Court should adopt it.

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<sup>101</sup> David Roberts, *The Entire World's Carbon Emissions Will Finally be Trackable in Real Time*, VOX (July 16, 2020). <https://www.vox.com/energy-and-environment/2020/7/16/21324662/climate-change-air-pollution-tracking-greenhouse-gas-emissions-trace-coalition> [<https://perma.cc/W4BW-9GUP>].

<sup>102</sup> *Id.*

<sup>103</sup> *Florida v. Georgia*, 138 S. Ct. at 2514.

<sup>104</sup> Compare *Nebraska v. Wyoming*, 325 U.S. at 639 (holding that states have no affirmative duty to store excess water) with *Colorado v. New Mexico*, 459 U.S. at 185 (holding that states do have an affirmative duty to store excess water).

Although the factorial approach has the most support in the case law, there is also a significant amount of case law to support the burden-shifting approach. Unlike the complete bar approach, the burden-shifting approach is less likely to spur Congress to overrule the decision. Since equitable apportionment is a common law doctrine, this factor should be taken into consideration.<sup>105</sup>

The burden-shifting approach is more likely to deter the harmful policies enacted by states. This approach enables states to defend against a finding that the state unreasonably refused to enact policies that mitigate against climate change by showing that the plaintiff-state failed to take minimal efforts to combat climate change. Because of this policy states will be more capable of discouraging actively harmful policies, while still not inspiring as much backlash as the complete bar approach.

For example, coal emits 11 tons of CO<sub>2</sub> per \$1,000 of fuel.<sup>106</sup> But natural gas and petroleum emit only two and 0.9 tons of CO<sub>2</sub> per \$1,000 of fuel, respectively.<sup>107</sup> In short, it is a particularly emissions-heavy energy source.<sup>108</sup> But some states have adopted pro-coal policies.<sup>109</sup> One state, Wyoming, has adopted a policy of suing states with policies that harm its coal industry.<sup>110</sup> The state passed a bill allocating \$1.2 million to pursue lawsuits against pro-renewable energy regulations.<sup>111</sup> Montana has pursued similar lawsuits.<sup>112</sup> Under the burden-shifting approach, the likelihood that these types of policies would be abandoned is higher. Abandonment would increase because the probability that a Special Master, and by extension, the Supreme Court, would find that a state was only doing the bare minimum to combat climate change. This sort of behavior would not necessarily bar a state from seeking equitable apportionment under the factorial approach because the behavior would be only one consideration

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<sup>105</sup> See *Kansas v. Colorado*, 206 U.S. at 96.

<sup>106</sup> Nordhaus, *supra* note 72 at 159.

<sup>107</sup> *Id.*

<sup>108</sup> See U.S. ENERGY INFO. ADMIN., *Frequently Asked Questions* <https://www.eia.gov/tools/faqs/faq.php?id=74&t=11> (last viewed Feb. 27, 2022) [<https://perma.cc/6J3R-2FRS>].

<sup>109</sup> Judith Kohler, *Wyoming Sets Aside Money to Sue States, like Colorado, for Their Renewable Energy Policies*, THE DENVER POST (Apr. 14, 2021) <https://www.denverpost.com/2021/04/14/wyoming-targets-states-colorado-on-coal-renewable-energy/> [<https://perma.cc/UZ3Y-HHYH>].

<sup>110</sup> *Id.*

<sup>111</sup> *Id.*

<sup>112</sup> *Id.*

among many in deciding whether a state is entitled to equitable apportionment.

Nor should the administrative difficulties related to the burden-shifting approach deter the Supreme Court from adopting it. In fact, the Court has explicitly rejected arguments that technical difficulties in apportioning water should lead it to abstain from equitably apportioning water rights.<sup>113</sup> In doing so, the Court has relied on the fact that, “controversies between states over the waters of interstate streams ‘involve the interests of quasi-sovereigns.’”<sup>114</sup> The Supreme Court was a neutral forum established by the founders to resolve such interstate water rights disputes that would otherwise be resolved through war once negotiations had failed.<sup>115</sup> Although the Supreme Court has repeatedly stressed that it prefers that states resolve their disputes through mutual accommodation and agreement, the Court has also long recognized its inherent authority to equitably apportion interstate streams among states when it has become clear that states cannot resolve their disputes through such mutual accommodation and agreement.<sup>116</sup>

To the extent that difficult technical questions must be answered by the Court, it can effectively delegate the answering of these questions to a special master.<sup>117</sup> In fact, the Court has long appointed special masters in original jurisdiction cases, including equitable apportionment cases.<sup>118</sup> It has largely deferred to the determinations of those special masters, even on questions of law.<sup>119</sup> Although it may be inconsistent with the Court’s duty to adjudicate disputes between states, it could delegate difficult technical questions about how to measure a state’s effect on climate change to a special master as well.

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<sup>113</sup> See *Nebraska v. Wyoming*, 325 U.S. at 616.

<sup>114</sup> *Id.* (citing *Colorado v. Kansas*, 320 U.S. 383, 392).

<sup>115</sup> *Id.* at 607.

<sup>116</sup> *Florida v. Georgia*, 138 S. Ct. at 2509.

<sup>117</sup> See *id.* at 2510–11; See also L. Elizabeth Sarine, *The Supreme Court’s Problematic Deference to Special Masters in Interstate Water Disputes*, 39 *ECOLOGY L. Q.* 535, 562 (2012).

<sup>118</sup> L. Elizabeth Sarine, *The Supreme Court’s Problematic Deference to Special Masters in Interstate Water Disputes*, 39 *ECOLOGY L. Q.* 550 (2012).

<sup>119</sup> *Id.* at 538.

## VI. CONCLUSION

Climate change is devastating our planet, and all branches and levels of government need to take action to prevent our planet's warming from destroying it. The Supreme Court can and should alter their equitable apportionment jurisprudence to encourage states to combat climate change. At least three approaches to doing so exist. First, the Supreme Court could consider a state's efforts to mitigate climate change as a factor in determining whether to equitably apportion water rights. Second, the Supreme Court could completely bar a state that has failed to mitigate climate change from seeking equitable apportionment. Third, the Supreme Court could require a state to assert defensively that the other state has not taken reasonable measures to mitigate climate change.

While measurement and the general public's ethical considerations counsel going with a deontological approach to the Court's jurisprudence, the dire situation counsels a consequentialist approach. But since no reliable way of measuring emissions from specific locations exist, the Court is stuck with the deontological approach as adopting the consequentialist approach would contradict the dignity of states by exposing them to erroneous interference with their sovereign rights.

Of the three approaches, the first approach is best supported by precedent. The third approach also has significant precedent supporting it. But the second approach while having only minimal precedential support is likely the best approach for the Court to adopt as a matter of policy. Ultimately, the Court should require states to take reasonable efforts to mitigate climate change before that state can claim that climate change has harmed them. States should be required to take any action to reduce carbon emissions from asserting that other states have not been reasonable in doing so. The Court should adopt the burden-shifting approach.