Article

Water Flowing Down Wall Street

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Water scarcity is a perennial problem with dire consequences for the United States and governments around the world. A lack of adequate water resources is a systematic cause of environmental harm, economic damage, and societal division. Climate change has exacerbated these problems making water even more valuable and essential.

Financial actors have turned water into the new oil. These large financial actors profiteer from buying and selling water without any interest in its actual use as an input of production. Instead, they typically seek to hold these rights until dire situations, like droughts and fires, cause temporary, but large, spikes in the value of water. Speculation may not only drive water prices up, but it can also lead to greater concentrations of market power. Such concentrated control raises serious concerns about the rights of governments and consumers to essential resources

This Article argues that current water law is ill-equipped to respond to the pathologies of financialized water. This Article is

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the first to call attention to these new actors by diagnosing the problems, illustrating them with current case studies from different jurisdictions, and suggesting principled avenues for reform of water regimes to rein in speculation and concentration. The reforms proposed in this Article aim to ensure that water management is efficient, fair, and environmentally friendly. In particular, this Article argues that jurisdictions should consider the role of communities in transactions, reinforce institutional control and antitrust measures in water markets, and limit the amount of water rights any single actor can hold. The Article also draws lessons about how other scarce resources at risk of financialization can be better managed.

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INTRODUCTION

Water scarcity is a current challenge in many arid areas around the world.[1] The situation is getting worse as the effects of climate change are materializing in the form of decreased precipitation and higher temperatures.[2] Droughts are increasing in frequency and intensity.[3] The Southwestern United States is amidst a megadrought.[4] But not only the supply side of the water equation is affected; higher temperatures and higher evaporation may increase the demand for water in many regions.[5] As such, conflict between different water uses and users is expected.[6] Competition for scarce supplies between water users and between water uses and the environment is nothing new,[7] but the situation is becoming more dire. While our water supplies have often been overallocated,[8] scarcity is the new normal. California is planning for a future where its water supplies are

1. Mesfin M. Mekonnen & Arjen Y. Hoekstra, *Four Billion People Facing Severe Water Scarcity*, SCI. ADVANCES, Feb. 5, 2016, at 1; *Water Scarcity*, WORLD WILDLIFE FUND, https://www.worldwildlife.org/threats/water-scarcity [https://perma.cc/LRK6-ZH8P].

2. *Drought and Climate Change*, CTR. FOR CLIMATE & ENERGY SOLS., https://www.c2es.org/content/drought-and-climate-change [https://perma.cc/N859-MXGX].

3. *Id.* ("Regions such as the U.S. Southwest, where droughts are expected to get more frequent, intense, and longer lasting, are at particular risk.").

4. A. Park Williams et al., *Rapid Intensification of the Emerging Southwestern North American Megadrought in 2020–2021*, 12 NATURE CLIMATE CHANGE 232, 232–34 (2022).

5. Sarah Fecht, *How Climate Change Impacts Our Water*, COLUM. CLIMATE SCH. (Sept. 23, 2019), https://news.climate.columbia.edu/2019/09/23/climate-change-impacts-water [https://perma.cc/83VE-QQ3H].

6. *See* Laurie Goering, *Running Dry: Competing for Water on a Thirsty Planet*, REUTERS (June 3, 2019), https://www.reuters.com/article/us-water-global-scarcity/running-dry-competing-for-water-on-a-thirsty-planet-idUSKCN1T41AT [https://perma.cc/4ZTP-SHB3] ("Globally, the number of conflicts related to water scarcity has risen from roughly 16 in the 1990s to about 73 in the past five years, according to a chronology maintained by the Pacific Institute, which tracks freshwater security issues.").

7. *Of Farms, Folks and Fish*, ECONOMIST (Oct. 22, 2009), https://www.economist.com/briefing/2009/10/22/of-farms-folks-and-fish [https://perma.cc/S8WG-2NS9] ("Water has divided Californians since Mark Twain remarked that 'whiskey's for drinking, water's for fighting over.'").

8. Dave Owen, *Overallocation, Conflict, and Water Transfers*, ENV'T RSCH. LETTERS, Sept. 2014, at 1, 1–3 (discussing how water allocation works in California).

ten percent less than current levels.[9] This is not some distant prediction. The Golden State will have ten percent less water available by 2040.[10] In the United States, the scarcity crisis is no longer a problem only faced by Western states. Florida and Georgia, as well as Mississippi and Tennessee, have fought over water resources already.[11]

The water regimes allocating water are poorly suited for this new permanent scarcity scenario. The regime allocating water in the Western United States—prior appropriation—has had a hard time facing the challenges. Prior appropriation gives priority to the oldest water rights which tend to be agricultural.[12] The agricultural sector is often blamed for not being efficient, but prior appropriation fails at incentivizing water savings.[13] Furthermore, historically prior appropriation has failed to build in protections for the environment.[14] In the last decades, some reforms have tinkered with prior appropriation to ensure that

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9. *California's Water Supply Strategy: Adapting to a Hotter, Drier Future*, CAL. NAT. RES. AGENCY 1 (2022), https://resources.ca.gov/-/media/CNRA-Website/files/initiatives/water-resilience/CA-water-supply-strategy.pdf [https://perma.cc/6FWJ-E6Q9] (discussing California's strategy for securing the water supply in the face of diminishing water resources).

10. *Id.* at 1 n.1.

11. *Tri-state Water Wars: Alabama, Georgia, Florida,* S. ENV'T L. CTR., https://www.southernenvironment.org/topic/tri-state-water-wars-alabama-georgia-florida [https://perma.cc/V284-9LMD] (discussing Georgia, Alabama, and Florida's fight over allocation of water from the two major river basins that cross their borders); Robin Craig, *Court Unanimously Favors Tennessee in Groundwater Dispute with Mississippi*, SCOTUS BLOG (Nov. 22, 2021), https://www.scotusblog.com/2021/11/court-unanimously-favors-tennessee-in-groundwater-dispute-with-mississippi [https://perma.cc/N6ZZ-UWWZ] (outlining the U.S. Supreme Court's opinion regarding Mississippi's claim that Tennessee stole its groundwater).

12. S. Hockaday & K.J. Ormerod, *Western Water Law: Understanding the Doctrine of Prior Appropriation*, UNIV. OF NEV., RENO EXTENSION (2020), https://extension.unr.edu/publication.aspx?PubID=3750 [https://perma.cc/W4QD-CT3U].

13. *See* Editorial, *Watering California's Farms*, N.Y. TIMES (Apr. 4, 2015), https://www.nytimes.com/2015/04/05/opinion/sunday/watering-californias-farms.html [https://perma.cc/YCR3-KUP6] (discussing exemptions for agriculture in California water regulations).

14. *See* Robin Kundis Craig, *Water Law and Climate Change in the United States: A Review of the Scholarship,* WIREs WATER, May/June 2020, at 1, 5 (discussing difficulties in adapting prior appropriation to reflect new social and economic realities or support instream uses and aquatic ecosystem).

environmental uses were recognized,[15] that instream flows were somewhat protected,[16] and that domestic uses were satisfied in times of drought.[17] Where those reforms have not arrived, emergency measures have taken a central role to ensure basic needs are satisfied during crisis.[18] As a hinge between initial allocation and emergency measures, water markets have reallocated water between low and high value users.[19] Water reallocation via regulated markets is small but important, around 3% where markets are more active.[20]

Traditionally those transactions have moved water from the agricultural sector to quench the thirst of a big metropolis or

15. *See* ROBERT W. ADLER ET AL., MODERN WATER LAW 821–26 (3d ed. 2024) (discussing legal tools for watershed restoration and protection.

16. *See generally* Steven M. Smith, *Instream Flow Rights within the Prior Appropriation Doctrine: Insights from Colorado*, 59 NAT. RES. J. 181, 181 (2019) (analyzing the efficacy of state-owned instream flow rights within the prior authorization doctrine and assessing their impact on other water rights claimants); Leon F. Szeptycki et al., *Environmental Water Rights Transfers: A Review of State Laws*, WATER IN THE W. 1 (2015), https://waterinthewest.stanford.edu/sites/default/files/WITW-WaterRightsLawReview-2015-FINAL.pdf [https://perma.cc/F75Y-9Y2G] ("The ability to transfer, change, or dedicate an existing water right under the prior appropriation system to instream uses is a relatively new legal tool. Legislatures in western states first passed statutes authorizing and governing these transfers in the late 1980s.").

17. *See* CAL. WATER CODE § 1460 (West 2024) (establishing domestic uses of water as first in right); NEB. CONST. art. XV, § 6 (giving domestic use of water priority over other uses when supply is insufficient); UTAH CODE ANN. § 73-3d-301 (LexisNexis 2024) (providing an ordered list of priority uses of water when there is a temporary shortage).

18. *E.g.*, *Drought Contingency Plan and Water Conservation*, CITY OF BELLAIRE, https://www.bellairetx.gov/1009/Drought-Contingency-Plan-and-Water-Conse [https://perma.cc/EA5D-EZWD]; *California Emergency Drought Regulations*, GOLETA WATER DIST., https://www.goletawater.com/california-emergency-drought-regulations [https://perma.cc/EAV8-MVR7]; Vanessa Casado Pérez, *All Dried Out: How Responses to Drought Make Droughts Worse*, 51 TULSA L. REV. 731, 731 (2016) ("Emergency responses bailed out urban voters while no structural solutions were adopted to make water use in the agricultural sector more efficient.").

19. Richael Young, *Trading Water, Saving Water,* PROP. & ENV'T RSCH. CTR. (July 19, 2021), https://www.perc.org/2021/07/19/trading-water-saving-water [https://perma.cc/2ME6-EQPK] ("For decades, water markets have been an important tool that helps westerners reallocate their limited water to higher-value uses through voluntary, compensated agreements.").

20. Kurt Schwabe et al., *Water Markets in the Western United States: Trends and Opportunities*, WATER, Jan. 2020, at 1, 4–5 ("Arizona has an active water trading market . . . which comprises approximately 4% of its consumptive water use annually.").

between farmers growing annual crops and those with orchards.[21] Farmers may have very valuable water rights. In prior appropriation, senior water rights are more valuable because in times of shortage those with oldest water rights get their water first.[22] These farmers may have had their rights for generations and continue using the same flood irrigation technique to grow alfalfa that their families did a century ago. Given the opportunity to sell their water, they may decide to fallow their fields for a year or invest in an efficient irrigation system and trade the water they save. These farmers will certainly make a profit from water they pay little for[23] but they have been using water as a production input.

Recently a new class of actors has entered the water rights market. Wall Street has moved on to water as Michael Burry predicted at the end of *The Big Short* and as he has done

21. *See* VANESSA CASADO PÉREZ, THE ROLE OF GOVERNMENT IN WATER MARKETS 16–17 (2017) (defining a water market as any mechanism, temporary or permanent, which allows users with different marginal values to transfer the right to use water); Richael Young & Nicholas Brozović, *Agricultural Water Transfers in the Western United States*, DAUGHERTY WATER FOR FOOD GLOB. INST. 1 (Jan. 2019), https://waterforfood.nebraska.edu/-/media/projects/dwfi/resource-documents/reports-and-working-papers/agricultural-water-transfers-in-the-western-united-states.pdf [https://perma.cc/SS2V-ZM77] (discussing water transfers between agricultural producers).

22. ADLER ET AL., *supra* note 15, at 142 ("More succinctly stated, prior appropriation recognizes that the first in time to appropriate water is the first in right."); CAL. WATER CODE § 102 (West 2024).

23. *See* ADLER ET AL., *supra* note 15, at 116–17 (discussing how historically, prior appropriation was simply based on claiming the water first, with no tie to land ownership).

himself.[24] "Water is the new oil"[25] or "water is gold"[26] are adages that have been around for quite some time. In the takeover of Main Street by Wall Street, water was the last frontier. Water is certainly an asset that will only appreciate as climate change makes supplies lower and more variable.[27] Financial companies and billionaires are investing in water rights and in land with water rights attached to it.[28] Harvard recently bought thousands of acres of California vineyards worth an estimated $305 million where the groundwater rights were the main driver.[29] But

24. Michael Burry is famous for having called the subprime lending market years before anybody else. At the end of *The Big Short*, a biographical comedy drama that portrays Burry, it is announced that Burry was moving to invest in water. THE BIG SHORT (Plan B Entertainment 2015); Dillon Jacobs, *How to Invest in Water Like Dr. Michael Burry from the Big Short*, FINMASTERS (Dec. 12, 2023), https://finmasters.com/michael-burry-invest-in-water [https://perma.cc/TT3K-SLJU]. Now, many Wall Street firms are following suit. Ben Ryder Howe, *Wall Street Eyes Billions in the Colorado's Water*, N.Y. TIMES (Jan. 3, 2021), https://www.nytimes.com/2021/01/03/business/colorado-river-water-rights.html [https://perma.cc/DKC2-LLJ5]; Nelson Schwartz, *Investors Are Mining for Water, the Next Hot Commodity*, N.Y. TIMES (Sept. 24, 2015), https://www.nytimes.com/2015/09/25/business/energy-environment/private-water-projects-lure-investors-preferably-patient-ones.html [https://perma.cc/82E5-GZRE].

25. *See generally* Julian Brookes, *Why Water Is the New Oil*, ROLLING STONE (July 7, 2011), https://www.rollingstone.com/politics/politics-news/why-water-is-the-new-oil-198747 [https://perma.cc/7HCL-8HVC]; Andrew Ward, *Water Set to Become More Valuable than Oil*, FIN. TIMES (Mar. 19, 2017), https://www.ft.com/content/fa9f125c-0b0d-11e7-ac5a-903b21361b43 [https://perma.cc/AB7L-3Q7N]; Steven Solomon, *Water Is the New Oil*, HUFFPOST (Mar. 18, 2010), https://www.huffingtonpost.com/steven-solomon/water-is-the-new-oil_b_380803.html [https://perma.cc/8ZWP-U5NM].

26. Andrew Addison, *Water is the New Gold, What it Means for Investors*, BARRON'S (Sept. 7, 2022), https://www.barrons.com/articles/water-is-the-new-gold-51662574414 [https://perma.cc/4MQ4-T3R4].

27. *See id.* ("The second chart shows the California Water Index versus the S&P 500 Equal Weight Index. It, too, broke out of a rounding base. That indicates that it will outperform stocks by a widening margin.").

28. Jo-Shing Yang, *The Great Water Grab: Wall Street is Buying Up the World's Water*, ECOLOGISE.IN (Nov. 17, 2019), https://ecologise.in/2019/11/17/the-new-water-barons-wall-street-is-buying-up-the-worlds-water [https://perma.cc/A47U-DKVS] ("Familiar mega-banks and investing powerhouses such as Goldman Sachs, JP Morgan Chase, Citigroup, UBS, Deutsche Bank, Credit Suisse, Macquarie Bank, Barclays Bank, the Blackstone Group, Allianz, and HSBC Bank, among others, are consolidating their control over water.").

29. Aria Bendix, *Harvard Has Quietly Bought $305 Million Worth of California Vineyards. The Water Rights Could Be Even More Valuable*, BUS. INSIDER (Dec. 17, 2018), https://www.businessinsider.com/harvard-california-vineyards-water-rights-2018-12 [https://perma.cc/DX9U-JAAJ]. Some claim endowment

Harvard is not alone. In 2017, the CalPERS pension fund, the pension fund for California's public employees—the same state trying to crack down on investment funds entering the water market[30]—entered a water market venture.[31] None of these investors have suddenly discovered that farming is their calling. They aim to profit from increases in water prices as a result of expected climate change-induced scarcity.[32] Their transactions have little to do with the traditional exchange between a growing city with junior water rights and an alfalfa farmer with old water rights or between the owner of an orchard and that same alfalfa farmer.[33] Water is a great investment because it is an asset that will only appreciate and that may help hedge against climate change risks.[34] Some of us are careful about not investing in fossil fuels, but our pensions may well be invested in water rights soon, profiting from climate change and negatively impacting communities where the water right was or is used.[35]

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investments are not the vehicle for social policy, including Katy Taylor, who resigned from the Harvard Board of Overseers in 2018 due to fossil fuel investment. Eve Driver et al., Opinion, *Harvard's Investment in Land and Natural Resources*, HARV. CRIMSON (May 13, 2019), https://www.thecrimson.com/article/2019/5/13/taylor-flores-jones-driver-harvards-investment [https://perma.cc/AH5V-9CGN].

30. Brad Hooker, *California Targets Hedge Funds Buying Up Water Rights*, AGRI-PULSE (May 10, 2023), https://www.agri-pulse.com/articles/19379-california-targets-hedge-funds-buying-up-water-rights [https://perma.cc/6DRD-DRKV] ("The [California] Legislature has advanced a measure to halt water grabs by hedge fund investors and venture capitalists.").

31. *Id.* ("A Los Angeles-based hedge fund bought agricultural land when the water right became more valuable than the crops. Leveraging investments from the California Public Employees' Retirement System (CalPERS), the hedge fund then partnered with other entities to enhance the ability of the property to store more water underground.").

32. *See id.* ("Many stand to make a pretty penny on these resources as we face droughts . . . . It is not acceptable that investment funds come here and make exorbitant profits off this essential resource that is truly a public good.").

33. *See* Hockaday & Ormerod, *supra* note 12 (explaining traditional water-rights exchange and the doctrine of Prior Appropriation).

34. Addison, *supra* note 26 (displaying data predicting that water investments will outperform the S&P 500).

35. *See* Peter Waldman et al., *Groundwater Gold Rush*, BLOOMBERG (Apr. 11, 2023), https://www.bloomberg.com/graphics/2023-wall-street-speeds-california-groundwater-depletion [https://perma.cc/M52U-QJMN] (explaining that many pensions are invested in nut farming operations that make inefficient use of drinking water).

States, communities, and water right holders fear these new actors.[36] Water law has mechanisms to prevent speculation,[37] but those mechanisms cannot stop deep pocketed financial investors who are currently buying water. Traditional water law prevented speculation by requiring water rights to be put to beneficial use.[38] Sitting on water rights until the price rises because there is a drought was not allowed.[39] These new water right holders, financial companies, are able to circumvent those restrictions: They lease out the water rights they buy to make sure they fulfill the letter of the law because the lessees use them, but this contravenes the anti-speculation spirit of prior appropriation. These financial companies become absentee owners, which has implications for water access, rural communities, the environment, and food security.[40] Financialization, that is, the growth of financial companies in size and influence in a particular market, is, thus, an expectation of returns that will come primarily from the efforts of others.[41]

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36. *See* Heather Sackett & Luke Runyon, *Western Colorado Water Purchases Stir Up Worries About the Future of Farming,* ASPEN JOURNALISM (May 29, 2020), https://aspenjournalism.org/western-colorado-water-purchases-stir-up-worries-about-the-future-of-farming [https://perma.cc/EDN8-BNCY] ("Lopez's recent sale is the continuation of a trend that has made some in the agricultural communities west of Grand Junction nervous; has created a buzz among water managers; and has led state lawmakers to pass a bill looking at strengthening Colorado's anti-water-speculation law.").

37. Sandra Zellmer, *The Anti-Speculation Doctrine and Its Implications for Collaborative Water Management*, 8 NEV. L.J. 994, 997–98 (2008) (surveying the variety of ways that states utilize water law to combat speculation).

38. *Id.* at 1004.

39. *See* Janet C. Neuman, *Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use*, 28 ENV'T L. 919, 964 (1998) ("The intention must be bona fide and not for speculation, such as an intention to store water for monopoly.").

40. *See* Jessica A. Shoemaker & James F. Tierney, Financializing Farmland, Work in Progress 3 (unpublished manuscript) (on file with the Minnesota Law Review) (discussing the financialization of agricultural land).

41. *See* Michael Roberts, *Owning Financialization*, MONTHLY REV. (Apr. 1, 2019), https://monthlyreview.org/2019/04/01/owning-financialization [https://perma.cc/4RQG-DMPY] ("[F]inancialization is now mainly used as a term to categorize a completely *new stage in capitalism*, in which profits mainly come not from exploitation in production, but from financial expropriation (resembling usury) in circulation."); Sec. & Exch. Comm'n v. Howey Co., 328 U.S. 293, 300 (1946) (discussing a scheme to profit off the financialization of citrus groves).

Financialization has occurred throughout society. Land and housing are frequently cited as examples.[42] Financialization is criticized for the effects that absentee ownership has on communities and access to these essential assets.[43] But there has been far less scholarship on financialization of water as it is a relatively new phenomenon. The effects are likely similar to those in other forms of financialization, but they are aggravated by the public nature of water.

Financialization of water by large companies does violence to the principles underlying prior appropriation and may inflate prices, lead to absentee ownership, and erode the power of the states over a public resource like water.[44] First, financialization goes against the anti-speculation nature of our water regimes.[45] Second, hoarding practices can ramp up prices.[46] As a result, financial companies may price out other water users who want to buy water and become a monopolist in some areas too.[47] This is a problem shared with other large actors.[48] Agribusinesses may also control the majority of water in some areas and make access

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42. *See generally* MADELEINE FAIRBAIRN, FIELDS OF GOLD: FINANCING THE GLOBAL LAND RUSH (2020); Jessica A. Shoemaker, *Re-Placing Property*, 91 U. CHI. L. REV 811 (2024).

43. Shoemaker, *supra* note 42, at 816 (discussing the harms of outside investment in small rural communities).

44. *See* Roberts, *supra* note 41 (discussing how financialization facilitates monetary expropriation that can lead to financial instability and other crises).

45. *See* Neuman, *supra* note 39, at 964 (arguing that the very definition of water appropriation requires that the appropriator intend to use the water for some type of beneficial use and not for speculations).

46. *See id.* (discussing how the fear that water would be hoarded and become overly expensive or unavailable guided the creation of water laws).

47. Financial investment is in somewhat of an early phase for water, but water seems to be following the path of land financialization and in farmland, farmers have already been price out. *See* Linda Qiu, *Farmland Values Hit Record Highs, Pricing Out Farmers*, N.Y. TIMES (Nov. 13, 2022), https://www.nytimes.com/2022/11/13/us/politics/farmland-values-prices.html [https://perma.cc/5BG7-2MQG]; Madeleine Farbairn & Elsa Calderon, "They Got Their Eye on Us": Farmland Financialization and Black Farmland Access in the Mississippi Delta 14 (unpublished manuscript) (on file with the Minnesota Law Review) (discussing how the financialization of land has priced out Black farmers in Mississippi).

48. Chloe Sorvino, *Amid Drought, Billionaires Control a Critical California Water Bank*, FORBES (Oct. 11, 2021), https://www.forbes.com/sites/chloesorvino/2021/09/20/amid-drought-billionaires-control-a-critical-california-water-bank [https://perma.cc/575U-LJ36] (discussing how a California billionaire controls fifty-seven percent of the water in an essential Central California water bank).

difficult for small landholders. Third, financial investors are absentee owners which causes negative effects for the community and the environment.[49] Fourth, one of the main potential sources of revenue for these companies may be states' buy-out programs funded with taxpayers' revenue. States may need to buy water to comply with interstate river compacts or to ensure an adequate supply to cover the basic needs of the population during our most complex crisis. Water is a public resource that the state manages for its citizens.[50] States have control over water rights and, as a result, it is very difficult to sell water across state borders.[51] But now, financial companies threaten this control.

Governments have been considering measures to stop these actors. At the federal level, there have been calls for the Attorney General to ramp up federal enforcement of antitrust rules in water markets.[52] State bills have been proposed to reform water rights and water markets to make water rights less attractive for these outsiders.[53] Governments act, not only due to the social negative consequences of the participation of financial

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49. Shoemaker, *supra* note 42, at 816 ("These outside investors will never walk these physical spaces . . . but property law says they own and control them . . . many of the benefits of increasingly industrialized forms of agriculture are exported to faraway places, but also that the costs of these choices are externalized and borne by local communities.").

50. *See, e.g.*, PA. CONST. art. I, § 27; UTAH CODE ANN. § 73-1-1 (LexisNexis 2024); N.M. STAT. ANN. § 72-1-1 (2024); CAL. WATER CODE § 102 (West 2024); *see also* Joseph Regalia & Noah D. Hall, *Waters of the State* (Wayne State U.L. Sch., Rsch. Paper No. 2018-46, 2018) (discussing the variety of ways that states have chosen to manage their water).

51. Bryan Leonard et al., *Expanding Water Markets in the Western United States: Barriers and Lessons from Other Natural Resource Markets*, 13 REV. ENV'T ECON. & POL'Y 43, 44 (2019) (discussing the limitations of water markets in transporting water over long distances). An outright ban would likely fail a dormant commerce clause test, but the different transfer regulations make it too onerous to enter into these transactions. *See* Sporhase v. Nebraska *ex rel.* Douglas, 458 U.S. 941, 960 (1982) (holding that a statute requiring a permit to sell water over state lines did not impose an undue burden on interstate commerce).

52. Letter from Melissa Hurtado et al., Cal. Sen. et al., to Merrick Garland, U.S. Att'y Gen. (Aug. 24, 2022) [hereinafter Letter from California Legislators to Merrick Garland], https://sd14.senate.ca.gov/sites/sd14.senate.ca.gov/files/pdf/CA%20Legislature-DOJ%20Water%20Market%20Manipulation%20Letter.pdf [https://perma.cc/MVP5-QGAD] ("[W]e are renewing our request to your office, asking the Department of Justice to investigate potential drought profiteering, water rights abuses and water theft.").

53. *See infra* Part V.A.

companies in water markets, but because governments themselves feel threatened by these actors.[54]

These proposed state measures are not exempt of critiques. Many of the wrongs that speculation by financial companies bring also exist as a result of big actors controlling water resources.[55] Current proposed measures are hard to implement because they are overinclusive, as the examples of Colorado and California illustrate. They pay lip service to the ultimate goal of an efficient, but also a fair distribution of water. Reforms must be more ambitious and not just tackle speculation because it goes against the spirit of our water regimes, but ensure substantive reforms in water rights allocation.

This Article analyzes the potential risks of this new form of financial investment in water. It focuses on which principles should guide water transaction regulations to best prevent potential deleterious effects from the games Wall Street firms are playing with our most precious asset. The Article looks, in particular, at prior appropriation regimes, the water regimes of the U.S. West. In order to set the stage for understanding the challenges these financial investors present, the Article starts, in Part I, by describing the principles of prior appropriation in tension with water financialization and the traditional water transaction framework that Wall Street is abusing.[56] In Part II, the Article shifts the focus towards these new actors. It analyzes the ways financial investment in water is gaining traction and the negative effects that the West is facing or will face soon. Part III offers different examples of water markets where large investors, mostly Wall Street–types, have played a role and the negative effects arising from such transaction. Finally, Part IV analyzes current proposals to regulate the participation of these actors in water markets. Those proposals often try to tackle speculation, but not concentration. This piece suggests other

54. See generally LORNA FOX O'MAHONY & MARC L. ROARK, SQUATTING AND THE STATE: RESILIENT PROPERTY IN AN AGE OF CRISIS (2022), for an account on how governments decide to act on a social problem once they feel vulnerable to the problem themselves.

55. Sorvino, *supra* note 48 (discussing a California billionaire who bought up the majority of an essential California water bank).

56. See generally, Erin L. O'Donnell & Dustin E. Garrick, *The Diversity of Water Markets: Prospects and Perils for the SDG Agenda, Advanced,* WIRES WATER, Sept./Oct. 2019, at 1, to see the variety of situations covered under water markets.

regulatory avenues to rein in the speculation and concentration in water markets and, by extension, in any other resource.

I. PRIOR APPROPRIATION AND WATER MARKETS' LOOPHOLES

Prior appropriation allocates water in the Western United States. While the doctrine has many intricacies, this Section will highlight those that are relevant to understand the challenge and consequences the participation of financial companies has in water markets.

Under prior appropriation, water rights were historically acquired by putting water to beneficial use.[57] Water rights are, thus, usufructuary rights: rights to use.[58] The water right holder does not hold a right to particular molecules of water, but a right to a certain amount of water if there is water available.[59] Water rights could hardly be otherwise, given the fluid nature of water.[60] Although regulation in the twentieth century added an application process to obtain a water right, the beneficial use requirement still applies.[61] Not every use is a beneficial use. Initially, a beneficial use had to be considered "productive" such as an agricultural, domestic, or industrial use.[62] For example, a

57. Neuman, *supra* note 39, at 920 ("Since 1848, when the California gold rush gave birth to the basic principles of the western prior appropriation system, a right to use water has been acquired by applying water to a beneficial use.").

58. Frank J. Trelease, *Government Ownership and Trusteeship of Water*, 45 CALIF. L. REV. 638, 640 (1957).

59. *See id.* ("In non-navigable streams to which private usufructuary rights obtain, it cannot be said that a riparian owner or an appropriator owns the stream, or a part of it, or that all of the riparian owners or appropriators own the stream in common. Their rights are usufructuary, not possessory.").

60. Shelley Ross Saxer, *The Fluid Nature of Property Rights in Water*, 21 DUKE ENV'T L. & POL'Y F. 49, 50 (2010); Henry E. Smith, *Governing Water: The Semicommons of Fluid Property Rights*, 50 ARIZ. L. REV. 445, 448 (2008) ("Because water is fugitive, it is generally recognized that exclusion in the sense of land or chattels is somehow difficult.").

61. For example, in California, beneficial use requirements are codified in CAL. WATER CODE § 100 (West 2024) and CAL. CODE REGS. tit. 23, § 659 (2025).

62. ADLER ET AL., *supra* note 15, at 160 (explaining that beneficial use requires that the use is recognized as beneficial under the applicable law of the jurisdiction, there is a requisite intent to put the water to beneficial use, and the appropriator is diligent in putting it to that use); Smith, *supra* note 16, at 182 (discussing diverting water for mining and agriculture during the early settlement of Colorado); Szeptycki et al., *supra* note 16, at 1 ("Through most of the

farmer could build a ditch from the river to his fields and irrigate his alfalfa using flood irrigation. The amount of water he or she first put to such beneficial use was the measure of his right.[63] That amount is the amount he or she is entitled to still today. All the initial beneficial uses were consumptive uses.[64] Today, many states have amended their regulations to recognize that environmental uses, that leave the water in the stream for the protection of the ecosystem, are also beneficial uses.[65]

Prior appropriation gets its name from the principle of "first in time, first in right."[66] When water is scarce and there is not enough water in the stream to fulfill all water rights, those with older water rights receive water while more junior appropriators do not.[67] This regime was first established in mining camps and was later recognized by courts and legislatures. David Schorr, a historian, argues that those mining camp rules were coated with distributive justice concerns that have failed to translate to the letter, but not the spirit of water's prior appropriation.[68]

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system's history, an essential element of an appropriative right was diversion of water from a river or stream, and the law strongly incentivized diverting water and putting it to economic use. Fish habitat, recreation, and other environmental uses were not recognized beneficial uses."); CAL. WATER CODE § 1707 (West 2024).

63. Smith, *supra* note 16, at 186 ("The right is defined by the place, amount, and initial date of diversion as well as a beneficial use.").

64. Szeptycki et al., *supra* note 16, at 1 (describing the uses of water that were considered "beneficial").

65. *Id.* ("Beginning in the late 1980s, state legislatures began passing laws that allowed existing appropriative rights to be transferred or dedicated for purposes of enhancing wildlife habitat and recreation. This meant that water previously diverted could be left instream and benefit from the legal protections afforded such rights, including the seniority date and protection from junior appropriators.").

66. ADLER ET AL., *supra* note 15, at 181; *Terminology*, IDAHO DEP'T OF WATER RES (last updated July 12, 2021), https://idwr.idaho.gov/about-idwr/terminology [https://perma.cc/DAD6-3595].

67. A senior appropriator may "call the river" when he believes there is not enough water and a junior appropriator is getting water out of priority. Such a call is only unsuccessful if futile. That is, there may be cases where because of evaporation and the position on the river, there is not enough water reaching the senior even if juniors do not take any.

68. David B. Schorr, *Appropriation as Agrarianism: Distributive Justice in the Creation of Property Rights*, 32 ECOLOGY L.Q. 3, 7–8 (2005) [hereinafter Schorr, *Appropriation as Agrarianism*]; DAVID SCHORR, THE COLORADO DOCTRINE: WATER RIGHTS, CORPORATIONS, AND DISTRIBUTIVE JUSTICE ON THE AMERICAN FRONTIER 5–8 (2012) [hereinafter SCHORR, THE COLORADO DOCTRINE].

The requirement to put water to beneficial use captures the idea that water is a production input, that is, that water, a public resource, is granted to private parties that will use it, not waste it. The corollary of such a requirement is the forfeiture doctrine, also referred to as "the use it or lose it" doctrine.[69] According to this doctrine, a water right holder must use their water right. If he does not, the state can forfeit his or her water right. Most states have a period of non-use, for example three years, before forfeiture is triggered.[70] This doctrine was put in place to prevent speculation.[71] A user could not park his or her water right without any intention of using it and wait until there was a drought to sell it at a high price. The "use it or lose it" doctrine has been criticized for encouraging users to use their water even if they do not need it because they fear they will lose their right.[72]

This description of prior appropriation hints at the inability of prior appropriation to respond to today's water scarcity challenges in an era in which our water supplies are overallocated and dwindling due to climate change. Prior appropriation has no regulatory mechanism to encourage efficient use except the beneficial use requirement. But that beneficial use requirement barely has teeth. Very few uses have been considered wasteful; for example, the use of water to drown gophers in an agricultural

69. *See* REED D. BENSON ET AL., WATER RESOURCE MANAGEMENT: A CASEBOOK IN LAW AND PUBLIC POLICY 186–87 (8th ed. 2021) (explaining how extended nonuse of a water right can constitute abandonment or forfeiture of that right).

70. Some states have statutory forfeiture provisions while others apply the common law institution of abandonment to cancel water rights for nonuse. ADLER ET AL., *supra* note 15, at 194 (explaining that three potential ways that water rights can be forfeited include abandonment, statutory forfeiture provisions, and loss through proscription); R. Lambeth Townsend, *Cancellation of Water Rights in Texas: Use It or Lose It*, 17 ST. MARY'S L.J. 1217, 1217–18 (1986) (discussing the process for the cancellation of water rights in Texas). Colorado and Montana have such statutory provisions. COLO. REV. STAT. § 37-92-402 (2024); MONT. CODE ANN. § 85-2-404 (2023).

71. Zellmer, *supra* note 37, at 1004 (discussing how states have managed to thwart water speculation by requiring beneficial use).

72. Samantha K. Olson, *In Situ: An Overview of Legal Methods and Policy Trends for the Restoration and Protection of In-Stream Water*, 22 ENVIRONS 59, 61 (1998) ("These historical roots of the appropriation doctrine seem incompatible with in-stream, natural uses of water because they strongly encourage water diversion for off-stream use. The 'use it or lose it' rule encourages wasteful water practices when water is not needed in a given year.").

field was considered wasteful.[73] But beneficial use cannot make a farmer use water more efficiently. For example, if a farmer today wants to still use flood irrigation, the same system his or her great grandfather used to irrigate cereal crops, he or she is free to do so even though center pivot irrigation uses far less water. Similarly, if a farmer in 1899 irrigated potatoes using flood irrigation, with the consequent evaporation loss and runoff, the amount he used then is the amount he is allowed to use today even though drip irrigation is now a much more sensible irrigation method that requires less water to produce the same number of potatoes. Quantity is not subject to updating under prior appropriation.[74] A water agency cannot claim that flood irrigation has become non-beneficial in 2022.[75] Farmers may innovate in their techniques, but those new techniques changes are costly, and some may lack the capital and incentives to switch.[76]

This lack of incentives to economize water is more problematic due to the priority given to senior water rights. Most of those senior water rights are allocated to the agricultural sector, which uses around eighty percent of the water in most Western states.[77] Agencies often cannot increase the price either because some water holders do not pay for the water or because water price cannot reflect anything but transportation costs.[78]

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73. ADLER ET AL., *supra* note 15, at 160.

74. Smith, *supra* note 60, at 468–69 (outlining that, under prior appropriation, water rights are "defined in terms of use," meaning that so long as a prior appropriator maintains the same use for water, the implicit quantity to which they are entitled will remain the same).

75. *See* CASADO PÉREZ, *supra* note 21, at 9 (discussing the inability that water agencies have to revise or not renew water rights due to the strength of farmer lobbying groups).

76. *Id.* ("More savings could be obtained in the agricultural sector. Farmers might not be using water efficiently because they pay low prices for it. They do not have incentives to improve irrigation techniques and reduce their demand.").

77. *See Agricultural Water Use Efficiency*, CAL. DEP'T OF WATER RES. (July 24, 2023), https://water.ca.gov/Programs/Water-Use-And-Efficiency/Agricultural-Water-Use-Efficiency [https://perma.cc/8PAR-988D] ("[A]griculture accounts for approximately 40 percent of the state's total water use (with total water use including environmental and urban uses) or approximately 80 percent of all developed water (water that is controlled and managed for a variety of purposes) used in California.").

78. *See* CASADO PÉREZ, *supra* note 21, at 9 (discussing how water prices have defied basic economics and have not increased dramatically as scarcity has increased because of subsidization).

Prior appropriation rules allocating water in times of scarcity are crude. They say little about the relative value of the particular water uses.[79] There is no guarantee that the oldest water right in a basin—normally an agricultural, consumptive right—is the highest value use of the water. This is where markets enter the picture. Prior appropriation rights are transferable.[80] When water supplies are low, market transactions can help make the most of our water. The exchange can be a sale or a lease.[81] A willing buyer and a willing seller will enter a transaction when the buyer values the water more than the seller. The differential in value may make a farmer realize the opportunity cost of using water inefficiently. If the farmer using flood irrigation faces the choice of continuing to irrigate and earning a certain return on her potatoes or selling part of her water to a pistachio farmer or a growing urban area, the farmer may decide to conserve water by shifting irrigation methods and sell the surplus water she saves with drip irrigation in the water market.

Selling the surplus water is not like selling a pair of shoes or even selling potatoes. Water transactions are subject to several regulatory layers.[82] Once there is a willing buyer and a willing seller at both ends of the transaction, that transaction needs

79. The exceptions are relatively new legislation in Nebraska and Utah. Both have provisions that rank uses in times of emergency. Domestic uses are first, but agricultural uses are ranked in second place. *See* NEB. CONST. art. XV, § 6; UTAH CODE ANN. § 73-3d-301 (LexisNexis 2024). The Nebraska provision currently allows and the Utah provisions previously allowed, in a declared emergency, the use of eminent domain by private right holders to acquire water rights from those who have water rights more senior than the ones they hold put to type of uses rank lower than theirs. NEB. CONST. art. XV, § 6; Utah Code Ann. § 73-3-21.5 (West 2022) (repealed 2023).

80. ADLER ET AL., *supra* note 15, at 200 (discussing the various ways that prior appropriation rights can be transferred and the limitations on transferability).

81. Jedidiah Brewer et al., *Transferring Water in the American West: 1987–2005*, 40 U. MICH. J.L. REFORM 1021, 1047 (2007) (displaying statistics showing water sales and leases); DIV. OF WATER RTS., STATE WATER RES. CONTROL BD., A GUIDE TO WATER TRANSFERS, at 2-1 fig.1 (1999) [hereinafter CAL. GUIDE TO WATER TRANSFERS] (displaying the procedures for long and short-term transactions in California).

82. ADLER ET AL., *supra* note 15, at 204 (discussing the no injury rule, which requires that other appropriators are not harmed for a water transaction to be valid).

to be approved by a water agency.[83] In addition, the state may have a statute requiring an environmental impact statement,[84] like the California Environmental Quality Act (CEQA)[85] or the Washington State Environmental Policy Act (SEPA).[86] Some transactions may include other environmentally related approvals. For example, in California, if transferred water is transported via the infrastructure of the Sacramento-San Joaquin River Delta, a further approval is necessary because of a program in place to protect some fish species.[87]

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83. CASADO PÉREZ, *supra* note 21, at 63–69. There are exceptions to the rule. California pre-1914 water rights are subject to fewer controls. In California, transactions follow different tracks depending on the length of the transaction and the infrastructure involved. For example, long-term transactions are subject to the California Environmental Quality Act, so they require an environmental impact statement. CAL. GUIDE TO WATER TRANSFERS, *supra* note 81, at 2–2 fig.1 (depicting a tree that shows the complexity of the approvals processes water transactions must go through and the differences between types of rights). The only major exception is Chile. Up until this past spring, the model of the Chilean Water Code was based on free-market principles. As such, water transactions did not require any type of approval and conflicts arising from those were decided before a civil court. The recently approved water code subjects transactions to a regime of communication that obligates the water agency to be proactive in policing and stopping transactions. Carl J. Bauer, *In the Image of the Market: The Chilean Model of Water Resources Management*, 3 INT'L J. WATER 146, 151 (2005); *see also* NELSON RAMERIZ, U.S. DEP'T OF AGRIC., CI2022-0002, MODERNIZATION OF CHILE'S WATER CODE 1–3 (2022).

84. These statutes are also known as "mini-NEPAs"; NEPA is the National Environmental Protection Act. *States and Local Jurisdictions with NEPA-Like Environmental Planning Requirements*, NAT'L ENV'T POL'Y ACT, https://ceq.doe.gov/laws-regulations/states.html [https://perma.cc/YHT7-6UMN]. Some of the mini-NEPAs include more demanding standards than the federal statute. *See, e.g.*, *Frequently Asked Questions*, FIRST CARBON SOLS., https://www.firstcarbonsolutions.com/frequently-asked-questions/ceqa-and-nepa [https://perma.cc/H88B-8V6F] (explaining California's mini-NEPA includes obligations to mitigate environmental damages).

85. California Environmental Quality Act, CAL. PUB. RES. CODE §§ 21000–21189.91 (West 2024); *CEQA: The California Environmental Quality Act*, CAL. GOVERNOR'S OFF. OF LAND USE & CLIMATE INNOVATION, https://opr.ca.gov/ceqa [https://perma.cc/E8TT-VLBS] ("CEQA requires public agencies to 'look before they leap' and consider the environmental consequences of their discretionary actions.").

86. WASH. REV. CODE § 43.12C.010–.914 (2024); *State Environmental Policy Act (SEPA)*, WASH. STATE DEP'T OF ECOLOGY, https://ecology.wa.gov/regulations-permits/SEPA-environmental-review [https://perma.cc/VX8E-8879] ("The SEPA review process helps agency decision-makers, applicants, and the public understand how the entire proposal will affect the environment.").

87. CAL. GUIDE TO WATER TRANSFERS, *supra* note 81, at 6-8.

One may wonder why there is so much control over transactions. The reason is that water is a fluid resource and all its uses and users are interdependent. What a user is doing upstream impacts the quantity and quality of water of all users downstream of him or her. This interdependency makes water transactions very susceptible to generating negative impacts for other users. Imagine a transaction between farmer David, a downstream user, and Uma, an upstream user who owns a factory. If Uma buys David's water right, there would be less water between points *A* and *B*, which may affect the ecosystem, as well as other users collecting water in between Uma and David. Furthermore, as Uma and David do not use the water for the same use, the water will have different pollutants or a different temperature when Uma uses the water instead of David; the amount and the composition of the return flow (the amount of water that returns to the river once a user has consumed part of the water diverted) has changed. Governmental oversight of water markets via these reviews is, thus, justified from a neoclassical economics perspective. Neoclassical economic theory justifies governmental intervention to address market failures, and externalities are the quintessential example of market failure.[88]

Due to these externalities, water transactions are subject to the same approval process that a change of a water right is subject to when a user wants to modify the place of use, purpose of use, point of diversion, rate of diversion, or acreage to irrigate.[89] While the standards for approval vary across states, the common denominator is that transactions must "not injure any other legal user of water and [must] not unreasonably affect fish, wildlife, or other instream users."[90] Some standards are even broader

88. ROBERT COOTER & THOMAS ULEN, LAW & ECONOMICS 43–45 (5th ed. 2008) (describing how externalities result in market failure and the importance of inducing private profit-maximizers to restrict their output to the socially optimal point).

89. *See, e.g.*, TEX. WATER CODE ANN. § 11.122 (West 2023) (requiring water right holders to obtain approval from the Texas Commission on Environmental Quality in order to modify those water rights). Similar provisions exist in other states.

90. *See, e.g.*, *The Water Rights Process*, CAL. STATE WATER RES. CONTROL BD. (last updated Aug. 20, 2020), https://www.waterboards.ca.gov/waterrights/board_info/water_rights_process.html [https://perma.cc/JXG4-DCDA].

and include public interest.[91] These approvals are a long process; they may take a year or more.[92] The transaction costs of the approval process may deter some transactions. Many of those transaction costs are fixed no matter the volume transferred. For example, the time it may take to undertake an environmental impact study or have the assessment approved are costs with a large, fixed component. As such, large, corporate players are well positioned to face those fixed costs, while smaller players may be deterred.[93]

Governments have found ways to decrease those costs, for example, by creating state-sponsored water banks where water was sold or bought at a fixed price.[94] Similarly, states have a less

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91. *See, e.g.*, Janet M. Howe, Note, *Arizona Water Law: A Parched Public Interest*, 58 ARIZ. L. REV. 541, 543 (2016) ("[T]he [Arizona Department of Water Resources] can evaluate the proposed use of water against the interests and welfare of the public."); CAL. WATER CODE § 1255 (West 2024) ("The board shall reject an application when in its judgment the proposed appropriation would not best conserve the public interest.").

92. The normal period in Texas is 300 days for an uncontested application. *Applications and Forms Related to Surface Water Rights*, TEX. COMM'N ON ENV'T QUALITY (last updated Oct. 31, 2024), https://www.tceq.texas.gov/permitting/water_rights/wr-permitting/wr_applications.html [https://perma.cc/XF5U-Z6Z5]. Texas has somewhat of an easier review because, in Texas, water rights are assumed to consume all the amount they divert so there is no allocation of the return flow to other users. *See* Philip Womble & W. Michael Hanemann, *Legal Change and Water Market Transaction Costs in Colorado*, WATER RES. RSCH., April 2020, at 1, 6. In states where streams are overallocated, that is, there is less water than rights to that water that have been assigned—return flows from one user have normally been deemed available for appropriation for a downstream user, further enhancing the possibilities that a transaction would cause externalities. *See* Rachael Paschal Osborn & Michael Mayer, *When Water Isn't Wet: The Evolution of Water Right Mitigation in Washington State*, 10 SEATTLE J. TECH., ENV'T & INNOVATION L. 181, 181 (2020) ("[T]he issuance of new water rights has until recently required water-for-water or in-kind migration . . . .").

93. Colby argues that those transaction costs arising from water rights transaction reviews should not be perceived as negative because they may deter those marginally beneficial transactions and somehow compensate for our lack of good environmental reviews. Bonnie G. Colby, *Transactions Costs and Efficiency in Western Water Allocation*, 72 AM. J. AGRIC. ECON. 1184, 1185–86 (1990).

94. *See, e.g.*, Plan. & Conservation League v. Dep't of Water Res., 100 Cal. Rptr. 2d 173, 181 (Cal. Ct. App. 2000); *see also The 1991 Drought Water Bank*, CAL. DEP'T OF WATER RES., https://water.ca.gov/-/media/DWR-Website/Web-Pages/Water-Basics/Drought/Files/Resources/1991-water_bank.pdf [https://perma.cc/8JLY-AHGK].

demanding process for short term transactions or leases[95] because the negative effects would be short lived, and leases are meant to be part of a quick response to a crisis.[96]

Water markets have proven helpful to mitigate the effects of natural scarcity.[97] How we assess the fairness of the market outcome will very much depend on our assessment of the underlying distribution. But no matter the criteria set for the initial allocation and curtailment in scenarios where there is not enough water to satisfy every right, it is likely that the agency making the allocation and curtailment decisions cannot respond as quickly as a market and cannot have enough dynamic information to adapt to every change in the underlying users' needs.[98]

Transactions between farmers and cities, between farmers, and between consumptive users and the environment have become routine, although not the main method of allocation. The most active groundwater and surface water markets—Texas, California, and Arizona—transfer between two to four percent of the water used in the respective state per year.[99] Water markets have also been useful to adapt to regulatory constraints. While the need to provide water for the environment is correlated to the natural availability of water, reduced deliveries to provide

95. Gary D. Libecap, *The State of Water Rights and Western U.S. Water Markets*, HILLSDALE COLL. 1, 7 (2008), https://www.hillsdale.edu/educational-outreach/free-market-forum/2008-archive/the-state-of-water-rights-and-western-u-s-water-markets [https://perma.cc/PFJ2-ARFY] (discussing variations in the regulatory process).

96. *See* Micah Goodwin, Environmental and Economic Pitfalls of Interstate Water Transfers, 80 LA. L. REV. 739, 773 (2020) (discussing the appeal of selling water for only short periods of time); Ayres et al., *Improving California's Water Market: How Water Trading and Banking Can Support Groundwater Management*, PUB. POL'Y INST. OF CAL. (Sept. 2021), https://www.ppic.org/?show-pdf=true&docraptor=true&url=https%3A%2F%2Fwww.ppic.org%2Fpublication%2Fimproving-californias-water-market%2F [https://perma.cc/3MXB-KY3P] ("Short-term water leases—occurring within a year—are especially valuable to help manage temporary, drought-related shortages.").

97. BRIAN RICHTER, THE NATURE CONSERVANCY, WATER SHARE: USING WATER MARKETS AND IMPACT INVESTMENT TO DRIVE SUSTAINABILITY 10–11 (2016) (discussing the benefits of high-functioning water markets and specific case studies demonstrating the economic, social, and environmental benefits gained from them).

98. *See generally* Andrew P. Morriss, *Real People, Real Resources, and Real Choices: The Case for Market Valuation of Water*, 38 TEX. TECH. L. REV. 973, 988 (2006) (discussing how market prices can be indicative of how goods and services in markets are impacted).

99. Schwabe et al., *supra* note 20.

instream flows for the ecosystem, to guarantee the right to fish enshrined in some Constitutions,[100] or to protect certain endangered species are instances that could qualify as regulatory scarcity on their own. It is the water agency that imposes a cap on the water that can be used from the river in order to maintain a certain flow to protect these species.[101] Such a cap will likely translate into not enough water to satisfy all the demand. Those left without water will resort to buying or leasing other water rights.[102] Up until recently, these transactions were always between users who wanted to use water productively and did not treat it as a financial asset. A farmer with a senior water right is likely to be able to sell his water at a higher price because they are more secure as the first to be fulfilled if there is not enough water for everyone.[103] But it is also the case that small family farms are not the only market players. Some large agribusinesses are also market actors.[104] In fact, some of the negative effects of financial firms, in terms of scale and market concentration, are applicable to these large agribusinesses too as the analysis in Part III.B demonstrates.[105] But the picture has changed with financial firms entering the market. They are undeterred by the anti-speculation doctrine as next section will explain.

Beyond these water transactions between water right holders, in the literature, some authors include municipal water systems in their analysis of water markets.[106] Privatization of water utilities is always contentious and generates lots of local

100. *E.g.*, MONT. CONST. art. IX, § 7.

101. *See* RICHTER, *supra* note 97, at 46 (describing the impact government-imposed consumption caps have on protecting water for basic needs and to support the freshwater ecosystem).

102. *See* Steven J. Shupe et al., *Western Water Rights: The Era of Reallocation*, 29 NAT. RES. J. 413, 417–19 (1989).

103. *See* Brewer et al., *supra* note 81 at 1027.

104. *See, e.g.*, Bill McEwen, *Resnicks' Stake in Kern Water Bank Could Be Worth $1 Billion: Forbes*, GV WIRE (Nov. 23, 2021), https://gvwire.com/2021/11/23/resnicks-stake-in-kern-water-bank-could-be-worth-1-billion-forbes [https://perma.cc/PJ9K-WDJY] ("This week, Forbes decided to calculate how much the Beverly Hills couple's 57% stake in the Kern Water Bank is worth. With the scarcity of water in the West driving water prices higher, the experts at Forbes say the Resnicks' water bank holdings could be worth more than $1 billion."); Sorvino, *supra* note 48 (calculating the figure mentioned in the prior source).

105. *See infra* Part III.B.

106. CASADO PÉREZ, *supra* note 21, at 15–16.

opposition.[107] Some of the actors dominating the municipal market are mammoth international companies like Veolia,[108] or major, publicly traded firms like American Water.[109] The presence of these companies in urban water delivery has similar effects in terms of higher price, concentration, and control *vis-à-vis* the government as those analyzed when investment funds buy water rights.[110]

Water markets are not exempt of criticism. While they are a useful tool in the regulatory toolkit in prior appropriation, they can have negative effects.[111] Beyond the correction of market failures, there are or could be measures taken to mitigate water markets' equity, community, and environmental concerns.[112] This Article aligns neither with free market environmentalists nor with those who believe water markets should be forbidden.[113] While free-market environmentalists defend markets as an alternative to agencies because public agencies are bad at gathering the scattered local information necessary to make the

107. *See generally* Vanessa Casado Pérez, *Liquid Business*, 47 FLA. ST. U. L. REV. 201, 217 (2019).

108. *See generally Drinking Water Production and Distribution*, VEOLIA, https://www.veolia.com/en/water/drinking-water-production-distribution [https://perma.cc/ND6R-MU4W].

109. American Water offers water and wastewater services to approximately 1,700 communities in fourteen states serving approximately 3.5 million active customers. *American Water Works Company, Inc.*, YAHOO! FIN., https://finance.yahoo.com/quote/A1WK34.SA/profile [https://perma.cc/Z2DN-UY6S]. The company operates approximately eighty surface water treatment plants; 540 groundwater treatment plants; 175 wastewater treatment plants; 53,700 miles of transmission, distribution, and collection mains and pipes; 1,200 groundwater wells; 1,700 water and wastewater pumping stations; 1,100 treated water storage facilities; and seventy-four dams. *Id.* It serves approximately fourteen million people with drinking water, wastewater, and other related services in twenty-four states. *Id.*

110. *See Top 10 Reasons to Oppose Water Privatization*, PUB. CITIZEN, https://www.citizen.org/wp-content/uploads/top10-reasonstoopposewaterprivatization.pdf [https://perma.cc/FN3J-L8DY].

111. Karrigan Börk & Sonya Ziaja, *Amoral Water Markets?*, 111 GEO. L.J. 1335, 1366–98 (2023) (discussing misalignment in the core goals of water markets and water management); CASADO PÉREZ, *supra* note 21, at 37–91 (examining sources of market failure and governmental roles in the water market).

112. CASADO PÉREZ, *supra* note 21, at 60–74 (describing methods for correcting inequities and environmental concerns that exist in water markets).

113. *See generally* Michael Pappas & Victor B. Flatt, *The Costs of Creating Environmental Markets: A Commodification Primer*, 9 UC IRVINE L. REV. 731, 755 (2019) (discussing the complexities of water markets).

optimal decision about allocation of those resources and because public agencies are subject to capture, water markets only work to reallocate a small percentage of water rights and are overseen by agencies.[114] This fact does not prevent those who are against any form of commodification of water from being against water markets because water is public property and necessary for our most basic needs.[115] Part III.B will address water market concerns explaining how the new market actors, aggravate some of the concerns raised against traditional water markets and raise some of their own.

II. SPECULATION AND CONCENTRATION

This section will describe current investment in water, focusing on financial investment. It then analyzes the effects of such speculative investment in water markets, how it aggravates traditional critiques of water market (higher prices and effects on the environment and communities), and how it brings problems of its own (speculation and concentration).

A. DANGEROUS NEW KIDS ON THE BLOCK

Water being the "blue gold"[116] or the "new oil"[117] is no longer a prediction. It is a reality. Climate change has made water a very attractive asset that allows investors to hedge climate change risks. Wall Street knows that water is only going to appreciate, so investing in it is a no-brainer. While a wet spring may attenuate some scarcity problems, water will remain incredibly valuable. Scarcity is now structural. Even without any further worsening due to climate change, we have many areas

114. *See generally* Schwabe et al., *supra* note 20 (discussing how water markets may address water scarcity issues).

115. *See* CASADO PÉREZ, *supra* note 21, at 24, 172. Critics of water markets are often also critics of the underlying meta-governance of the allocation of water rights. *See, e.g.*, Sarah Ann Wheeler, *Debunking Murray-Darling Basin Water Trade Myths*, 66 AUSTRALIAN J. AGRIC. & RES. ECONS. 797, 813 (2022).

116. *See generally* MAUDE BARLOW & TONY CLARKE, BLUE GOLD: THE FIGHT TO STOP THE CORPORATE THEFT OF THE WORLD'S WATER (2002) (examining the privatization of water and its impact on the world's water resources).

117. *See generally* Tim Gillett, *Water – The New Oil*, CAMBRIDGE CORE BLOG (June 13, 2023), https://www.cambridge.org/core/blog/2023/06/13/water-the-new-oil [https://perma.cc/YL4C-TWC9].

where water is overallocated[118] and, thus, investing in it is profitable because some rights will be unfulfilled and those users will seek to buy water. Divestment from assets contributing to climate change has made the news,[119] but investing in funds benefiting or expecting to benefit from climate change and that negatively impact current water users has not received the spotlight it deserves.[120]

Wall Street has invested in companies producing water-efficient technologies, or in water utilities, directly through listed companies like American Water Works or via funds such as Invesco S&P Global Water Index ETF (CGW).[121] In fact, JPMorgan Chase & Co. was originally chartered as a company to provide "'pure and wholesome' drinking water to the city's growing population."[122] In 2018, a new investment form emerged: the trading of water futures.[123] In the same way that we bet on the price of coffee or wheat, the NASDAQ Veles California Water Index allows investors to buy water futures.[124] The index tracks the price of water rights transactions (leases and sales) across the five largest and most actively traded regions in the State of California, including surface water and four adjudicated groundwater

118. *See, e.g.*, Shannon Mullane, *40 Million People Share the Shrinking Colorado River. Here's How That Water Gets Divvied Up.*, COLO. SUN (Sept. 1, 2023), https://coloradosun.com/2023/08/14/colorado-river-explained [https://perma.cc/P2MZ-YHMW]; Theodore E. Grantham & Joshua H. Viers, *100 Years of California's Water Rights System: Patterns, Trends and Uncertainty*, ENV'T. RSCH. LETTERS, Aug. 2014, at 1; Osborn & Mayer, *supra* note 92, at 182.

119. *E.g.*, Susan Gary, *Harvard's Decision to Ditch Fossil Fuel Investments Reflects Changing Financial Realities and its Climate Change Stance*, CONVERSATION (Sept. 22, 2022), https://theconversation.com/harvards-decision-to-ditch-fossil-fuel-investments-reflects-changing-financial-realities-and-its-climate-change-stance-167868 [https://perma.cc/BYR8-FYA4].

120. *See* Bendix, *supra* note 29 (explaining how Harvard University and other colleges have quietly started investing in land due to its water rights).

121. *American Water Works Company, Inc. (AWK)*, YAHOO! FINANCE (last updated Feb. 5, 2025), https://finance.yahoo.com/quote/AWK [https://perma.cc/4PVT-TJRL]; *Invesco S&P Global Water Index ETF*, INVESCO (last updated Feb. 12, 2025), https://www.invesco.com/us/financial-products/etfs/product-detail?audienceType=investor&ticker=cgw [https://perma.cc/8LKE-5EV5].

122. *225 Years of History*, JPMORGANCHASE, https://www.jpmorganchase.com/about/our-history [https://perma.cc/L64K-Y5QL].

123. *See Understanding the Water Futures Market*, CME GRP. (July 2021), https://www.cmegroup.com/trading/equity-index/files/understanding-the-water-futures-market.pdf [https://perma.cc/5BM2-FWC2].

124. *Id.* at 11.

basins.[125] NQH2O allows water users to manage the price risk associated with the scarcity of water in the largest water market in the United States. While it has been criticized by those who reject commodification,[126] it could allow farmers to shield from the risk of having to buy water at very expensive prices. There could be a connection between water futures and the exchange of water rights analyzed here: Prices could be manipulated by trading water rights in the areas from which the index is calculated. So far, there is no evidence of that.

But now, there is an increasing interest in investing in water itself.[127] This liquid investment takes the form of buying water rights, and where water rights are tied to land, buying such land. Before, water was an input for production; those who bought water rights did so to use the water to produce something else. Now, these financial companies are making it an investment asset, and that goes against the core of prior appropriation. Speculation is a normal behavior in markets.[128] It means "invest[ment] in stocks, property, or other ventures in the hope of gain but with the risk of loss."[129] In lay terms, we understand speculators as those short-term investors who invest just to

125. *Id.* at 12–13.

126. *See, e.g.*, Mia DiFelice, *Futures Trading: Another Threat to Our Right to Water*, FOOD & WATER WATCH (July 25, 2022), https://www.foodandwaterwatch.org/2022/07/25/futures-trading-another-threat-to-our-right-to-water [https://perma.cc/NH9T-Z2T5] (criticizing the use of water futures markets and outlining their negative impacts on the western water supply).

127. *Water Rights: A Strategic Hedge Against Climate Change*, ASHTON GLOB.: INV. INSIGHTS (June 18, 2024), https://ashtonglobal.com/blogs/investment-insights/investing-in-water-rights-a-niche-opportunity-for-emerging-managers [https://perma.cc/SX2Y-4TCD] ("The increasing demand for freshwater, driven by persistent population growth, agricultural needs, and unpredictable climate shifts, has begun to underscore water not merely as a resource but as an asset class. This space presents a unique opportunity for niche emerging managers to position themselves at the forefront of a market with solid growth potential.").

128. *See, e.g.*, Martin T. Bohl et al., *Price Discovery in Agricultural Commodity Markets: Do Speculators Contribute?*, J. COMMODITY MKTS., June 2020, at 1 (examining the impact speculation has on price discovery across agricultural markets like corn, soybeans, and livestock); Paolo Paesani & Annalisa Rosselli, *How Speculation Became Respectable: Early Theories on Financial and Commodity Markets*, 28 EUR. J. HISTORY ECON. THOUGHT 273, 274–75 (2021) (describing the rise of speculation in the early 1860s when professionals were able to anticipate global market conditions in areas such as cotton and wheat).

129. *Speculate*, CONCISE OXFORD ENGLISH DICTIONARY 1386 (Catherine Soanes & Angus Stevenson eds., 11th ed. 2004).

profit from price changes. These are risky investments that can lead to a large gain but also a large loss. However, speculation in water has been understood slightly differently: Any time someone invests in water not as an input of production but as a financial asset for profit, it is labeled speculation.[130]

This critique has gained force recently because traditional anti-speculation doctrines have failed to prevent the entry of Wall-Street-type investment into water rights markets in the West.[131] Prior appropriation has shielded itself from speculation with the "use-it-or-lose-it" doctrine (also known as "forfeiture doctrine").[132] The forfeiture doctrine has not prevented financial Wall-Street-type investors from speculating with water. These investors do comply with the letter of the law, albeit not with its spirit. As the cases below will show, these investment firms buy water rights and then find a way to put them to use via leases or protect them from forfeiture. These powerful investors can afford to buy water and lease it for a low price while waiting for the jackpot, that is, waiting until they can sell it at a high price. Crown Columbia Water Resources targeted water rights of farms on tributaries of the mighty Columbia River in Washington and was able to afford price tags that traditional water users wouldn't be able to.[133] The company sealed a $340,000 deal for

130. *See* Luke Runyon & Heather Sackett, *Colorado Is Examining Water Speculation, and Finding It's 'All the Problems' in One*, KUNC (May 5, 2021), https://www.kunc.org/environment/2021-05-05/colorado-is-examining-water-speculation-and-finding-its-all-the-problems-in-one [https://perma.cc/99FN-US5S] (comparing the investments of Conscience Bay Company to those that Colorado's anti-speculation work groups are concerned about).

131. For example, Water Asset Management has created markets with the water rights it owns in Nevada in an attempt to get around anti-speculation laws. *See Wall Street Wants Our Water*, GREAT BASIN WATER NETWORK (Jan. 9. 2021), https://greatbasinwater.org/wall-street-wants-our-water [https://perma.cc/32B5-JWSD] ("[Water Asset Management] and others want to validate speculation—which is illegal in Nevada—and hope to do so in the name of fancy buzzwords like water markets, storage accounts or banks. This will come at a cost to the longstanding principles of beneficial use (use it or lose it) and priority (first in time, first in line) as well.").

132. *See* Zellmer, *supra* note 37, at 1005 (explaining how the beneficial use doctrine works to prevent speculation).

133. Evan Bush, *Wall Street Spends Millions to Buy Up Washington State Water*, SEATTLE TIMES (Nov. 1, 2019), https://www.seattletimes.com/seattle-news/environment/wall-street-spends-millions-to-buy-up-washington-state-water [https://perma.cc/QR59-DUSC]; *see also* Ann McCreary, *Water Bank Would Lock Up Columbia Basin*, METHOW VALLEY NEWS (Mar. 3, 2021), https://

Douglas County water.[134] The same day, it paid $1.69 million for water in Columbia County.[135] A couple of months after, the company spent nearly $1.61 million on water near Walla Walla.[136] The number of rights the company controlled across the state of Washington was unprecedented.[137]

In Colorado, Water Asset Management is one of the main water right holders.[138] None of these companies wanted to use the water they purchased.[139] They just wanted to invest in it.[140]

When the investment is in groundwater via land purchase, there is not even the need to use that water immediately.[141] Mesa Water, a company owned by oil-tycoon T. Boone Pickens, bought groundwater rights in the Texas panhandle, controlling up to sixty-five billion gallons.[142] At the time, Mesa owned more water than anyone else in the United States.[143]

States are starting to realize the need to grapple with this issue.[144] Speculation makes us uncomfortable because it entails profiteering from a resource enshrined as public and given for a low price, particularly to farmers.[145] The average reaction to different transactions may be related to the actors involved. Many react differently to a transaction where a farmer makes lots of money when she sells her land with water rights attached or sell

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methowvalleynews.com/2021/03/03/water-bank-would-lock-up-columbia-basin [https://perma.cc/L7SA-5R5D].

134. Bush, *supra* note 133.

135. *Id.*

136. *Id.*

137. *Id.*

138. Sackett & Runyon, *supra* note 36.

139. *See id.*

140. *See id.*

141. *See* Zellmer, *supra* note 37, at 1000 (describing a plan to sell private groundwater to government buyers).

142. Kristen Korosec, *T. Boone Pickens: A Water Baron for the 21st Century*, CBS NEWS (Mar. 29, 2010), https://www.cbsnews.com/news/t-boone-pickens-a-water-baron-for-the-21st-century [https://perma.cc/P6DH-Y6KS].

143. *Id.*

144. *See infra* Part IV.A.

145. TERRY L. ANDERSON & PAMELA SNYDER, WATER MARKETS: PRIMING THE INVISIBLE PUMP 58 (1997) (discussing how California was forced to reconsider its diversion of water from the Mono Lake basin to account for its responsibility to protect public trust values); Morriss, *supra* note 98, at 975–76 (detailing the neoclassical economic justification for markets); Petra Hellegers et al., *Irrigation Subsidies and Their Externalities*, AGRIC. WATER MGMT., Feb. 2022, at 1 (arguing against reforming existing subsidies).

the water rights themselves at a very high price than when the same profit is made by financial investors.[146] Thompson argues that it is misguided to consider speculators only those who do not wear boots.[147] That position may have a kernel of truth: We do hold a romantic notion of the agricultural sector and imagine it composed of family farms when, in reality, there are lots of agribusinesses.[148] Similarly, some of us tend to assume there is something unsuitable about Wall Street approaches.[149] Still others may attack this critique about speculation by pointing out that we allow many sectors to be dominated by these financial interests, so why should water be different.[150] All these positions may be coloring this critique of speculation, but beyond our dislike of financialization of water based on our conception of water as public and essential, the potential effects of water financialization are tangible as Part II.B suggests. Part III offers different examples of transactions: both transactions where financial companies, such as Water Asset Management, are involved or transactions that show the potential negative effects that sales to

146. *See generally* Abrahm Lustgarten, *Liquid Assets: A Maverick Hedge Fund Manager Thinks Wall Street is the Answer to the Water Crisis in the West*, PROPUBLICA (Feb. 9, 2016), https://www.propublica.org/article/can-wall-street-solve-the-water-crisis-in-the-west [https://perma.cc/45ZN-QBL5] (describing how farmers who sold their water rights were able to afford down payments for house and send their kids to college, while Water Asset Management and its investors have purchased enough western water rights to make their fund worth more than $500 million dollars).

147. Telephone Interview with Barton "Buzz" Thompson, Jr., Professor, Stan. L. Sch. (Apr. 2022); *see also* BARTON H. THOMPSON, JR., LIQUID ASSET: HOW BUSINESS AND GOVERNMENT CAN PARTNER TO SOLVE THE FRESHWATER CRISIS 110–11 (2024) (discussing how an Australian Competition and Consumer Commission report found that private investors did not manipulate the market).

148. Chris McGeal, *How America's Food Giants Swallowed the Family Farms*, GUARDIAN (Mar. 9, 2019), https://www.theguardian.com/environment/2019/mar/09/american-food-giants-swallow-the-family-farms-iowa [https://perma.cc/E3U2-BJB5] (detailing how small family farmers were overtaken by large-scale corporate farming).

149. Emily Ekins, *Wall Street vs. the Regulators: Public Attitudes on Banks, Financial Regulation, Consumer Finance, and the Federal Reserve*, CATO INST. (Sept. 19, 2017), https://www.cato.org/survey-reports/wall-street-vs-regulators-public-attitudes-banks-financial-regulation-consumer [https://perma.cc/M5VU-8GLB] (detailing the general distrust of Wall Street).

150. THOMPSON, *supra* note 147, at 156 (comparing the rate of innovation in water technologies to other markets where funding for development is more readily available).

financial companies could have, such as the effects of Los Angeles water purchases from Owens' Valley.

B. TANGIBLE NEGATIVE EFFECTS OF NEW INVESTMENT IN WATER

Large investors may make us uncomfortable, and we may feel the urge to make sure David is on equal footing with Goliath in such a situation. But such discomfort is justified by the tangible negative effects large investor participation in water markets may have. This section analyzes the negative effects caused or made worse by large financial actors investing in water. These effects may not be exclusively caused by financial investors, but financialization entailing large players and speculation, makes them worse. Some of these effects may exist whenever there are water transactions, such as higher prices, but speculators aim at benefiting from the highest, inflated, price, can make them worse. Other negative effects, such as investors' power over regulators, are not necessarily tied to speculation but to the size of the financial actors. As such, other large water market players can bring them about too.

1. High Prices, Water Access, and Inequality

Water markets may imply an increase in the price of water. That is in part how they solve the overuse of underpriced water.[151] However, higher prices may endanger access to water for many.[152] The human right to water is not fulfilled if some lack access to enough clean water to satisfy their needs at an affordable price. While individual consumers receive water from a water provider in most cases, if the provider had to get its supplies in the open market, one would expect the cost to be passed on to consumers even under the supervision of the public utilities

151. Each state has different regulations about how to set the price for water utilities. In some states, like California, only cost of service justifies changing the price. CAL. CONST. art. XIII D, § 4. As such, San Juan Campistrano tried to use a tiered water fee which was declared unconstitutional amidst the 2010s drought. Beau Yarbrough, *California Drought: Court Rules Tiered Water Rates Violate State Constitution*, MERCURY NEWS (Apr. 20, 2015), https://www.mercurynews.com/2015/04/20/california-drought-court-rules-tiered-water-rates-violate-state-constitution [https://perma.cc/V6YK-EM24].

152. *See* Joseph William Singer, *Property as the Law of Democracy*, 63 DUKE L.J. 1287, 1310–12 (2014) (discussing the balance between the efficiency individual ownership and democracy).

commission. Expensive water can be a challenge for low-income individuals.[153] This critique of cost should be limited only to the water that covers our basic needs. According to the World Health Organization, each person needs between fifty and one hundred liters of water per day for the basic needs of bathing, cooking, and cleaning.[154] The amount of water devoted to domestic uses across a state is a small percentage: Urban uses are 10% of water use in California and about 2% in Idaho.[155] We could exclude from the market whatever quantity of water is a merit good[156] (which would be less than the mentioned 10% or 2%, since domestic uses may include landscaping, for example)[157] and the market could allocate the rest.[158] If we recognized the human right to water and understood it as a positive right, provision of

153. *See, e.g.*, Dorany Pineda, *As Drought Drives Prices Higher, Millions of Californians Struggle to Pay for Water*, L.A. TIMES (Oct. 24, 2022), https://www.latimes.com/california/story/2022-10-24/millions-of-californians-are-struggling-to-pay-for-water [https://perma.cc/S8XF-D9CE].

154. *The Human Right to Water and Sanitation*, U.N. DEP'T OF ECON. & SOC. AFFS., https://www.un.org/waterforlifedecade/human_right_to_water.shtml#:~:text=According%20to%20the%20World%20Health,Safe [https://perma.cc/5AF7-V4J8].

155. *See* Jeffrey Mount & Ellen Hanak, *Water Use in California*, PUB. POL'Y INST. OF CAL. WATER POL'Y CTR. (May 2019), https://cwc.ca.gov/-/media/CWC-Website/Files/Documents/2019/06_June/June2019_Item_12_Attach_2_PPIC FactSheets.pdf [https://perma.cc/6X4G-6TJB]; Erin M. Murray, *Idaho Water Use, 2015*, U.S. GEOLOGICAL SURV. 1 fig.1 (July 2018), https://pubs.usgs.gov/fs/2018/3036/fs20183036.pdf [https://perma.cc/AGL9-MH5N].

156. A merit good is a commodity that society considers that an individual should have access to no matter his ability or willingness because said good provides some type of perceived benefit. *See Merit Goods*, OXFORD REFERENCE (2025), https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100151458 [https://perma.cc/W2UH-C3N6] ("Goods or services whose consumption is believed to confer benefits on society as a whole greater than those reflected in consumers' own preferences for them. A good may be classed as a merit good if it causes positive externalities. Education is typically cited as an example. In the absence of government intervention individual choice will lead to under-consumption of a good causing a positive externality."); Richard Musgrave, *Provision for Social Goods* ("[Social] goods have characteristics which require group action to secure their provision, in line with individual preference."), *in* PUBLIC ECONOMICS: AN ANALYSIS OF PUBLIC PRODUCTION AND CONSUMPTION AND THEIR RELATIONS TO THE PRIVATE SECTOR 125 (J. Margolis & H. Guitton eds., 1969).

157. *See* Mount & Hanak, *supra* note 155.

158. *See* Barton H. Thompson, Jr., *Water as a Public Commodity*, 95 MARQ. L. REV. 17, 40–52 (2011) (advocating for a harmonizing solution to balance interests in water).

domestic water would be guaranteed at an affordable price.[159] This applies to market and non-market scenarios, because even in the absence of a market, government should, for example, ensure water provision in rural areas.

One way to exclude basic needs from water markets is to give preferential status to domestic uses and satisfy them at the expense of every other use in times of drought.[160] This approach would modify prior appropriation's order of priority in times of water shortages. Implementing such an approach may run into problems with existing rights. Instead, jurisdictions—local, state, federal—rely on subsidies as the most common form of helping low-income people with their water bills.[161] The Federal Low Income Household Water Assistance Program[162] is an example, but many cities and utilities have their own assistance programs, often relying on cross-subsidies.[163] In other words, they fund these programs by increasing the rate of other customers.[164] These programs, if properly implemented, only address the issue for low-income households. If the premise is that the water we need for our basic needs should not be subject to market forces for anyone, the tried-and-true tiered rate could

159. *See id.* at 31–32 (discussing the evolution of nations recognizing water as a human right).

160. *See, e.g.*, H.R. 168, 64th Leg., Gen. Sess. (Utah 2022) (enacted as Act of Mar. 24, 2022, ch. 311, 2022 Utah Laws 2327).

161. *See, e.g.*, Joseph Cook, *Millions of Americans Struggle to Pay Their Water Bills – Here's How a National Water Aid Program Could Work*, CONVERSATION (Nov. 29, 2021), https://theconversation.com/millions-of-americans-struggle-to-pay-their-water-bills-heres-how-a-national-water-aid-program-could-work-169981 [https://perma.cc/R6SA-RC5K] (pointing to the temporary Low-Income Household Water Assistance Program created during COVID-19 and detailing how Chile used water subsidies for impoverished customers); Kristin Komives et al., *Water, Electricity, and the Poor: Who Benefits from Utility Subsidies?*, WORLD BANK; DIRECTIONS DEV., Oct. 2005, at 1, 19–23 (discussing the prevalence of subsidies for water utilities across multiple countries).

162. *Low Income Household Water Assistance Program (LIHWAP)*, U.S. DEP'T OF HEALTH & HUM. SERVS. (last updated Dec. 20, 2024), https://www.acf.hhs.gov/ocs/programs/lihwap [https://perma.cc/58B6-QC8S].

163. *See* John Brooks et al., *Cross-Subsidies: Government's Hidden Pocketbook*, 106 GEO. L.J. 1229, 1251 (2018) ("Subsidized water . . . channel[s] resources to individuals who otherwise would have low lifetime productivity.").

164. *Id.* at 1244 ("[C]ustomers pay a uniform rate for [water], with urban customers paying a portion of the cost of delivering service to rural households.").

address it.[165] This tiered rate is a manner of structuring water rates based on the idea that how water is priced should be the opposite of most goods.[166] For most goods, the more you buy, the cheaper it is.[167] With water, the idea is that your first gallons should be cheap because they cover your basic needs.[168] After those initial gallons, the rate should go up to disincentivize luxurious uses such as pools or lawns.[169]

But access to water is not just price related. Large actors can make the access to water harder.[170] The effect of scale leading to inequality is perfectly captured by another water example: groundwater overexploitation in the West. Groundwater extraction is not subject to regulation everywhere.[171] This is the case in rural Arizona.[172] In Sulphur Springs Valley, residential wells for low-income populations, often living in mobile homes, ran dry while large farms kept flourishing.[173] The area relies on

165. *See* Janny Choy, *Pricing Water for Conservation Using Tiered Water Rates Structures: Q&A with Stanford Economics Professor Frank Wolak*, STAN.: WATER IN THE W. (Apr. 24, 2015), https://waterinthewest.stanford.edu/news-events/news-press-releases/pricing-water-conservation-using-tiered-water-rates-structures-qa [https://perma.cc/X4T5-XU9L].

166. *See Can You Help Me Understand the Idea Behind Tiered Water Rates?*, CITY OF ST. HELENA CAL. [hereinafter *Tiered Water Rates*], https://www.cityofsthelena.gov/FAQ.aspx?QID=139 [https://perma.cc/E2YH-HXZH] (explaining tiered water rates).

167. Julia Kagan, *Volume Discount: What It Means, How It Works*, INVESTOPEDIA (Sept. 6, 2024), https://www.investopedia.com/terms/v/volume-discount.asp [https://perma.cc/79KW-V4YX].

168. *Tiered Water Rates*, *supra* note 166 ("The idea behind tiered water rates is to incentivize water conservation by charging higher rates for higher consumption levels.").

169. *See id.*

170. *See* Noah Gallagher Shannon, *The Water Wars of Arizona*, N.Y. TIMES MAG. (July 19, 2018), https://www.nytimes.com/2018/07/19/magazine/the-water-wars-of-arizona.html [https://perma.cc/7SRQ-3CFK] (detailing how large corporations overusing water resources in Arizona led to water shortages in the state).

171. Some states still follow the rule of capture of other common law groundwater allocation rules that can lead to overexploitation. *See* 1 ALEXANDER BENNET ET AL., GROUNDWATER LAWS AND REGULATIONS: A PRELIMINARY SURVEY OF THIRTEEN U.S. STATES (2d ed. 2020) (surveying groundwater regulations of thirteen states); *see also* 2 ABIGAIL ADKINS ET AL., GROUNDWATER LAWS AND REGULATIONS: SURVEY OF SIXTEEN U.S. STATES (2022) (surveying groundwater regulations of sixteen additional states).

172. Shannon, *supra* note 170.

173. *Id.*

groundwater aquifers.[174] The aquifer water table continued to decrease as water pumping increased.[175] Users pumped beyond what is considered the safe yield, which is the amount that allows the aquifer to recharge.[176] The only way to keep using water in that situation is to drill more, deeper wells.[177] Drilling a deeper well can cost between $15,000 and $30,000, as much as half the value of many homes in Sulfur Spring Valley.[178] So while farms continued to irrigate, residential owners had sand in their faucets and could not take regular showers.[179] Among the farms, there were long-standing family farms, the owners of which had opposed groundwater regulation.[180] But recently the lack of regulation has attracted large, corporate farms, including Middle Eastern farmers, who after running out of water in their places of origin, have adapted easily to Arizona where they grow alfalfa to export to Saudi Arabia.[181] The Saudi Almarai Corporation bought 10,000 acres in the town of Vicksburg, near Sulphur Springs Valley, and Al Dahra, from the United Arab Emirates, bought several thousand-acre farms near Arizona's border with California.[182] Before these large corporations arrived, farmers had been mining groundwater and kept increasing the amount they used, leading to the overexploitation of the aquifers.[183] But it has been the exponential growth of water extraction brought by these large farms that has made the negative long-term

174. *Id.*

175. *Id.*

176. *Id.*

177. *Id.*

178. *Id.*

179. *Id.*

180. *Id.* (mentioning that most farmers originally came to the desert to avoid regulation).

181. *See id.* (describing this migration of Middle Eastern farmers to Arizona). Note that this means we are exporting millions of gallons of water—what we call virtual water because it is embedded in the product—to faraway places. For an account of the water footprint of everyday products, see *What Is a Water Footprint?*, WATER FOOTPRINT CALCULATOR, https://www.watercalculator.org/water-footprints-101/what-is-a-water-footprint [https://perma.cc/HLJ2-7Z82].

182. *See* Shannon, *supra* note 170 (recounting these recent foreign purchases in Arizona). For a discussion on the recent measures to limit alien land holdings, see Fatma Marouf & Vanessa Casado Pérez*, Property and Prejudice*, 98 S. CAL. L. REV. 305 (2024).

183. *See* Shannon, *supra* note 170 (describing the overuse of aquifers by locals from their perspective).

consequences for the aquifer obvious and current.[184] These affluent corporate farms could drill deeper wells, which are cost prohibitive for small farmers, and sometimes plant nut trees that demand constant irrigation.[185] One farming company operated 293 wells that pumped out over 2,000 gallons a minute.[186] Even with this situation where both the social and environmental impacts called for a regulatory solution limiting the use of groundwater, the Arizona legislature did not pass a bill.[187] Small farmers brought a proposal to regulate groundwater extraction via a fee and to limit water intensive crops.[188] Legislators never even drafted a bill.[189] The small farmers who introduced the proposal to some Arizona congressmen believe that legislators were captured by the large agriculture ranching interests opposing the bill.[190] These large Middle Eastern firms are representatives of the David versus Goliath scenarios that agribusiness (domestic or not) present.[191] Financial companies buying land to get groundwater rights would act no differently. The term water

184. *See id.* at 43 ("As yearly water consumption doubled, the sands and gravels within the aquifer began to shift and collapse, causing the elevation to sink more than 15 feet in places. About 50 miles of earth fissures ruptured the surface of the valley, even splitting a major highway in half.").

185. *See id.* (explaining that large out-of-state corporations could afford to "drill more and deeper" than the typical farmer and detailing the increased resource toll of tree-nut orchards).

186. *See id.* ("One farming conglomerate, expanding from Minnesota, bought or drilled 293 wells, some pumping more than 2,000 gallons a minute.").

187. *See id.* (exploring the repeated failure of the Arizona legislature to act and the local populace's frustrations).

188. *See id.* (describing how several small farmers brought a proposal to regulate groundwater extraction via a fee and to limit water intensive crops).

189. *See id.* ("A few months later, after the end of the legislative session, Seitz learned the proposal [to address the situation] was never drafted into bill form.").

190. *See id.* (mentioning that many farmers had ceased seeking to get the government to help because they "simply felt there were too many forces already marshaled against them, including the state's strong agriculture and ranching lobbies").

191. *See* Harpreet Kaur Paul & Dalia Gebrial, *Agribusiness Devastates Our Environment*, ECOLOGIST (Aug. 25, 2021), https://theecologist.org/2021/aug/25/agribusiness-devastates-our-environment [https://perma.cc/SW2Q-S9XV] (describing large agribusiness's negative impacts on the environment, food stability, and farm workers).

grabbing has already been used to capture the similarities with the well-known global land grabbing phenomenon.[192]

Concentration can also impede smaller actors from accessing water rights because large landowners can outbid them when buying property.[193] Accumulation of resources in a few hands affects distributive justice and can affect the participation of those without access to resources in society.[194] Ethically, accumulating more than you need, or having too much, is suspect.[195] John Locke sustained that an individual could own as much property as "any one can make use of to any advantage of life before it spoils, so much he may by his labour fix a property in; whatever is beyond this is more than his share, and belongs to others."[196] Similarly, when the Illinois Supreme Court in 1898 discussed the ownership of the town of Pullman by Pullman Palace-Car company, it stated that such concentration was "incompatible with the theory and spirit of our institutions."[197] The

192. *See* Jennifer Franco et al., *The Global Water Grab: A Primer*, TNI (Oct. 20, 2014), https://www.tni.org/en/publication/the-global-water-grab-a-primer [https://perma.cc/JJ6A-JNCF] ("Water grabbing refers to situations where powerful actors are able to take control of or reallocate to their own benefit water resources at the expense of previous (un)registered local users or the ecosystems on which those users' livelihoods are based.").

193. This problem is not only present in water. A recent *New York Times* article on farmland showed a similar pattern in farmland ownership where small farmers are priced out. Qiu, *supra* note 47 (sharing the experience of a local small farmers losing bids on farmland because they are facing investors with deep pockets).

194. *See* Singer, *supra* note 152, at 1308–13 ("We are interested in the distribution of property not only because we care about satisfying our preferences at the lowest possible cost but also because we care about how many people's preferences get satisfied. More than that, we care about whether we are living in a democratic or a feudal society, whether we will have freedom or servitude, and whether we will have equal status before the law or titles of nobility."). *See generally* Samuel Scheffler, *Distributive Justice, the Basic Structure and the Place of Private Law*, 35 OXFORD J.L. STUD. 213 (2015) (discussing distributive justice's consistency with Rawlsian ethics).

195. *See* Patricia Farnese, *An Ethic of Enough: Ownership as an Ethical Choice*, 4 J.L. PROP. & SOC'Y 81, 83 (2019) ("[This article] concludes that owners have an obligation not to accumulate private property beyond what is sufficient. The obligation to say 'I have enough' is present in existing justifications of private property."). This has dimensions both between individuals and between people and the environment.

196. JOHN LOCKE, SECOND TREATISE OF GOVERNMENT § 31 (J.W. Gough ed., Basil, Blackwell & Mott, Ltd. 3d ed. 1966) (1690).

197. *See* People *ex rel.* Moloney v. Pullman's Palace-Car Co., 51 N.E. 664, 674 (Ill. 1898).

court interpreted state law as requiring the company to sell part of its land.[198] In the context of land ownership, Singer has observed that while large owners help minimize information costs in the market, they create uncertainty and impede access for anyone else who wants to buy a resource.[199] This creates inequality, which harms the economy and leaves more people with unsatisfied preferences, eroding our ideal of democracy and moving us closer to a feudal system where we are divided between owners and tenants.[200] The fear of creating a feudal system rings true when we see a company like Water Asset Management buy water rights from farmers and then lease the rights back to them at a profit.[201]

2. Absentee Ownership, Water Exports, and Community Externalities

In water markets, scholars have recognized the potential unaccounted effects on the communities where the water originates, particularly when the rights are sold for faraway users in large quantities.[202] The participation and role of communities in water governance is never easy.[203] But in water markets it is even more so. If many water rights are sold from a region, those selling water rights may benefit, but the community that

198. *See id.* at 668, 677–78 (overruling the lower court's decision to the contrary).

199. Singer, *supra* note 152, at 1310 ("In one sense, we can argue that reducing ownership to one minimizes information costs enormously. . . . On the other hand, although ownership by one person gives him a great deal of certainty, it creates a great deal of uncertainty to the nonowners who are subject to the owner's whim.").

200. *Id.* at 1312 ("We are interested in the distribution of property not only because we care about satisfying our preferences at the lowest possible cost but also because we care about how many people's preferences get satisfied. More than that, we care about whether we are living in a democratic or a feudal society, whether we will have freedom or servitude, and whether we will have equal status before the law or titles of nobility.").

201. *See infra* Part III.B.

202. *See* Vanessa Casado Pérez, *Whose Water?: Corporatization of a Common Good* (discussing how local jurisdictions have attempted to control water transfers), *in* ENVIRONMENTAL LAW, DISRUPTED 79, 89 (Keith Hirokawa & Jessica Owley eds., 2021).

203. *Id.*

surrounds them may not.[204] Agricultural regions may dry up if all or most of the water is sold. The patterns could be similar to those of the Appalachian coal regions when coal became less competitive[205] or the manufacturing towns in the Midwest when companies relocated to other countries.[206] Beyond the farmers selling their water rights, the migrant workers, the agricultural suppliers, and the economy at large may suffer in the areas of origin. The first water rights sold are the ones reaping fewest profits. Farmers first fallow the least productive fields and sell the water rights used on those. The sale of these water rights from marginal lands does not have many effects on the community.[207] But the more water is sold out of the area of origin, perhaps to a single buyer like in the Owens Valley case, the more the community suffers.[208] Furthermore, if a large investment owner fulfils their goal and sells all of their water rights to someone outside the region, not only are there going to be community effects today in the form of unemployment and less economic activity, but the future of that community may be jeopardized, because without water there is no development, as the perennial

204. *See* Shoemaker, *supra* note 42, at 870. ("[A]ttachment-less or estranged ownership in this way is a concern precisely because it exists without any of the intended benefits of positive place relations: identity-forming experiences with space, the development of deep and contextual local knowledge about that space, the promotion of stewardship or caretaking relations, stable community connections and—what many would say is the ultimate goal of any functioning property system—shared human flourishing.").

205. *See* Paul Massari, *Recovering from Coal's Collapse*, HARV. KENNETH C. GRIFFIN GRADUATE SCH. OF ARTS & SCIS. (Sep. 26, 2023), https://gsas.harvard.edu/news/recovering-coals-collapse [https://perma.cc/VQ8V-XMH8] (lamenting a 70% reduction in coal employment in over ten years which accompanied a 50% decline in employment from 2011 to 2016 in Appalachia).

206. *See* Kate Linthicum, *What Happened When Factory Jobs Moved from Ohio to Mexico*, DAYTON DAILY NEWS (Feb. 27, 2017), https://www.daytondailynews.com/news/gen-politics/what-happened-when-factory-jobs-moved-from-ohio-mexico/kntmqdH7H95KQBhwBHgixN [https://perma.cc/US29-8F55] (describing the fallout of jobs being pushed out Ohio to Mexico).

207. *See* CASADO PÉREZ, *supra* note 21, at 72 ("[T]he first lands to be fallowed can be expected to be the ones producing low value-added crops and, thus, these tend not to employ much of other inputs.").

208. *Id.* (describing the "multiplier effect" whereby unemployment of farm workers, fewer trnasactions, and general spillover effects create difficult consequences for communities where water is sold).

battle between Los Angeles and Owens Valley shows.[209]

In the past, these effects on the community, often referred to as pecuniary externalities,[210] have been addressed by giving veto power to the community, limiting the amount of water rights that can be sold from a region, or taxing transactions to fund the economic recovery.[211]

As the examples show, at this point most financial investorsin water rights have yet to sell their water rights. Possibly these financial investors are waiting to do so when the price soars. In the meantime, financial investors may lease out those rights. While it is too early to know who the new water investors are leasing to, evidence from other resources, like farmland, suggest that large investors prefer to lease to those who have the capacity to use more than one piece of farmland because there are too many transaction costs from renting to many small lessees.[212] Even if financial investors in water rights are leasing to small lessees, those tenants are in a fragile position, which impacts

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209. Louis Sahagun, *L.A. Took Their Water and Land a Century Ago. Now the Owens Valley Is Fighting Back*, L.A. TIMES (July 13, 2017), https://www.latimes.com/local/california/la-me-owens-valley-eminent-domain-20170712-story.html [https://perma.cc/464P-3JZE] (explaining a decades-long conflict between Los Angeles and Owens Valley regarding water and land).

210. For example:

> Economists try to make a distinction between pecuniary externalities—changes in price which merely redistribute wealth—and non-pecuniary externalities, which involve a real good or service being provided or denied at the margin. If the price of wheat rises, wheat consumers suffer a pecuniary externality. If you dump garbage on my lawn, that's a non-pecuniary externality.

Tyler Cowen, *Pecuniary Externalities*, MARGINAL REVOLUTION (Aug. 23, 2010), https://marginalrevolution.com/marginalrevolution/2010/08/pecuniary-externalities.html [https://perma.cc/2VHC-L5VS].

211. CASADO PÉREZ, *supra* note 21, at 73–74 (discussing mechanisms for addressing pecuniary externalities); Casado Pérez, *supra* note 202, at 94–96 (listing potential ways to incorporate community externalities in water transactions).

212. MADELEINE FAIRBAIRN, FIELDS OF GOLD: FINANCING THE GLOBAL LAND RUSH 2 (2020) ("In recent years, the financial sector has developed a surprising interest in farms. Institutional investors—pension funds, university endowments, private foundations, and other organizations that manage huge pools of capital—are increasingly incorporating farmland into their investment portfolios.").

their contribution to the community.[213] In other cases, those large investors may use those water rights. Even if they are not absentee owners, large businesses seem to have fewer economic ties to the region, for example, selecting their suppliers from a geographically larger pool.[214]

In some cases, like the Harvard vineyards, they may be remotely managing the agricultural operations through some nested corporate structure, being in practice absentee owners.[215] Water Asset Management and Crown Columbia are also absentee owners.[216] Some also suggest that the presence of these large players may make it hard for the population or the local government to disagree with them because they control an important resource.[217] But even when that influence does not exist,

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213. Shoemaker, *supra* note 42, at 818 ("Lease options, for example, can be critical for flexibility and (when done well) housing accessibility, but if property law makes that tenancy too precarious—the rights of tenants too fragile and subordinate to stronger rights of absentee landlords or even other political voices or neighbors—then that status as a tenant will impact the community and the place.").

214. *See id*. at 863–66 (examining how locally owned and operated farms contribute significantly to the sense of belonging and economy of rural communities); *Locally Owned Small Businesses Pack Powerful Economic Punch*, PA. ST. UNIV. (last updated July 28, 2017), https://www.psu.edu/news/research/story/locally-owned-small-businesses-pack-powerful-economic-punch [https://perma.cc/G3WS-TRT4] ("Small, locally owned businesses and start-ups tend to generate higher incomes for people in a community than big, non-local firms, which actually can depress local economies . . . ."); Aditya R. Khanal et al., *Small and Minority Farmers; Knowledge and Resource Sharing Networks, and Farm Sales: Findings from Communities in Tennessee, Maryland, and Delaware*, J. AGRIC., FOOD SYS., & CMTY. DEV., Spring 2020, at 149, 160 ("The extent of interaction, network structure, and type of agricultural informants are as crucial to information exchange, knowledge transfer, and technology diffusion in farming as they are in other industries. This is even more important for small farms, and especially those located in rural areas.").

215. *See* Russell Gold, *Harvard Quietly Amasses California Vineyards—and the Water Underneath*, WALL ST. J. (Dec. 10, 2018), https://www.wsj.com/articles/harvard-quietly-amasses-california-vineyardsand-the-water-underneath-1544456396 [https://perma.cc/54AN-CQ9X] (investigating the unusual purchase of farmland and water rights by Harvard's management company).

216. *See supra* notes 133, 138 and accompanying text.

217. *See generally* Samar Ahmad, *Unmaking Democracy: How Corporate Influence Is Eroding Democratic Governance*, HARV. INT'L REV. (May 4, 2020), https://hir.harvard.edu/unmaking-democracy-how-corporate-influence-is-eroding-democratic-governance [https://perma.cc/95YC-RZ86] (discussing the influence money has in governance and condemning it).

absentee owners contribute less to the community.[218] Absentee owners of property tend to lack interest in the function which the property fulfills or could fulfill in the community where it is located.[219] Thus, there are potential negative effects on the community even if water does not leave the community when the control of that water is far removed.[220] Absentee ownership in farming contributes to the hollowing out of rural community life.[221] A study regarding timberland in Alabama found that "concentrated and absentee ownership of timberland exhibit a significant adverse relationship with quality of life as measured by educational attainment, poverty, unemployment, food insecurity, eligibility for free or reduced price lunch at public schools, Supplemental Nutritional Assistance Program participation, and population density."[222] Absentee ownership defeats some of the purposes of property itself, such as using local knowledge to better manage the property.[223]

3. Environmental Externalities

Water transactions may change where water is used and for which purpose. These changes inevitably affect other users. The effects on other users are captured by the review of the transaction and, if they were not, other water right holders may have a claim.[224] These place and use changes also have an effect on the environment. In some states, they are somewhat accounted for when the transaction is reviewed by an administrative

218. *See supra* note 204.

219. Shoemaker, *supra* note 42, at 871 ("[Concentrated absent ownership] often results in extracting local benefits for the sake of distant accounts and stakeholders without internalizing the local costs of those decisions.").

220. *Id.* (describing the numerous collective benefits that "attachment-less ownership" forgoes including aggregate local wisdom, "flexible resource transactions," and "efficient and effective management of local resources").

221. *See* Conner Bailey et al., *Taking Goldschmidt to the Woods: Timberland Ownership and Quality of Life in Alabama*, 86 RURAL SOCIO. 50, 50 (2021) (building a study off of the "Goldschmidt hypothesis" which argues that local rural communities suffer when land control is highly concentrated in an absentee corporation).

222. *Id.* at 50.

223. *See supra* note 204.

224. Lawrence J. MacDonnell & Teresa A. Rice, *Moving Agricultural Water to Cities: The Search for Smarter Approaches*, 14 HASTINGS W.-NW. J. ENV'T L. 105, 107–08 (2008) (describing water rights as a property right that may be changed as long as the change does not injure the rights of another right holder).

agency.[225] Those reviews imperfectly capture the environmental effects, but Bonnie Colby claims that the transaction costs they impose may deter the less beneficial transactions.[226]

Water markets have also interacted with the environment as a source of instream flow, that is, water left on a stream that will support the ecosystem. Given the difficulties faced by command-and-control regulations mandating instream flows, namely the inability to curtail the most senior water rights and the lack of enforcement in periods of acute drought, markets have been an additional source of protection.[227] Prior appropriation states have expanded the definition of beneficial uses to include environmental water rights.[228] As a rule, state agencies, and often non-governmental organizations, can hold these non-consumptive water rights.[229] Opting to protect the environment by purchasing water rights and retiring them from consumptive uses is more secure than minimum instream flow regulations which usually do not apply to more senior water rights; and,

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225. *See supra* notes 83–87 and accompanying text.

226. *See* Colby, *supra* note 93, at 1185–86 ("The ability to impose transactions [sic] costs on those proposing to transfer water, an ability conferred by state laws governing who may hold water rights and file protests, represents bargaining power in the water allocation process.").

227. *See* RICHTER, *supra* note 97, at 11 ("The intent of this report is therefore aspirational: to make the case that water markets offer a powerful mechanism for alleviating water scarcity, restoring ecosystems and driving sustainable water management.").

228. *See* Reed D. Benson, *Alive but Irrelevant: The Prior Appropriation Doctrine in Today's Western Water Law*, 83 U. COLO. L. REV. 675, 676–77 (2012) ("The central idea of [prior appropriation] is that a person who applies water to a useful purpose, or 'beneficial use,' thereby acquires a right to use enough water to serve that purpose. The earliest uses give rise to the best rights, as 'senior' rights take priority over 'junior' ones at times when water supplies are insufficient to satisfy all users."); *see also* Smith, *supra* note 16, at 183 ("This institutional innovation of recognizing instream uses such as habitat maintenance is an early development in the landscape of using markets and property rights for environmental or ecological services."); Szeptycki, et al., *supra* note 16, at 5 ("[O]ver the last two decades government agencies, conservation groups, and others have begun to turn to market mechanisms to restore stream flows and protect fish and other aquatic species.").

229. *See* Adell L. Amos & Christopher R. Swensen, *Evaluating Instream Flow Programs: Innovative Approaches and Persistent Challenges in the Western United States* ("There are two primary models: states where only the state government can hold the instream flow right, and states like Alaska where individuals or non-governmental organizations can hold instream flow rights."), *in* PROC. OF THE 61ST ANNUAL ROCKY MTN. MIN. L. INST. at 22-1, 22-29 (2015).

state agencies may be inclined to relax their enforcement when a drought emergency arises.[230] For example, Washington State's water banks pursue both environmental protection and efficiency.[231] However, their Water Trust, that allowed water rights to be donated temporarily to the Trust to protect the environment, has been instrumentalized by speculators to sidestep the forfeiture doctrine.[232]

The effects on the environment may not come from the transaction itself but by the use of the water right by the buyer. Agribusinesses cultivate far more acreage than small farms[233] and are supposed to be worse for the environment, given their monoculture and the heavy use of pesticides and chemical fertilizers to restore the soil.[234] Furthermore, the presence of large actors, particularly if they wait to sell to the highest bidder, probably some distant city, may be associated with future transbasin transfers.[235] Transbasin transfers produce more environmental effects, as the Owens Valley water grab shows.[236]

If as a result of a transaction a large share of water rights ends up in a single set of hands, the concentration could have an environmental impact because ownership is the key determinant

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230. Swinomish Indian Tribal Cmty. v. Wash. State Dep't of Ecology, 311 P.3d 6, 9–10 (Wash. 2013) (en banc) (detailing how the Washington State Department of Ecology utilized a statutory exception to withdraw more water than allowed by law).

231. *See infra* Part III.C.

232. *Id.*

233. *See Small Family Farmers Produce a Third of the World's Food*, U.N. FOOD & AGRIC. ORG. (Apr. 23, 2021), https://www.fao.org/newsroom/detail/Small-family-farmers-produce-a-third-of-the-world-s-food/en [https://perma.cc/YBB2-EMWY] ("[T]he largest one percent of farms in the world—greater than 50 hectares—operate more than 70 percent of the world's farmland, with nearly 40 percent of agricultural land found on farms larger than 1000 hectares.").

234. Paul & Gebrial, *supra* note 191 ("The large agribusinesses that own the majority of the land and control trade in grain, biotech and industrial food production force out local food producers and impoverished people, and drive environmental degradation with the highly polluting activities and intensive water use at the core of their practice.").

235. *See* Christine A. Klein, *Water Transfers: The Case Against Transbasin Diversions in the Eastern States*, 25 UCLA J. ENV'T L. & POL'Y 249, 252–54, 259 (2006–07) (defining Transbasin Diversions and noting a trend of buyers in the water market being "urban municiaplit[ies]").

236. *See id.* at 272–73 ("Likewise, the Owens Valley experienced serious environmental degradation as a result of decades of plundering by Los Angeles.").

of how a resource is used.[237] Regarding land, Scotland determined "[w]hen there are monopoly powers over the land and its resources, the local community and natural environment are threatened with negative externalities, capacity to flourish is restricted and enforced outward migration is encouraged."[238] Additionally, "[w]hen private property rights are permitted to dominate wider social and environmental needs, sustainability, and inclusion, broadly defined, are constrained."[239] While this information focuses on land, it is easy to see that concentration on either land or water in areas of irrigated agriculture could lead to the same consequences. While private capital may be the driver of rural development, private capital does not necessarily need to be coupled with large landholdings.[240] Furthermore, the evidence of huge economies of scale in agriculture is weak and, where it exists, it benefits the landowner more than the population at large.[241]

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237. Shona Glenn et al., *Investigation into the Issues Associated with Large Scale and Concentrated Landownership in Scotland*, SCOTTISH LAND COMM'N 56 (Mar. 20, 2019), https://www.landcommission.gov.scot/downloads/5dd7d6fd9128e_Investigation-Issues-Large-Scale-and-Concentrated-Landownership-20190320.pdf [https://perma.cc/VM5B-CXXU] ("[T]he research found convincing evidence that highly concentrated landownership, in which a single organisation or individual controls all or most of the land within a given community, can have a detrimental effect on rural development outcomes—but this link is also not automatic.").

238. Mike Danson, *Scoping the Classic Effects of Monopolies Within Concentrated Patterns of Rural Land Ownership*, CMTY. LAND SCOT. 38 (2020), https://www.communitylandscotland.org.uk/wp-content/uploads/2022/08/Discussion-Paper-2020-Scoping-the-classic-effects-of-monopolies-within-patterns-of-rural-land-ownership.pdf [https://perma.cc/689V-XVTA].

239. *Id.*

240. *Id.* at 38–39 ("[M]arket failures and negative externalities are exacerbated by dominant land holdings and . . . law changes are essential to reduce the effects of such monopoly land ownership and contribute to a more diverse pattern of land ownership in Scotland; there is no alternative.").

241. *Id.* ("When there are monopoly powers over the land and its resources, the local community and natural environment are threatened with negative externalities, capacity to flourish is restricted and enforced outward migration is encouraged."). In the Scottish report, economies of scale are questioned: the benefits may not be just due to scale solely, but also the result of current policies and the fiscal environment giving preferential treatment to larger holdings. Glenn et al., *supra* note 237, at 56–57. In addition, as the report points out, large landholdings are neither sufficient nor necessary for environmental protection. *Id.* at 36.

4. Speculation

Speculative behavior is a problem in nearly every market system. The United States has implemented public policies to attack speculative practices in a myriad of assets.[242] Speculation in water is approached as a wrong in and of itself based on the spirit of prior appropriation and a conception of water as public.[243] We may be less comfortable with speculation in water because the default nature of water is public, and it is hard to tolerate profiteering for the sake of profiteering from such a public good. Marion Forcaude, a sociologist, introduces the concept of peculiar goods, goods that are hard to reduce to a monetary value or that, as a society, we may not want to reduce.[244] Water is one of them.[245] But money, like water, always finds a way. She claims that "[t]reading carefully around the ethical qualms of the societies they serve, modern social institutions spend considerable time and effort measuring what seems unmeasurable and valuing what seems beyond valuation in the service of enhancing their own capacities for calculation, crafting new opportunities for profit."[246] Furthermore, prior appropriation is based on the concept of beneficial use, understood as a productive use. Financial speculation has only recently been considered productive

242. *See generally* G. Wright Hoffman, *Control of Speculation Under the Securities Exchange Act,* 27 AM. ECON. REV. 274 (1937) (exploring the United States' efforts to manage speculative practices surrounding securities).

243. *See* Börk & Ziaja, *supra* note 111, at 1341 ("Water rights are, in theory, subject to a litany of tests, designed by state courts and state governments to ensure that the rights serve the needs of the public. Laws vary by state but include tests for reasonableness, for beneficial use, to avoid waste, for public interest, and to protect the public trust."). Water being public is sometimes conflated with water being a public good. Water may be in some cases a public good when it is non-excludable and non-rival, but often its consumption is rival. Chris White, *Understanding Water Markets: Public vs. Private Goods*, GLOB. WATER F. (Apr. 27, 2015), https://www.globalwaterforum.org/2015/04/27/understanding-water-markets-public-vs-private-goods [https://perma.cc/HS3G-P3X7] ("[W]ater can be both a public and a private good, as well as somewhere in between . . . . These characteristics mean that water is not a traditional marketable good and markets can lead to poor allocations of water resources if designed badly.").

244. *See* Marion Fourcade, C*ents and Sensibility: Economic Valuation and the Nature of "Nature,"* 116 AM. J. SOCIO. 1721, 1722 (2011) (introducing the conundrum of "peculiar goods").

245. *See id.* at 1723 (citing as an example "[g]overnment and international aid agencies" evaluating the costs of "flooding a canyon to erect a new dam").

246. *Id.*

and included in the Gross Domestic Product, but yet it belongs to a different category than irrigation or industry.[247]

Historical prior appropriation regulations assumed the only form of speculation was not using the water and sitting on it until one could sell it.[248] But today, resourceful financial companies can afford complying with the letter of the law while violating its spirit by buying water rights not to use the water but with the ultimate goal of selling it at a high price. Trading is their only business. The same is true with concentration. The legal historian Schorr argues that distributive justice was at the core of prior appropriation when the regime was born in the mining camps in Colorado.[249] The antimonopoly principle that permeates public lands and other resources is not regulated as part of water law.[250] The antimonopoly principle is not based on efficiency and proper market competition, but in distributive justice.[251] Prior appropriation can be understood to prefer private

247. *See* Lucas Ballestín, *Accounting for GDP: The History and Politics of Financialization*, MEDIUM (Apr. 27, 2017), https://thenewschool.medium.com/accounting-for-gdp-the-history-and-politics-of-financialization-e77f0d380547 [https://perma.cc/7CAU-NYF5] ("It wasn't until 1993 that finance was first counted as 'explicitly productive' in measures of GDP."). *See generally* JACOB ASSA, THE FINANCIALIZATION OF GDP (2017) (explaining GDP and critiquing how it is calculated).

248. Zellmer, *supra* note 37, at 1006 (2008) ("Today, with some constraints, the law allows speculators to hold real estate, stocks and bonds, grain, art, precious metals, and all sorts of other property for future uses.").

249. *See* Schorr, *Appropriation by Agrarianism*, *supra* note 68, at 7–8. (arguing for distributive justice with the illustration of "prior appropriation doctrine of water law in the western United States"); SCHORR, THE COLORADO DOCTRINE, *supra* note 68, at 5–8 (introducing this idea in his book); *see also* Duane Rudolph, *Why Prior Appropriation Needs Equity*, 18 U. DENV. WATER L. REV. 348, 359 (2015) ("Schorr argues that prior appropriation's nineteenth-century inception 'expressed a concern for broad and equitable distribution of resources' that was 'radical' in its opposition to monopolies and speculation.").

250. *See* Michael C. Blumm & Kara Tebeau, *Antimonopoly in American Public Land Law*, 28 GEO. ENV'T L. REV. 155, 157 (2016) ("Antimonopoly principles pervade the history of federal natural resources management, which is rife with examples of limits on the terms, amounts, types of interest, and conditions imposed on the privatization of public resources.").

251. *See* Vanessa Casado Pérez, *Ownership Concentration: Lessons from Natural Resources,* 117 NW. U. L. REV. 37, 40 (2022) ("This Essay suggests that where concentration is a concern, one might draw lessons for law reform by looking to the field of natural resources law, which employs a range of deconcentration mechanisms . . . . The existence of these measures suggests strong antimonopoly and distributive justice principles underlying our natural resources regulations.").

over common property, for allowing the privatization of the public domain, and the facilitation of markets in natural resources.[252] In contrast with this view, Schorr, examining historical sources, argues that prior appropriation was meant to express the agrarian ideal of distributed property and antimonopoly.[253] He argues that our view of prior appropriation as a property rights centric theory is due to the principle of temporal priority obscuring every other tenet of the Colorado doctrine (that is, earlier Colorado water law, which was the model of prior appropriation).[254] Schorr describes the Colorado doctrine as being mostly about distributing usufructuary rights over water from the club of riparian owners to the society at large.[255] While this did not translate into regulations other than the anti-speculation doctrine, current financial transactions and concentration run afoul of it. The Reclamation Act of 1902 does reflect this anti-concentration ethos and it did not allow reclamation water to be used in more than 160 acres and water users needed to be residents near where water is used.[256] But these limits were rarely enforced by the federal government.[257]

In other markets, speculation is not a problem unless there is evidence of hoarding affecting the price.[258] As noted above, in

252. *See* Schorr, *Appropriation as Agrarianism*, *supra* note 68, at 5 ("Both decision and doctrine have become associated with a set of values—the preference for private over common property, the privatization of the public domain, the facilitation of markets in natural resources—that have little to do with the ideology behind the decision or how contemporaries saw it.").

253. *See id.* at 4–5 ("This article relies on analysis of previously unexamined historical sources to demonstrate that the appropriation doctrine actually was intended to express contemporary radical, agrarian ideals of broadly distributed property and antimonopolism.").

254. *See id.* at 61 ("As with some other examples of early Colorado law previously discussed, though, the modern focus on the judicial endorsement of priority of appropriation in this decision has obscured other facets of the judgment more important at the time.").

255. *Id.* at 68 (discussing the meaning of the Colorado Doctrine).

256. *See* BENSON ET AL., *supra* note 69, at 721.

257. *See id*. at 722.

258. *See* George M. Korniotis, Fed. Reserve Bd., *Does Speculation Affect Spot Price Levels? The Case of Metals with and without Futures Markets*, BD. OF GOVERNORS OF THE FED. RSRV. SYS. 4 (Sept. 18, 2020), https://www.federalreserve.gov/econres/feds/does-speculation-affect-spot-price-levels-the-case-of-metals-with-and-without-futures-markets.htm [https://perma.cc/EU2G-2D37] ("In the presence of physical hoarding, contrary to standard supply and demand models, inventory formation is associated with spot price appreciation.").

the stock market, speculation is defined as "invest[ment] in stocks, property, or other ventures in the hope of gain but with the risk of loss."[259] In lay terms, we understand speculators as those short-term investors who invest just to profit from price changes. We often associate speculation with using hoarding to influence price. Those price increases can lead to some users being priced out and the price increases can be passed on to the end consumer. Beyond the access issues analyzed above that come with any increase in price, even one that is reflecting the scarcity of water, the effect of this more commonly defined speculation is problematic if the increase reflects some murky market practices, such as hoarding. Regulating these murky speculation practices fits a market failure type analysis. Australia's Competition and Consumer Commission uses this definition of speculation for its analysis of water markets, as its discussion of improper market behavior treats water like any other commodity.[260] There, transactions involving brokers and investors have eroded confidence in the water market.[261] Australia is in the process of intensifying regulation of brokers and insider trading and is finding ways to ensure that information flows to all types of actors, not only sophisticated ones.[262] Jurisdictions in the West of the United States, on the other hand, do not have clear

259. *Speculate*, *supra* note 129.

260. *See* Press Release, Australian Competition & Consumer Comm'n, ACCC Welcomes New Role Regulating Water Market Conduct (Oct. 14, 2022), https://www.accc.gov.au/media-release/accc-welcomes-new-role-regulating-water-market-conduct [https://perma.cc/EL7Y-AQMP] (describing the ACCC's investigation into "trading behaviours that can undermine the integrity of markets").

261. *Murray–Darling Basin Water Markets Inquiry*, AUSTRALIAN COMPETITION & CONSUMER COMM'N 16 (Feb. 2021), https://www.accc.gov.au/system/files/Murray-Darling%20Basin%20-%20water%20markets%20inquiry%20-%20Final%20report_0.pdf [https://perma.cc/9VLF-BX23] (reporting numerous findings indicating market distrust in the current water market).

262. *See id.* at 341 (detailing the need to publish information that is accessible to market consumers); *Changes to the Water Act of 2007*, AUSTRALIAN GOV'T DEP'T OF CLIMATE CHANGE, ENERGY, THE ENV'T & WATER (last updated Mar. 18, 2025), https://www.dcceew.gov.au/water/policy/policy/legislation/water-act-review [https://perma.cc/2QNW-FAAY] (summarizing the amendments to the Water Act 2007, including only allowing the sale of water allocations when appropriate); *Water Market Reform*, AUSTRALIAN GOV'T DEP'T OF CLIMATE CHANGE, ENERGY, THE ENV'T & WATER (last updated Mar. 27, 2025), https://www.dcceew.gov.au/water/policy/markets/reform [https://perma.cc/S6QV-7XQZ] (stating market manipulation and insider trading consultations and data and systems reforms consultations will begin July 1, 2026).

regulations governing brokers' behavior, hoarding, or transparency. For example, Washington State does not have a way to audit Western Water Market, a water brokerage service based there but trading all over the West whose operation seems to inflate prices in an unjustifiable way.[263]

Financial companies may also exploit the lack of transparency. Scotland recently reformed its property laws, by passing the Land Reform Act (2016).[264] Scotland was concerned with potential investment by foreign corporations and the lack of traceability and accountability to the community of those actors.[265] While Scotland was wrestling with foreign companies, often from tax havens,[266] financial companies investing in water evoke a similar uneasiness. Any large company may be less connected to the community and harder to hold accountable, but the farther away they are, the bigger the risk.

5. Concentration: Effects on the Market, Local Institutions, and Government

Concentration is synonymous with market power. It means that one or few firms control most of one market.[267] Concentration may lead to monopolistic and monopsonist behaviors, that is, anticompetitive practices. Normally this has negative consequences for consumers, who will have to pay more for the

263. *See* Interview with Peter Dykstra, Att'y, Plauche & Carr, LLP (Nov. 2022).

264. Land Reform (Scotland) Act 2016, (ASP 16).

265. ALISON ELLIOT ET AL., LAND REFORM REV. GRP., THE LAND OF SCOTLAND AND THE COMMON GOOD 35 (2014), https://www.gov.scot/binaries/content/documents/govscot/publications/progress-report/2014/05/land-reform-review-group-final-report-land-scotland-common-good/documents/00451087-pdf/00451087-pdf/govscot%3Adocument/00451087.pdf [https://perma.cc/SYR6-KFLM].

266. *See* Billy Briggs, *Offshore Tax Haven Firms Investing in Scotland up 60% in a Decade*, HERALD (July 12, 2021), https://www.heraldscotland.com/politics/19437416.offshore-tax-haven-firms-investing-scotland-60-decade [https://perma.cc/6M3F-GYLU] ("The number of companies registered in tax havens investing in Scotland over the last decade has increased by nearly 60 per cent.").

267. *See Market Concentration*, ORG. FOR ECON. COOP. & DEV. (last updated Mar. 1, 2022), https://web-archive.oecd.org/temp/2022-03-02/473895-market-concentration.htm [https://perma.cc/TP4E-R35N] ("Market concentration measures the extent to which market shares are concentrated between a small number of firms.").

products, and perhaps for competitors.[268] Antitrust agencies police market concentration.[269] There have not yet been any antitrust cases regarding water rights, but market definition[270] in water is tricky. Should the market be defined as the state in question? Should the market be defined as the basin where water can be transported by natural channels? Or is the market broader since when the situation becomes dire, we could resort to water transportation by boat?[271] Water is more local than other resources[272] because it is hard and expensive to

268. *See* Irena Asmundson, *Supply and Demand: Why Markets Tick*, INT'L MONETARY FUND FIN. & DEV. MAG. 12–13 (Jan. 2, 2019), https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/Supply-and-Demand [https://perma.cc/LSL2-QSXA] ("The key outcome of a monopoly is prices and profits that are higher than under perfect competition and supply that is often lower.").

269. *See* Adil Abdela & Marshall Steinbaum, *The United States Has a Market Concentration Problem: Reviewing Concentration Estimates in Antitrust Markets, 2000–Present*, ROOSEVELT INST. (Sept. 2018), https://rooseveltinstitute.org/wp-content/uploads/2020/07/RI-US-market-concentration-problem-brief-201809.pdf [https://perma.cc/EK28-HBGY] (detailing several findings from antitrust agencies).

270. *See id.* at 5–6 ("Market definition is one of the most crucial tasks in antitrust enforcement, and in sectors where the antitrust agencies have reviewed many mergers, they tend to have established rules of thumb about the appropriate market definition.").

271. Graham Keeley, *Barcelona Forced to Import Emergency Water*, GUARDIAN (May 14, 2008), https://www.theguardian.com/world/2008/may/14/spain.water [https://perma.cc/AG7Z-QG49] ("Nearly 23m litres of drinking water—enough for 180,000 people for a day—was the first delivery in an unprecedented emergency plan to help this parched corner of Spain ahead of the holiday season.").

272. *See* Jon Stern, *Introducing Competition into England and Wales Water Industry: Lessons from UK and EU Energy Market Liberalisation* 5 (City Univ. London Centre for Competition & Regul. Pol'y, Working Paper No. 13, 2009) ("Water has been—and is likely to continue to be—provided by local or regional companies with water drawn from river basins with different characteristics."); Terence R. Lee & Andrei S. Jouravlev, *Prices, Property and Markets in Water Allocation*, U.N. ECON. COMM'N FOR LATIN AM. & THE CARIBBEAN 49 (1998), https://repositorio.cepal.org/server/api/core/bitstreams/f3e0bc15-42e1-4ac4-a23a-814e206aaec8/content [https://perma.cc/H669-2F49] ("Transportation costs represent a financial burden to trading parties, both in terms of the direct costs associated with a transfer and the opportunity costs of time delays while waiting for infrastructure modification or construction, and hence reduce the profitability of water transfers and the amount buyers are willing to pay for water rights, and affect the level of market activity and the number of potential buyers and sellers."); THOMPSON, *supra* note 147, at 107 (mentioning that water markets have been localized and thin).

transport.[273] Building new water infrastructure is costly and lengthy and can make distant sources unattractive.[274] Traditionally, we have not had interstate water markets, but even within a state, water markets are local.[275] For example, the oil baron T. Boone Pickens' company, Mesa Water, bought groundwater reserves in the Texas panhandle for over a decade with the aim of selling them to growing urban areas in North Texas.[276] Mesa Water owned permits for about sixty-five billion gallons of water a year.[277] Pickens managed to get eminent domain via a special district to build pipelines pumping water to those cities.[278] While these areas were in need of new supplies in the near future, groundwater shipped 400 miles was too expensive.[279] Other

273. *See Transporting Water*, RECURSOHABILIDAD, https://stem.guide/topic/transporting-water [https://perma.cc/63FX-8MNM] ("As water tables fall and surface sources dry up, municipalities are more likely to consider the cost of expensive and far-flung water gathering systems . . . . Generally, long-haul systems will rely on energy-intensive pumps rather than gravity and introduce ecosystem impacts as water leaves one basin and enters another.").

274. *See id.*; Ole Ellekrog, *The Outrageous Scheme to Capture and Sell Greenland's Meltwater*, WIRED (Sep. 19, 2024), https://www.wired.com/story/the-outrageous-scheme-to-capture-and-sell-greenlands-meltwater [https://perma.cc/FA6P-JYQE] (detailing potential issues with transporting water from Greenland to other parts of the world including economic feasibility and carbon emissions).

275. *See* Brian Singleterry, *Marketing Interstate Harmony: Interstate Water Markets as an Alternative to Resolving Water Conflicts*, 2 TEX. A&M L. REV. 527, 544 (2015) ("Generally, water markets are limited to a single state.").

276. *See* Korosec, *supra* note 142 ("T. Boone Pickens . . . also invests in water. Which isn't exactly breaking news. His company Mesa Water has been scooping up water rights in the Texas Panhandle for more than a decade.").

277. *See id.* ("Mesa Water owns permits for about 200,000 acre-feet or 65 billion gallons of water a year. To put that in perspective: One acre-foot of water is enough to meet demand of four people for a year.").

278. *See* Nicholas E. Arrott, Comment, *Caution! T. Boone Pickens Plans to Permanently Alter Texas's Landscape Above and Below Ground, from the Panhandle to Metropolis*, 9 TEX. TECH ADMIN. L.J. 265, 267 (2008) ("Pickens and Mesa Water gained the power to pump the groundwater at this rate to a metropolitan municipality through the creation of a fresh water supply district, which gives them the power to use 'eminent domain to condemn and take property needed to' lay a pipeline from the Texas Panhandle to a metropolitan municipality.").

279. *See* S.C. Gwynne, *The Last Drop*, TEX. MONTHLY (Feb. 2008), https://www.texasmonthly.com/articles/the-last-drop [https://perma.cc/T7YP-XX56] (estimating the cost of transporting water over 200 miles to be around one billion dollars).

sources were cheaper, such as water reuse.[280] Pickens ended up selling the water to the city of Amarillo and earning some profits, but certainly not of the magnitude he expected.[281] It must be acknowledged though that the situation may become so dire that the most outrageous proposals, such as shipping water via a submerged pipeline in the Pacific Ocean from the Pacific Northwest to California,[282] come to fruition. Part IV will explore solutions that should prevent market concentration before it arises and without the participation of antitrust agencies.

When an investment fund holds most water rights in an area, it can exploit such power by raising prices. Buyers will have their hands tied if that investment fund is the only agent available to provide them with the amount of water they need. TransAlta in Washington state is an example. TransAlta water rights dominate in their area because the power company owns the most water rights and there is no water for new rights in the

280. *See generally Basic Information About Water Reuse*, U.S. ENV'T PROT. AGENCY (last updated Apr. 26, 2024), https://www.epa.gov/waterreuse/basic-information-about-water-reuse [https://perma.cc/E2HF-PBV7] (explaining water reuse and what it can be utilized for).

281. *See* Joe Nick Patoski, *Boone Pickens Wants to Sell You His Water*, TEX. MONTHLY (Aug. 2001), https://www.texasmonthly.com/the-culture/boone-pickens-wants-to-sell-you-his-water [https://perma.cc/QEM2-26RQ] ("Boone Pickens wants to sell you his water and you're going to need it, eventually, since Texas' most precious natural resource is being depleted at an alarming rate."); Associated Press, *Pickens Sells Water Rights to Panhandle Authority*, CHARLESTON GAZETTE-MAIL (Apr. 10, 2011), https://www.wvgazettemail.com/pickens-sells-water-rights-to-panhandle-authority/article_24bf3400-43af-5bf7-90ff-1008803ee039.html [https://perma.cc/2C5S-9ZQG] ("Billionaire T. Boone Pickens and a Panhandle water authority have reached a tentative deal for the sale of most of Pickens' Panhandle water rights to the authority, both sides announced on Thursday."); Betsy Blaney, *T. Boone Pickens Sells Water Rights to Texas Water Supplier for $103 Million*, OKLAHOMAN (June 24, 2011), https://www.oklahoman.com/story/business/2011/06/24/t-boone-pickens-sells-water-rights-to-texas-water-supplier-for-103-million/61154706007 [https://perma.cc/LJ4T-7THU] ("Pickens acquired the water rights for an undisclosed price earlier this decade through his Dallas-based Mesa Water with hopes of selling it to thirsty cities elsewhere in the state. He couldn't find a buyer and decided in April to sell to the nearby supplier.").

282. *See* Denise Fort & Barry Nelson, *Pipe Dreams: Water Supply Pipeline Projects in the West*, NAT. RES. DEF. COUNCIL 34 (June 2012), https://www.nrdc.org/sites/default/files/Water-Pipelines-report.pdf [https://perma.cc/2DJX-DGLP] (describing a proposal "for an under-sea pipeline from the mouth of the Columbia River to Castaic Lake for MWD usage and to the All-American Canal to offset diversions from the Colorado River").

basin.[283] Consequently, one of the only options for anyone seeking to increase water use, or looking for new developments, is to buy from TransAlta's water bank.[284]

This is even more concerning when the buyer is a public entity buying those water rights with taxpayer money. The entity would be using taxpayer money to fund the purchase of water, a resource declared as belonging to the public.[285] Water Asset Management may hold the key water rights if Colorado needs to buy water outright to fulfill its obligations under the current Colorado River Compact.[286] This would allow Water Asset Management to exploit its privileged position. Similarly, the Environmental Water Account, created in the 2000s by the State of California to restore river flows in the Sacramento-San Joaquin Delta, provided 380,000 acre-feet of water a year, at a cost of around fifty million appropriated from bond proceeds.[287] One fifth of the total amount spent on water rights went to companies controlled by Stewart Resnick, who owns Wonderful and other

283. *See infra* Part IV.C.

284. *See* Börk & Ziaja, *supra* note 111, at 1338–39 ("[N]ew water right holders must reduce their use to protect the river. But TransAlta's water rights are so old they predate Washinton's minimum instream-flow rules for the Skookumchuck; buyer would be able to use these rights to withdraw water without complying with modern instream flow requirements . . . .").

285. *See* WASH. REV. CODE § 90.03.010 (2024) ("Subject to existing rights all waters within the state belong to the public, and any right thereto, or to the use thereof, shall be hereafter acquired only by appropriation for a beneficial use and in the manner provided and not otherwise . . . .").

286. *See* Sackett & Runyon, *supra* note 36 ("Under the terms of the 1922 Colorado River Compact, the Upper Basin states . . . are required to deliver 75 million acre-feet of water over 10 years to the Lower Basin states . . . . If the Upper Basin can't deliver . . . it could lead to a compact call, triggering involuntary cutbacks and an interstate legal quagmire that could drag on for decades.").

287. *See* Deirdre Des Jardins, *The Disappearance of the CALFED Environmental Water Budget*, CAL. WATER RSCH. (Feb. 11, 2020), https://cah2oresearch.com/2020/02/11/the-disappearance-of-the-calfed-environmental-water-budget [https://perma.cc/P829-KF5M] ("[T]he 380,000 acre-feet of water that was to be provided annually by the Environmental Water Account has basically vanished."). For a description of EWA purchases, see Larry R. Brown et al., *Managing Water to Protect Fish: A Review of California's Environmental Water Account, 2001-2005*, 43 ENV'T MGMT. 357 (2009). "The [CALFED] program has since adapted and evolved into a broader Bay-Delta program that includes the Bay-Delta Conservation Plan, the Delta Science Program, and the Delta Plan, released in May of 2013." [OFF.] OF MGMT. & BUDGET, EXEC. [OFF.] OF THE PRESIDENT, CALIFORNIA BAY-DELTA FEDERAL BUDGET CROSSCUT, FISCAL YEAR 2020, at 1 (2020).

agribusinesses.[288] The Resnicks controlled much of the rights in the Kern Water Bank region, making them monopolists. The Resnicks were also, to an extent, monopsonists, because they could outbid anyone if they needed water.[289]

Furthermore, controlling most water rights or land in some type of irrigation organizations can translate into a company's having absolute power over the decisions of that institution.[290] Under community externalities, this Article mentions the informal influence large owners, absent or not, may have in the community. Here concentration refers not to soft power, but actual institutional control. Once a company owns most of the water rights, it can expand its control further by biasing rules in the company's favor, since not all irrigation organizations are subject to the one person, one vote paradigm.[291] Instead, most have voting rules based on land or water ownership.[292] For example, Colorado's Anti-Speculation Work Group acknowledged that concentration of water rights in one holder could lead to changes in irrigation organizations' bylaws favoring the powerful owner.[293] This power may also translate into more influence over the regulator or more capacity to resist regulation. This risk of control by private actors motivated limits on the oil rights a single company could hold across federal lands and on the oil rights

288. *See* Mike Taugher, *Gaming the Water System*, E. BAY TIMES (Aug. 15, 2016), https://www.eastbaytimes.com/2009/05/24/gaming-the-water-system [https://perma.cc/BY32-SHQW] ("[R]oughly one-fifth of all the money spent to buy water for the program went to companies owned or controlled by Resnick, one of the state's largest farmers.").

289. *See supra* note 104.

290. *See* Dave Owen, *The Water District and the State*, 134 YALE L.J. 1, 5 (2024) (describing how California water management "is dominated by local special districts" who "are often controlled by large land owners, not just as a practical reality but as a matter of law").

291. See Barton H. Thompson, Jr., Institutional Perspectives on Water Policy and Markets, 81 Calif. L. Rev. 671, 700 (1993) (describing how voting systems work across districts).

292. *See id.* ("Voting systems vary from district to district. Some districts elect their board members by a popular vote of all local residents. Others, however, permit only landowners to vote, and often weight votes by acreage owned or by the assessed value of that acreage.").

293. ANTI-SPECULATION L. WORK GRP., SB 20-048, REPORT OF THE WORK GROUP TO EXPLORE WAYS TO STRENGTHEN CURRENT WATER ANTI-SPECULATION LAW 54 (2021) ("A speculator who owns the majority of shares could change the bylaws. Limits on voting power might be evaded through transfers of ownership of some shares to entities related to the speculator.").

in federal lands in a single state.[294] This control by powerful entities often implies the control by out of state entities.[295]

In this vein, ownership of water cannot be disassociated from land. Agribusinesses cultivate far more acreage than small farms[296] and are considered to be worse for the environment, given their monoculture and the heavy use of pesticides and chemical fertilizers to restore the soil.[297] While the contribution of agribusinesses to feeding the world is important, they are displacing small farms.[298] A small farm could conceivably be inefficient as a unit of production, but if we broaden the scope of analysis, its overall social and environmental contribution is positive. This move is somewhat similar to the one being advocated by the New Brandeis School of Antitrust in relation to the analysis of mammoth companies like Amazon.[299] The old antitrust approach of focusing on consumer welfare based exclusively on price does not capture the impact of such companies.[300] While they can offer the lowest prices possible, the Amazons of the world are displacing small business and have deleterious impacts on the job market.[301] Furthermore, the presence of large actors, particularly if

294. Ross L. Malone, Jr., *Oil and Gas Leases on Federal Lands*, 14 MONT. L. REV. 20, 25 (1953) (exploring the lease and acreage restrictions placed on oil companies).

295. For an analysis on export restrictions and the dormant commerce clause, see Christine A. Klein, *The Dormant Commerce Clause and Water Export: Toward A New Analytical Paradigm*, 35 HARV. ENV'T L. REV. 131 (2011).

296. *See supra* note 233.

297. *See supra* note 234.

298. For a view that large, industrial farms are beneficial, see Jim Chen & Edward S. Adams, *Feudalism Unmodified: Discourses on Farms and Firms*, 45 DRAKE L. REV. 361, 370–73 (1997).

299. *A Brief Overview of the "New Brandeis" School of Antitrust Law*, PATTERSON BELKNAP (Nov. 8, 2018), https://www.pbwt.com/antitrust-update-blog/a-brief-overview-of-the-new-brandeis-school-of-antitrust-law [https://perma.cc/33Y6-SXQW] ("[T]he 'New Brandeis' or 'Neo Brandeis' movement . . . is concerned with the downsides of bigness and economic concentration.").

300. *See id.* (explaining the argument that the old approach to antitrust law—that of the Chicago School—fails to accurately capture the impact of large companies like Amazon because it focuses almost exclusively on "efficiency, prices, and consumer welfare" at the expense of considering things like market structure).

301. *See, e.g.*, Irene Tung & Yannet Lathrop, *A Good Living: Amazon Can and Must Make a Middle-Income Livelihood Possible for the People Who Work in Its Warehouses*, NAT'L EMP. L. PROJECT 1–2 (Sept. 2023), https://www.nelp.org/app/uploads/2023/09/A-Good-Living-MakeAmazonPay_2024.pdf [https://

they wait to sell to the highest bidder, probably some distant city, may be associated with future transbasin transfers.[302] Transbasin transfers produce more environmental effects, as the Owens Valley water grab shows.[303]

III. EXAMPLES OF LARGE ACTORS' QUESTIONABLE WATER MARKET PRACTICES

The following short case studies review markets or market transactions where investors, brokers, or other players have engaged in speculative market practices. The actors involved tend to be large, representing our scale problem, and at times have a dominant position in the market. First, the Owens Valley case covers an old transaction, from the 1920s, that has tainted all discussion on water markets. This case highlights the environmental and social effects of drying up a region, the uneven distribution of power between actors, and the risk of fraudulent practices. Second, the investment of financial firms in Colorado encapsulates the current worry in the West: Water is a hot commodity and firms with deep pockets have not failed to notice. These firms are buying water as an investment asset, not a production input. The Colorado case illustrates the reaction to such conduct that seems to negate the basic tenets of prior appropriation and some of the practical negative effects that arise in the form of concentration and control beyond markets. Third, the Washington State analysis shares some similarities with the Colorado one because it also includes Wall Street-type investment. But Washington State also offers: (1) an example of a transaction that would lead to a certain monopoly on the seller side, the TransAlta case, even though water was not initially bought as a financial investment, and (2) the loopholes in environmental protections exploited via water markets.

A. OWENS VALLEY: THE ORIGINAL SIN

The poster child of why water markets are dangerous and unfair is the transaction between Los Angeles and Owens Valley,

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perma.cc/7NBZ-YL5P] (noting that Amazon, the second largest private-sector employer in the country, has implemented pay rates that "substantially shifted average warehouse earnings lower in counties where it operates").

302. *See* Klein, *supra* note 235, at 252–54, 259–60.

303. *See id.* at 265 (explaining the serious environmental effects caused by Los Angeles taking water from the Owens Valley area).

carefully depicted by the classic Hollywood film, *Chinatown*[304] or the more recent animated movie *Rango*.[305] In 1908, the construction of the Los Angeles Aqueduct started.[306] Los Angeles bought land and water from Owens Valley residents.[307] Los Angeles misled those residents by pretending to be ranchers and farmers.[308] By 1924, Owens Lake was dried up because of Los Angeles's diversions.[309] Residents protested Los Angeles's purchases.[310] Business owners struggled with the loss of business.[311] Facing this critique, Los Angeles purchased eighty-five percent of Owens Valley's residential and commercial property and ninety-five percent of the valley's farm and ranch land which later sold devoid of water rights.[312] In the 1970s, Los Angeles also started pumping groundwater from the same area.[313] The fraud involved in many of the transactions makes the Owens Valley water grab the original sin in water markets. However, it is also just an illustration of imbalances of power in water transactions, here between the mammoth Los Angeles and the poorer Owens Valley residents.

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304. CHINATOWN (Paramount Pictures 1974).

305. RANGO (Paramount Pictures 2011).

306. *Los Angeles Aqueduct: Facts & History*, L.A. DEP'T OF WATER & POWER, https://www.ladwp.com/who-we-are/water-system/los-angeles-aqueduct/facts-history [https://perma.cc/VR73-KKV2].

307. *Id.*

308. Klein, *supra* note 235, at 265 ("In the early twentieth century, realizing that its water supply would soon become insufficient, [Los Angeles] reached across the Sierra Nevada Mountains to the remote Owens Valley. There, city officials stealthily purchased water rights and options for land, pretending to be ranchers and farmers.").

309. *See Owens Valley Water History (Chronology)*, INYO CNTY. WATER DEP'T (Jan. 2008), https://www.inyowater.org/documents/reports/owens-valley-water-history-chronology [https://perma.cc/KJF7-URND].

310. *See id.*

311. *See id.*

312. William L. Kahrl, *Part II: The Politics of California Water: Owens Valley and the Los Angeles Aqueduct, 1900–1927*, 6 HASTINGS W.-NW. J. ENV'T L. & POL'Y 255, 265 (2000).

313. *Owens Valley Water History (Chronology)*, *supra* note 309 (noting that in 1972 Los Angeles announced plans to permanently increase groundwater pumping in the Owens Valley); *see also* WESLEY R. DANSKIN, U.S. GEOLOGICAL SURV., WATER-SUPPLY PAPER 2370-H, EVALUATION OF THE HYDROLOGIC SYSTEM AND SELECTED WATER-MANAGEMENT ALTERNATIVES IN THE OWENS VALLEY, CALIFORNIA 1 (1998) (describing how average ground-water pumpage from the Owens Valley increased by a factor of five beginning in 1970, causing major changes in the hydrologic system).

Between the 1930s and 1980s, the California legislature passed Area of Origin Laws.[314] "Area of Origin laws are a set of legislat[ive] enactments that collectively seek to reassure users of water in the geographic area where [marketed water originates] that their water supply needs will be protected from impacts of exporting water out of the area of origin."[315] In times of need, these laws entitle water right holders in a single basin "to priority access to natural flows over export users regardless of the standard 'first in time, first in right' water rights priority system."[316] They were meant to appease Northern California, which feared that the state and federal infrastructure projects would take water from their basin to Southern California.[317] These protective laws aimed to avoid situations like Owens Valley.[318]

The Owens Valley saga has yet to end. In 2017, Inyo County, the county where Owens Lake is located, attempted to use eminent domain over some of the land—mostly landfills—and water rights owned by the Los Angeles Department of Water and Power in an effort to regain control of resources key to the area's development.[319] California's Superior Court put an end to those dreams by requiring Inyo County to prepare environmental impact statements and ordering them to pay litigation costs to the Los Angeles Department of Water and Power.[320]

Beyond the control over resources, environmental degradation as a result of the water grab is still an issue today. In

314. *See* CAL. WATER CODE. §§ 10500–06, 11460–65, 12200–05, 1215–22, 12230–33 (West 2024). "Since [sections 1215 through 1222 of the California Water Code] only apply their protection to appropriative water rights issued after 1985, they are of limited importance." Craig M. Wilson, *Calfornia's Area of Origins Laws*, CAL. ST. WATER RES. CONTROL BD. 4 n.1 (2013), https://www.waterboards.ca.gov/board_info/agendas/2013/oct/100813_7origin.pdf [https://perma.cc/K67W-WVW8]. "[Sections 12230 through 12233 of the California Water Code] specify that prior water rights in the San Joaquin River watershed will be protected." *Id.* at 4 n.2.

315. WILSON, *supra* note 314, at 4.

316. *Id.* at 8.

317. *Id.* at 5.

318. *Id.*

319. Sahagun, *supra* note 209 (explaining Inyo County's use of eminent domain against the Los Angeles Department of Water and Power).

320. *Inyo County Loses Court Case on Environmental Laws in Seeking to Take L.A.'s Land and Water Rights*, SIERRA WAVE MEDIA (June 8, 2020), https://sierrawave.net/inyo-county-loses-court-case-on-environmental-laws-in-seeking-to-take-l-a-s-land-and-water-rights [https://perma.cc/U84P-LF42].

addition to the potential effects of any transbasin diversion, the dry Owens Lake exposed an area larger than Manhattan and has become a toxic air pollution source.[321] In the 2000s, the State of California allocated the insufficient amount of twenty-four million dollars to restore the Owens River.[322]

Comparing the Owens Valley saga with the East Palo Verde Irrigation District sales to the Metropolitan Water District, a Los Angeles water supplier, helps identify some of the wrongs in the Owens Valley case. East Palo Verde, on the border with Arizona and supplied with Colorado River water, entered into a collective lease agreement with Metropolitan to leave some lands fallow every year, in a rotating fashion.[323] That deal is transboundary, but any negative effects are short-lived, and the agreement was an agreement, not an imposition, and had the community's approval.[324]

However, Metropolitan has more recently engaged again in what some consider unsavory practices. Metropolitan has bought pieces of land in the East Palo Verde district for a total of $250 million.[325] The district has leased the land and the water rights with the added condition that tenants cannot use more than a certain amount.[326] If the tenants do use more, they face

321. Tom Hegen, *The Owens Lake Series*, BEHANCE (Nov. 9, 2022), https://www.behance.net/gallery/156643775/The-Owens-Lake-Series?locale=en_US [https://perma.cc/UX9E-JHZT] ("Due to the exposed lake bottom, dust storms around the [dry Owens Lake] increased significantly. As a result, toxic dust particles such as arsenic and cadmium entered the atmosphere and later caused respiratory problems for residents of the surrounding communities.").

322. *See* Randal C. Archibold, *A Century Later, Los Angeles Atones for Water Sins*, N.Y. TIMES (Jan. 1, 2007), https://www.nytimes.com/2007/01/01/us/01water.html [https://perma.cc/8842-C5VJ] (noting that the river restoration project budget is twenty-four million, which was won from lawsuits brought by environmental groups).

323. *Securing Colorado River Supplies: An Urban-Agriculture Partnership in the Palo Verde Valley*, METRO. WATER DIST. OF S. CAL. (Nov. 2018), https://d1q0afiq12ywwq.cloudfront.net/media/18655/642_water_reliability_palo_verde.pdf?keywords=fallowing%20program [https://perma.cc/B4UV-NZ9S].

324. *See* Ian James, *A New Fight over Water in the California Desert, with Echoes of 'Chinatown,'* DESERT SUN (Sept. 28, 2017), https://www.desertsun.com/story/news/environment/2017/09/28/water-fight-california-desert-colorado-river-lawsuit/655630001 [https://perma.cc/S746-VEXG] (discussing local participation in and the funds paid through the agreement).

325. *Id.* (noting the 2015 property purchase made Metropolitan the largest landowner in the Palo Verde Irrigation District).

326. *Id.* ("[The District of Southern California] started renting the land to growers under leases that impose strict water-saving limits . . . .").

steep prices.[327] The water saved is supposed to flow down to Los Angeles.[328] This has awakened the ire of the district because it fears a new Owens Valley grab. East Palo Verde Irrigation District filed a suit, which was recently dropped.[329]

The Owens Valley water grab is an example of how scale can lead to unfair transactions because the parties are not on an even playing field. Owens Valley shows the devastating consequences when a community loses control of its water and its future. This water grab is a very salient part of California's water history; a part that still causes concern. Even after more than a decade of cooperative relationship between Metropolitan Water District and East Palo Alto Irrigation District, the Irrigation District filed a suit when Metropolitan's strategy reminded it of the fraudulent ones used by Los Angeles in the Owens Valley case.

B. WALL STREET IN COLORADO

Water Asset Management, a New York based financial company, has bought the largest share of rights in many Colorado mutual ditch companies,[330] such as, the Grand Valley Water Users Association or the Grand Valley Irrigation Company. Mutuals are irrigation organizations created, in some cases, over a century ago.[331] "A mutual water company is a nonprofit corporation that owns diversion or storage works and delivers water at

327. *Id.* (stating farmers who fail to cut back on water usage per the terms of the lease are charged much higher rents).

328. *See* Elliot Spagat & Jae Hong, *L.A. Water Agency's Desert Land Purchase Stirs Farmers' Fears*, KQED (Nov. 23, 2015), https://www.kqed.org/news/10769160/l-a-water-agencys-desert-land-purchase-stirs-farmers-fears [https://perma.cc/69Q6-G578].

329. James, *supra* note 324.

330. Mutual ditch companies have been the main institution distributing water for irrigation in Colorado since the nineteenth century. Mutuals, often incorporated as a non-profit corporation, were created to amass the resources necessary to build water infrastructure for irrigation. A mutual's customers are also its shareholders. *See* Michael Weeks, *Irrigation in Colorado*, COLORADO ENCYCLOPEDIA, https://coloradoencyclopedia.org/article/irrigation-colorado [https://perma.cc/RWU7-H7JF] ("These companies issue stock to farmers; however, unlike stock traded on Wall Street, each share entitles the holder . . . to a volume of water in a given year."); Fandi P. Nurzaman, *Irrigation Management in the Western States, Seen from Overseas*, CAL. WATER BLOG (June 18, 2017), https://californiawaterblog.com/2017/06/18/irrigation-management-in-the-western-states-seen-from-overseas [https://perma.cc/9E4K-F782]; Thompson, *supra* note 292, at 687.

331. *See* Thompson, *supra* note 292, at 690.

cost to users who own its stock, and that derives its operating funds from assessments levied against the stockholders."[332] The mutual holds water rights as a trustee for its shareholders but equitable ownership over those water rights remains in the shareholders.[333] Judicial decisions have recognized that shareholders have transferable water rights.[334] Thompson notes that mutuals are non-profit corporations "enlivened with a dollop of community spirit."[335]

Water Asset Management is complying with the letter of the law, but perhaps not its spirit. Colorado's Supreme Court has repeatedly expressed that Colorado's water rights must be put to use, that a developer or a buyer who owns those rights must use them, and that undefined future plans to sell the water are not enough to not be consider a speculator.[336] But Water Asset Management did not put itself in such a position. It bought water rights in the Grand Canal area and immediately leased them and the land back to the previous owners, meaning water rights are used and forfeiture is avoided.[337] What remains an enigma is exactly what these financial investors are really pursuing. Some claim they want to play arbitrage.[338] The State of Colorado

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332. FRANK J. TRELEASE, CASES AND MATERIALS ON WATER LAW: RESOURCE USE AND ENVIRONMENTAL PROTECTION 612 n.1 (2d ed. 1974).

333. *See* 3 CLESSON S. KINNEY, A TREATISE ON THE LAW OF IRRIGATION AND WATER RIGHTS § 1481 (2d ed. 1912).

334. *Jacobucci v. Dist. Ct. ex rel. County of Jefferson* also emphasized that the shares of stock also represent "a definite and specific water right[.]" 541 P.2d 667, 672–74 (Colo. 1975) (en banc) (analyzing the rights that stem from stock ownership).

335. Thompson, *supra* note 292, at 699.

336. *See* High Plains A&M, LLC v. Se. Colo. Water Conservancy Dist., 120 P.3d 710, 720–21 (Colo. 2005) ("A water right requires both an appropriator and a place where the appropriation is put to actual beneficial use. Accordingly, a change decree recognizes a new situs for the appropriation . . . . [T]he 1969 Act anticipates, as a basic predicate of an application for a decree changing the place of use, that there is a sufficiently described actual beneficial use to be made at an identified location or locations under the change decree.").

337. *See* Sackett & Runyon, *supra* note 36 ("[Water Asset Management] are cash buyers—a rare offer in [the Grand Canal] rural area. In many cases, [Water Asset Management] makes improvements to irrigation infrastructure, such as adding center pivots and lining ditches, and leases the land back to farmers to keep it in agricultural production.").

338. *See* Brian Lund, *Arbitrage and the Invisible Hand: Enhancing Price Efficiency Across Markets*, BRITANNICA MONEY (Mar. 21, 2025), https://www.britannica.com/money/what-is-arbitrage [https://perma.cc/EG4F-RXM7]

has water right buyback programs to ensure it can comply with the obligations of the Colorado River Compact.[339] With climate change dwindling supplies and demand growing, the state can only comply if it pays farmers not to irrigate.[340] If they need water from certain areas or a certain volume, their counterpart will have to be Water Asset Management. Others believe Water Asset Management is waiting to sell the water, not to the state, but to urban areas in the market once a drought crisis strikes or regular scarcity becomes unsurmountable.[341] These hypotheses ring true given the past conduct of the company. Water Asset Management's CEO has often offered versions of the adage "water is the new oil." He said: "Investing in the water industry is one of the great opportunities for the coming decades . . . . Water is the scarce resource that will define the 21st century, much like plentiful oil defined the last century."[342] The State of Colorado has studied how to amend their water laws to ensure that this type of concentration is avoided.[343]

("Arbitrage is a financial or economic strategy that involves exploiting price differences for the same asset, security, or commodity in different markets or locations. The goal of arbitrage is to make a risk-free profit by taking advantage of price disparities.").

339. *See Colorado River Compact*, WATER EDUC. FOUND. (last updated Mar. 2024), https://www.watereducation.org/aquapedia-background/colorado-river-compact [https://perma.cc/76ES-JB55] (explaining the Colorado River Compact); *Colorado River Post 2026 Operations*, BUREAU OF RECLAMATION (last updated Jan. 17, 2025), https://www.usbr.gov/ColoradoRiverBasin/post2026/index.html [https://perma.cc/RV8M-CCUX] (identifying Colorado River Compact documents and agreements that will expire in 2026 and the process for replacing those processes); Sackett & Runyon, *supra* note 36.

340. *See* Sackett & Runyon, *supra* note 36 ("At the heart of such a program envisioned by state officials . . . is the concept of paying irrigators to use less water by fallowing fields. By doing so, there will be more water in the Colorado River flowing downstream to be stored in Lake Powell in an effort to bolster reservoir levels and help Colorado meet its Colorado River Compact obligations.").

341. *See id.* (quoting one Colorado state senator as saying "[Water Asset Management's] goal is to buy assets, to make money—and as much money as they can").

342. Schwartz, *supra* note 24.

343. *See* Michael Booth & Thy Vo, *Colorado Wants to Keep Investors from Flipping Water Rights. Let the Speculation Begin.*, COLO. SUN (Dec. 14, 2021), https://coloradosun.com/2021/12/14/colorado-water-speculation-draft-legislature [https://perma.cc/VYM9-N95H] (explaining Colorado state officials have been studying how to strengthen their anti-speculation laws but have yet to come to a consensus on the proper approach).

The attitude of some farmers against these new entrants in the water market could be perceived as another instance of protectionism. They do not only dislike Water Asset Management, but they purportedly also dislike newcomers investing in agricultural land and managing it differently.[344] This is the critique of Eli Feldman, the President of Conscience Bay, a real estate investment firm based in Boulder.[345] Conscience Bay owns a 3,400-acre ranch, Harts Basin Ranch, in Delta County.[346] The company owns the highest priority water right, meaning that its water right—which dates back to 1881—is the oldest and the one that will be able to use water from Surface Creek in Grand Mesa first.[347] Neighboring farmers and Western Slope water managers look at Conscience Bay with suspicion, but Conscience Bay denies that their goal is to engage in water speculation.[348] Instead, the company claims that it is in the ranching business. Specifically, Conscience Bay says it is there to raise cattle differently by producing "organic beef using regenerative techniques that operators say are better for soil health."[349]

If Conscience Bay is telling the truth, the regulations of water investment and limits to water hoarding practices should distinguish between speculative practices and those who do not want to engage in speculation but are still large investors.[350] Drawing the line between these two types of investments is not easy, as the Colorado Anti-Speculation Study Group Report reflects.[351] In their final report, the group analyzed nineteen potential ways to address investment speculation.[352] Of those, only eight were forwarded to the legislature for further study, with no endorsement of any particular measure.[353] This group

344. *See* Runyon & Sackett, *supra* note 130 ("In a big-picture sense, irrigators may worry about the impact to their community and way of life if all their neighbors sell to hedge funds. But when it's their turn to receive a check for their water rights, they don't want regulators doing anything that would make the process harder or devalue the ranch they have put their lives into . . . .").

345. *See id.*

346. *See id.*

347. *See id.*

348. See *id.*

349. *See id.*

350. *See id.*

351. *See* ANTI-SPECULATION L. WORK GRP., *supra* note 293.

352. *See id.* at 38–62.

353. *See id.* at 8, 62–66.

considered and discarded measures such as creating a fund to buy water rights targeted by speculators.[354] The eight measures that were advanced included: requiring water to be tied to land; taxing profits derived from the sale or lease of water rights previously purchased for speculation purposes; and establishing a maximum rate of water right price increases, then imposing higher taxes when that rate is exceeded.[355] The measure closest to the one adopted by the legislature involved establishing a statewide process to identify and prohibit investment in water speculation, as discussed further in Part IV below.

C. INSTRUMENTAL USE OF ENVIRONMENTAL REGULATIONS IN WASHINGTON

Washington is not in a harsh drought right now, but many of its streams are already fully appropriated.[356] Basins are closed,[357] that is, any new right for development or growth must come from reallocating an existing right.[358] The State of Washington enabled the creation of water banks to address this problem.[359] This has also been a problem for instream flow requirements: Instream flows have the date of their establishment as their priority date, giving them lower priority than senior water rights.[360] The latter problem, the need to guarantee water for

354. *See id.* at 46, 38–61.

355. *See id.* at 62–66.

356. *See* Osborn & Mayer, *supra* note 92, at 181 (describing Washington's streams and rivers as "over-appropriated").

357. *See id.* at 193–99 (noting some basins that have been closed across Washington state).

358. *See id.* at 181 ("[T]he issuance of new water rights has until recently required water-for-water or in-kind mitigation, with the goal to directly compensate for deleterious impacts."); *see also* Alyssa A. Moir, *Washington State's Legislature Provides Relief to Rural Communities*, K&L GATES HUB (Feb. 21, 2018), https://www.klgates.com/Washington-States-Legislature-Provides-Relief-to-Rural-Communities-02-21-2018 [https://perma.cc/M84M-E9PX] (summarizing three Washington court cases that prevented the Department of Ecology from issuing new use permits).

359. *See Water Banks,* WASH. STATE DEP'T OF ECOLOGY, https://ecology.wa.gov/water-shorelines/water-supply/water-rights/water-banks [https://perma.cc/CP7S-8WQ2] ("In Washington, water banks provide mitigation for those new [water] uses by setting aside an existing water right so it can be allotted to new uses that would otherwise impair other water rights.").

360. *See* Rachael Paschal Osborn, *From Loon Lake to Chuckanut Creek: The Rise and Fall of Environmental Values in Washington's Water Resources Act*, 11

environmental uses, was addressed via the creation of the Trust Water Right Program in 1989.[361] As the next paragraphs explain, some of the water banks used the Water Trust Right Program instrumentally to sidestep the application of the forfeiture doctrine.

The goal of the Trust Water Right Program is to allow users to donate water rights permanently or temporarily.[362] Water in the Trust is administered by the Washington State Department of Ecology to protect decimated flows and to ensure adequate flows for fish and wildlife.[363] If water rights are banked in the Trust, those rights are not subject to cancellation for non-use.[364] The Trust has been connected to water banks.[365]

A water bank is "a mechanism designed to facilitate the transfer of water use entitlements from one location or use to another. A water bank functions like an intermediary, or broker, similar in some ways to a financial bank that acts as a broker or

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WASH. J. ENV'T L. & POL'Y 115, 122–23, 129 (2021) (outlining the Washington Department of Ecology's implementation of the Water Resources Act to create the instream flow rules program which protects instream flows, but noting that instream flows may not impair pre-existing water rights and thus, "[a] chief problem with Washington's flow program is that virtually all out-of-stream water rights pre-date the flows protected under the instream flow rules").

361. *See* HEDIA ADELSMAN, WASH. DEP'T OF ECOLOGY & WASH. DEP'T OF FISH & WILDLIFE, PUBL'N NO. 03-11-005, WASHINGTON WATER ACQUISITION PROGRAM: FINDING WATER TO RESTORE STREAMS 7 (2003) ("Lawmakers enacted several statutory provisions that address the legal constraints found in the state surface and groundwater codes by establishing a 'trust' water right program.").

362. *Trust Water Rights Program*, WASH. DEP'T OF ECOLOGY, https://ecology.wa
.gov/water-shorelines/water-supply/water-rights/trust-water-rights [https://perma.cc/W4Y2-A5SC]; *see also* ADELSMAN, *supra* note 361, at 7 (explaining that the goal of the Trust Water Rights program is to facilitate and encourage the donation of water rights).

363. *See Trust Water Rights Program*, *supra* note 362 (noting the Trust Water Rights Program can provide environmental benefits).

364. *See* ADELSMAN, *supra* note 361, at 26 ("Once the right is placed into the trust water right program, the right is exempt from relinquishment [for non-use].").

365. In most states, water banks operate as brokers and clearinghouses connecting water buyers with potential water sellers. Nazaret M. Montilla-López et al., *Water Banks: What Have We Learnt from the International Experience?*, WATER, Oct. 2016, at 1, 4–5 (noting that most states employ "active water banks," which are "[t]hose where the managers of the bank adopt a proactive strategy as 'market makers,' buying water rights out of the bank's own budget, and subsequently attempting to sell them to potentially interested users").

clearinghouse between savers and borrowers."[366] Water banks in Washington can be public or privately sponsored.[367] Parties who want to establish a water bank buy water rights and apply for the approval of the water bank.[368] In doing so, the Department of Ecology defines which area can buy water from the bank to mitigate new uses or growth in existing uses.[369] The area is defined depending on where the original right was used and where there will be no large environmental externalities if that right is put to use after the transaction.[370] Bank operators use the Trust Water Right Program to park the rights they have or have acquired while they set up the bank, wait for approvals, or while no transactions take place.[371] While the right in the trust is owned by the Washington State Department of Ecology, the operator of the water bank sells the mitigation credit.[372] The State of Washington has more than two dozen local water banks.[373] The Trust Program's connection to water banks has been criticized.[374] Some of the rights in the Trust had been previously

366. *Public Policy and Economic Analysis – Water*, OR. ST. UNIV. COLL. OF AGRIC. SCIS., https://agsci.oregonstate.edu/appliedecon/public-policy-and-economic-analysis-water [https://perma.cc/Y5G2-WG6A].

367. Alyssa A. Moir, *The Future of Washington's Water Banks*, K&L GATES HUB (June 15, 2021), https://www.klgates.com/The-Future-of-Washingtons-Water-Banks-6-15-2021 [https://perma.cc/2LA5-E7BL] ("In general, a water bank provides a mechanism in which a water right holder can 'deposit' a water right with a public or private entity (the bank) that can make the water rights available for another person or use in a downstream location.").

368. *See* WASH. STATE DEP'T OF ECOLOGY, POL'Y NO. POL-1010, ADMINISTRATION OF THE STATEWIDE TRUST WATER RIGHTS PROGRAM POLICY AND INTERPRETIVE STATEMENT 3–4 (2024) [hereinafter TRUST PROGRAM POLICY GUIDANCE]; *see also Request to Establish or Modify a Water Bank, Form No. ECY 070-679*, WASH. STATE DEP'T OF ECOLOGY (2023), https://apps.ecology.wa.gov/publications/documents/ecy070679.pdf [https://perma.cc/EM5T-WTY7].

369. *See* sources cited *supra* note 368.

370. *See* TRUST PROGRAM POLICY GUIDANCE, *supra* note 368, at 3–7.

371. *See id.* at 2, 9–21 (outlining how temporary and permanent donations of water rights for instream flows or groundwater preservation operate).

372. *See* Osborn & Mayer, *supra* note 92, at 198.

373. *See* Levi Pulkkinen, *Legislature Eyes Ways to Control Speculators Buying Washington Water Rights*, INVESTIGATE W. (Feb. 4, 2020), https://www.investigatewest.org/investigatewest-reports/legislature-eyes-ways-to-control-speculators-buying-washington-water-rights-17692700 [https://perma.cc/TP9F-FSPQ].

374. *See, e.g.*, *id.* (describing Washington's water banking system as "lightly regulated and opaque," and noting concerns about speculation after Resort Developers in Kittitas County, WA bought water rights held in trust and opened

dormant, underutilized.[375] If those rights not utilized are put in the Trust, there is no increase in the instream flow because water was already not being diverted. So, parking those rights in the trust has no effect. But, if underutilized water rights in the Trust are the source of water for a water bank set up to mitigate new uses or growth of existing ones in a basin where there is no water left for appropriation, instream flows will decrease.[376]

Recently, Wall Street has descended on Washington too.[377] Investors aim to profit from this connection between banks and the Trust Program.[378] Some of the banks are for profit entities, such as those in the Kittitas Valley.[379] Private banks present high local water prices.[380] Some local governments have set up

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the state's first water bank, causing water prices to skyrocket, "panicking residents and stymieing other construction").

375. *See id.* (describing how Washington laws invalidating water rights that had gone unexercised for five years encouraged water waste, and the subsequent statewide water trust account created a solution "allowing rights holders to 'park' unused water rights with the state").

376. *See* WASH. REV. CODE § 90.42.100 (2009) (providing water banks may be set up for mitigation purposes); KELSEY COLLINS, WASH. STATE DEP'T OF ECOLOGY, PUBL'N NO. 20-11-063, THE STATE WATER TRUST AND WATER BANKING: HISTORY AND FUNCTION 1–2 (2020). Furthermore, although the Washington Department of Ecology initially only allowed in kind mitigation—that is, water for water mitigation—due to the overallocation of Washington's rivers, it now allows for out of stream mitigation. *See* Osborn & Mayer, *supra* note 92, at 181–82 (explaining that historically the issuance of new water rights in Washington has required in-kind mitigation, but recently Washington has begun to embrace out-of-kind mitigation).

377. *See* Bush, *supra* note 133 ("Follow the water and you'll find the money. That's how it often works in the dusty rural corners of Washington, where a Wall Street backed firm is staking an ambitious venture on the state's water.").

378. *See id.* (explaining how one Wall Street investor plans to take advantage of Washington's Trust Water Rights Program in order to generate profit for itself); *see, e.g.*, OFF. OF COLUM. RIVER, WASH. STATE DEP'T ECOLOGY, PUBL'N NO. 21-12-001, FOCUS ON: PROPOSED CROWN COLUMBIA WATER BANK (2021) (explaining one Wall Street investor's plan to establish a new area-wide water bank in the Columbia River watershed).

379. See *Water Banking Program*, MENTOR L. GRP., https://www.mentorlaw.com/water-banking.html [https://perma.cc/F5H9-8Q4Y], and BOURNE WATER BANK, https://www.bournewaterbank.com [https://perma.cc/9X5Z-F9VV], for two examples of water banks in the Kittias Valley that are for-profit entities.

380. *See* Bush, *supra* note 133 (noting that private water banks are "able to command high prices [for water] without much competition"); Jennifer J. Seely, Comment, *Water Banks in Washington State: A Tool for Climate Resilience*, 96 WASH. L. REV. 729, 746–47 (2021) (explaining that private water banks charge higher prices than water banks ran by public authorities or NGOs).

public banks in order to counteract this effect.[381] Public banks are purportedly better at transparency and at allowing small actors to participate.[382]

One particular bank that has caught plenty of attention is the one resulting from TransAlta's water rights.[383] TransAlta is a power producer.[384] It is phasing out its coal fired power plants, which use great amounts of water, because the state has rightly decided to transition to clean energy.[385] TransAlta has a large, pretty old, water right, which predates the establishment of instream flows in the Skookumchuck River.[386] TransAlta wants to sell it through a water bank.[387] With 28,000 acre-feet per year, it will be the biggest water bank in the state to date and will certainly dominate the Southwest area of the state.[388] The Chehalis basin is practically closed and any new water right, any right needed by a city, or any permit to dig a well will need to

381. *See* Bush, *supra* note 133.

382. *See* Seely, *supra* note 380, at 747 ("Public water banks can be run by state, county, city, or tribal governments. . . . Public entities can use public processes to set guidelines for pricing, unit volume, and service areas, as well as target users to manage market activity. Prices on water rights from public water banks are generally the most favorable to consumers of any type of water bank.").

383. *See Building the Biggest Water Bank in Washington State*, ASPECT CONSULTING (May 12, 2021), https://www.aspectconsulting.com/blog/2021/5/12/biggest-water-bank-in-washington [https://perma.cc/HA5A-LDC7] ("The trigger for this new water bank is TransAlta retiring its decades-old hydropower plant on the Skookumchuck River, thus freeing up tens of thousands acre-feet of water rights for the basin.").

384. *Our Operations*, TRANSALTA, https://transalta.com/about-us/our-operations [https://perma.cc/HWP9-LLE4] ("Transalta is one of the largest renewable power producers in North America . . . .").

385. *See* Jim Christie, *TransAlta to Phase Out Coal Boilers in Wash. State*, REUTERS (Mar. 5, 2011), https://www.reuters.com/article/power-transalta-washington/transalta-to-phase-out-coal-boilers-in-wash-state-idUSN0520914920110305 [https://perma.cc/U4JU-PNFZ] (explaining TransAlta's plan to phase-out coal boilers).

386. Börk & Ziaja, *supra* note 111, at 1337–38 (stating that TransAlta's Skookumchuck River water right is "one of the oldest on the Skookumchuck" and "by far the largest").

387. *See id*. at 1337–39 (explaining TransAlta's plan to sell its water rights through a water bank); *see also Biggest Water Bank*, *supra* note 383.

388. *See Building the Biggest Water Bank in Washington State*, *supra* note 383.

buy water from it.[389] While setting up this bank, TransAlta used the Washington Water Rights Program to protect it from forfeiture.[390] TransAlta is likely to make a good profit. It may sell an acre-foot at a rate of $2,750.[391] Its first clients were the cities of Centralia and Chehalis, which agreed to purchase 6,720 acre-feet.[392] But, others are also eyeing TransAlta water because they need to secure supplies for future development or to cover future needs as their junior water rights dry up. For example, the Washington Department of Ecology awarded the Quinault Indian Nation a grant of roughly $150,000 to study whether to purchase some rights to protect the salmon and trout in the river.[393]

Crown Columbia Water Resources has a different strategy. Crown Columbia Water Resources is a subsidiary of Crown West Realty which, in turn, is controlled by Petrus Partners, an investment firm created by retired partners of Goldman, Sachs &

389. *See Water Quantity*, CHEHALIS BASIN P'SHIP, https://chehalisbasinpartnership.org/water-quantity [https://perma.cc/Y4TY-6698] ("[T]here is not enough water to meet the needs of all existing claims to water (water rights) within the Chehalis Basin."). For information on ongoing curtailments of junior users see *Chehalis Basin Long-Term Strategy*, WASH. STATE DEP'T OF ECOLOGY, https://ecology.wa.gov/water-shorelines/shoreline-coastal-management/chehalis-basin [https://perma.cc/B9X4-KBES].

390. *See Building the Biggest Water Bank in Washington State*, *supra* note 383 ("The TransAlta water bank solution is a textbook example of how pre-planning saved a significant block of valid water rights from relinquishment for non-use.").

391. *Water Bank Overview*, TRANSALTA, https://static1.squarespace.com/static/5de6de886324a36663a8cdee/t/5f7e1a6a1247d326375e2d25/1602099848007/TransAltaWaterBank_FAQ_10-2020.pdf [https://perma.cc/Q96C-XHYL] ("TransAlta is marketing the water rights at a rate of $2,750 per acre-foot as a one-time cost.").

392. *See* Börk & Ziaja, *supra* note 111, at 1339 ("TransAlta's first buyers were the cities of Centralia and Chehalis, which agreed to purchase 6,720 [acre-feet].").

393. *See id.*; *see also Salmon Recovery Grants Awarded*, WASH. STATE RECREATION & CONSERVATION OFF. 10 (Dec. 2019), https://rco.wa.gov/wp-content/uploads/2019/12/NEWS-210-SalmonGrantDescriptions.pdf [https://perma.cc/NCF2-MRH5] (describing what the grant awarded to the Quinault Indian Nation will be used for); Eric Rosane, *Projects Tour Highlights Efforts Benefiting Streamflow Restoration Efforts in Chehalis Basin*, CHRONICLE (Oct. 1, 2021), https://www.chronline.com/stories/projects-tour-highlights-efforts-benefiting-streamflow-restoration-efforts-in-chehalis-basin,274108 [https://perma.cc/G5R9-U9MV] (noting the Quinault tribe's desire to purchase a large portion of TransAlta's water rights when it closes its final steam burner).

Co.[394] Crown Columbia has invested about five million in water rights across the state, accumulating more than 7,000 acre-feet.[395] Crown Columbia plans to sell these water rights, but, in the meantime, it has securely parked the rights in the Trust Water Right Program for up to twenty years, far more than the use-it-or-lose-it doctrine would allow.[396] The presence of the Trust Program makes it unnecessary for Crown to use Water Asset Management's strategy of leasing the acquired rights to avoid forfeiture.[397] Crown Columbia's moves generated a lot of discussion.[398] At the end of 2020, the company applied to create a water bank in the Columbia River basin.[399] This bank encompassed the whole state in the area of use for the banked water rights.[400] Banks are subject to approval by the Department of Ecology, which decided to suspend the application in March 2021 to have further discussions with stakeholders,[401] as Washington's Water Code requires.[402] While other for-profit water banks were approved, the risk of speculation and commodification coupled with scale prompted the Department of Ecology to reconsider.[403]

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394. *History*, PETRUS PARTNERS LTD., https://www.petruspartners.com/history [https://perma.cc/6383-Q9NK].

395. *See* Bush, *supra* note 133 ("Crown purchased at least $4.7 million worth of water rights across several rural counties . . . placing some in temporary trust for terms of 20 years. . . . The company controls about 7,000 acre-feet it could lease or sell . . . .").

396. *See History*, *supra* note 394; *see also* Bush, *supra* note 133 (describing Crown Columbia's plans to sell its water rights).

397. *See Legals for January 13, 2021: Notice of Application to Appropriate Public Waters*, GOLDENDALE SENTINEL (Jan. 13, 2021), https://www.goldendalesentinel.com/legals/legals-for-january-13-2021/article_72970d3a-55cb-11eb-9687-e75c41efea86.html [https://perma.cc/GW3R-66HS].

398. *See, e.g.*, McCreary, *supra* note 133.

399. *See id.*

400. For a map of the basin see U.S. GOV'T ACCOUNTABILITY OFF., GAO-18-561, COLUMBIA RIVER BASIN: ADDITIONAL FEDERAL ACTIONS WOULD BENEFIT RESTORATION EFFORTS (2018).

401. Newport Miner, *Ecology Suspends Application for Water Bank*, RESPONSIBLE GROWTH NE. WASH. (Mar. 31, 2021), https://www.rgnew.org/ecology-suspends-crown-columbias-application-for-water-bank-more-consideration-is-needed [https://perma.cc/C738-J3R6].

402. *See* WASH. REV. CODE § 90.42.005(2)(c)–(d) (2024) (detailing the wide range of parties interested in the preservation of water rights and how water banking can balance these interests).

403. Ann McCreary, *Ecology Suspends Work on Water Banking Proposal*, METHOW VALLEY NEWS (Mar. 31, 2021), https://methowvalleynews.com/2021/

The Crown Columbia saga triggered the Washington legislature to discuss how to address speculation, but nothing was decided.[404] However, talk about the need to address speculation has reappeared with the trading activity at Western Water Market, a Craigslist for water.[405] The water rights sold in this clearinghouse appear to have inflated prices compared to very similar transactions in terms of rights and timeframe.[406] The founder, in interviews, has denied these accusations and claims Western Water Market increases transparency.[407]

IV. THE WAY FORWARD: HOW WET SHOULD WE LET WALL STREET GET

Climate change is challenging water allocation regimes and prior appropriation is no exception. The West of the United States is suffering the effects of more frequent, sustained droughts.[408] This new normal requires water agencies to adopt

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03/31/ecology-suspends-work-on-water-banking-proposal [https://perma.cc/F259-YSMD] (mentioning the suspension of the processing for an investment company's attempts to acquire water rights).

404. *See, e.g.*, S.B. 6292, 66th Leg., Reg. Sess. (Wash. 2020) (proposing additional limitations for persons that had not previously made beneficial use of water).

405. *See* Interview with Peter Dykstra, Att'y, Plauche & Carr, LLP (Nov. 2022).

406. *See id.*

407. The Water Values Podcast, *The Birth of Western Water Market with Founder Kristina Ribellia*, BLUEFIELD RSCH., at 11:20 (Nov. 17, 2020), https://www.bluefieldresearch.com/podcast/the-birth-of-western-water-market-with-founder-kristina-ribellia [https://perma.cc/X48G-88GK] (explaining that "buy and dry" acquisitions by large purchasers were already happening without the Western Water Market website, but an online marketplace enables these transactions to happen in the open rather than in back rooms, thereby lifting everyone up). Ripple Effect Podcast, *93: Western Water Market Update*, CLYDE SNOW, at 23:30 (May 19, 2022), https://www.clydesnow.com/media/podcasts/ripple-effect-93-western-water-market-update [https://perma.cc/T9CK-TD55] (stating that, to Ribellia's knowledge, concerns about the website enabling locals to be priced out of water markets have not come up).

408. *See* Kathryn Cawdrey, *Warming Makes Droughts, Extreme Wet Events More Frequent, Intense*, NAT'L AERONAUTICS & SPACE ADMIN. (Mar. 13, 2023), https://www.nasa.gov/centers-and-facilities/goddard/warming-makes-droughts-extreme-wet-events-more-frequent-intense [https://perma.cc/S3NH-EAJ8] (stating that droughts and other weather events are likely to become "more frequent and severe"); Dino Grandoni, *What a Hand-Cranked Drill Just Revealed About the West's 'Megadrought*,*'* WASH. POST (Jan. 24, 2024), https://www.washingtonpost.com/climate-environment/2024/01/24/west-drought-trees

policies that increase flexibility in water allocations.[409] Water markets are a key part of this portfolio of measures. However, the promotion of water markets faces another challenge fueled by climate change too: Financial companies have realized that climate change induced scarcity makes water a great investment.[410] With this in mind, it is important to regulate water markets properly to ensure that they can contribute to climate change adaptation without producing deleterious effects as a result of large financial companies' participation.

This Section first reviews the proposed bills in Colorado and California. It then proposes regulations that could prevent or discourage speculation, but still allow markets to improve water allocation efficiency and distributive justice. The proposals below are not mutually exclusive. They range from forbidding financial actors to hold water rights, to softer measures including reviews or ESG nudges.

A. STATE ATTEMPTED APPROACHES TO WATER SPECULATION

1. Colorado: Speculation Review

Water Asset Management has made all Colorado's alarms go off. Colorado was the first state to think about how to address speculation; in 2020, the Colorado legislature passed bill SB20-048 to commission a "Study to Consider the Strengthening of the Prohibition on Speculative Appropriations."[411] The "Anti-Speculation Law Work Group"[412] published its final Report in August

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[https://perma.cc/XK45-YYQT] (reporting on a case of record high temperatures and drought intensity); *Research Spotlight: Climate Driven Megadrought*, NAT'L INTEGRATED DROUGHT INFO. SYS., https://www.drought.gov/research-spotlight-climate-driven-megadrought [https://perma.cc/7UUE-GU2W] (describing how a UCLA study led to more information on a twenty-two year "megadrought").

409. Richard M. Frank, Opinion, *America's West Is Drying Out. Here's What We Can Do About It*, CNN (July 16, 2021), https://www.cnn.com/2021/07/16/opinions/droughts-western-us-update-policies-frank/index.html [https://perma.cc/DTW9-ZZXP] (arguing that reforms could reduce the impact of the current crisis).

410. *See id.* (arguing that more should be done to ensure water is not just a way to increase revenue).

411. S.B. 20-048, 72d Gen. Assemb., 2d Reg. Sess. (Colo. 2020) (enacted).

412. *Anti-Speculation Law Work Group*, COLO. DEP'T OF NAT. RES., https://dnr.colorado.gov/anti-speculation-law-work-group [https://perma.cc/G6CA-ZBM4].

2021.[413] The work group, comprised of a broad range of Colorado water interests and backgrounds, was unable to reach a consensus on how to act.[414] The Report analyzed nineteen measures and put forward eight, without endorsing any particular one.[415] The Workgroup considered and discarded measures such as creating a fund to buy water rights targeted by speculators.[416] Among the measures put forward, albeit without consensus, was the idea of taxing profits derived from the sale or lease of water rights previously purchased for speculation purposes, establishing a maximum rate of water right price increases and imposing higher taxes when that rate is exceeded, or establishing a statewide process to identify and prohibit investment with speculative purposes in water.[417] The latter was the approach followed by the legislature.[418]

Despite the lack of consensus in the Working Group, the Colorado legislature felt compelled to act, and, in January 2022, a bill was introduced to curb speculation.[419] Colorado's bill established a separate review process to analyze the speculative nature of water rights transactions.[420] The bill sought to walk a very fine line. It attempted to define speculation in such a way that a large, non-absent landowner who wanted to use the water could do so, but that a financial entity purely buying water as a pure speculative investment could not.[421] Farmers may frown when both Water Asset Management and Conscience Bay,[422] a real estate company that entered the ranching business by buying a large extension of land with old water rights, invest but the legislature does not. The Colorado bill tries to walk this line with

413. *See* ANTI-SPECULATION L. WORK GRP., *supra* note 293.

414. *Id.* at 6–9.

415. *Id.* at 6–9.

416. *Id.* at 46.

417. *Id.* at 41, 53, 57.

418. S.B. 22-029, 73d Gen. Assemb., 2d Reg. Sess. (Colo. 2022) (prohibiting investment water speculation and granting power to the state engineer to investigate complaints of prohibited investment behavior).

419. *Id.*

420. *Id.*

421. *See id.*

422. Runyon & Sackett, *supra* note 130 (discussing the issues with water investment firms such as those mentioned).

a rebuttable presumption.[423] The bill prohibits water speculation, which it defines as purchasing agricultural water rights with the intent at the time of the purchase to profit from an increase in water's price in a subsequent transaction, or by receiving payment by a third party, including the government, for not using that water.[424] The bill then allows each mutual water district to decide what percentage of water rights someone must hold to trigger the presumption that the holder—the institutional form irrigation organizations adopt in most of Colorado—is engaging in water speculation.[425] In this approach, concentration of ownership is a rough proxy for speculation. If the state engineer finds the purchaser to be engaged in water speculation, the purchaser may face a fine of up to $10,000 and stricter controls over his future transactions.[426] Furthermore, to curb potentially spiteful claims, the state engineer may refer a frivolous or harassing complaint to the state attorney general, who may bring a civil action against the complainant.[427]

The fear about other measures discussed by the Working group, such as taxing all transactions, intensifying the review of any transaction, or limiting the participation of out-of-state entities,[428] was that these measures would have affected virtually every transfer, discouraging those that were non-speculative to move in the right direction.[429] Interestingly enough, the Working Group reviewed the Federal Bureau of Reclamation approach to speculation, emphasizing their acreage holdings limitation, but the group did not put forward any proposal along those lines.[430] The Colorado case shows the embedded idea that water should not be an investment asset. The main disadvantage of Colorado's approach is the focus on policing intent, which is always an arduous inquiry to engage in, and its low amount of fines. Perhaps

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423. Colo. S.B. 22-029 (giving the purchaser an option to present evidence that the there is a bona fide purchase of the water rights at issue in order to overcome the presumption).

424. *Id.* § 37-92-505(1), (6)(a)(I).

425. *Id.* § 37-92-505(2)(b)(II).

426. *Id.* § 37-92-505(4)(a).

427. *Id.* § 37-92-505(3).

428. ANTI-SPECULATION L. WORK GRP., *supra* note 293, at 41–43, 53–54.

429. *Id.* at 9 (mentioning this as part of the reasoning for not having a consensus).

430. *Id.* at 23 (discussing the Federal Bureau of Reclamation's approach in more detail).

establishing a tax for large transactions, as the Working Group analyzed, is a more streamlined, but rough, version of the measures proposed.

2. California: Speculation as a Wasteful Use

California discussed water speculation in May 2023.[431] During this hearing, the California legislature discussed a more sweeping reform: defining speculation as a non-beneficial use.[432] Initially Bill 1205 (Bauer-Kahan) declared that "speculation or profiteering by an investment fund in the sale, transfer, or lease of an interest in any surface water or groundwater right previously put to beneficial use on agricultural lands within the state is a waste or an unreasonable use of the water."[433]

The Bill anchors its justification in the human right to water and the state's duty to prevent wasteful uses.[434] California state senators in the past have considered the participation of these large financial actors to be contrary to the public trust principles that apply to water in the state.[435] The Public Trust Doctrine has been applied to water resources since the *Audubon Society* decision by the California Supreme Court.[436] The Public Trust Doctrine charges the government with the management of the resource in question as a trustee for the public, that is for current and future generations.[437] This has been interpreted as not allowing the state to treat the resource as a for-profit asset.[438] While California legislators have not spelled out how the Public Trust Doctrine applies here, it is safe to assume that if

431. *See Water Rights: Sale, Transfer, or Lease: Agricultural Lands: Hearing on A.B. 1205 Before the Assemb. Comm. on Water, Parks, & Wildlife*, 2023–24 Leg., Reg. Sess. (Cal. 2023).

432. *See id.* at 3 (defining speculation).

433. *Id.*

434. *Id.* at 1 (citing to the California constitution and state water laws as justification).

435. *See* Letter from California Legislators to Merrick Garland, *supra* note 52, at 1 (putting forth concerns over fraud and market manipulation).

436. *See generally* Nat'l Audubon Soc'y v. Superior Ct., 658 P.2d 709 (Cal. 1983) (establishing a relationship between this doctrine and the water rights system).

437. ADLER ET AL., *supra* note 15, at 414–15 (providing an explanation of the Public Trust Doctrine using the example of fisheries).

438. *See* Vanessa Casado Pérez, *The Street View of Property*, 70 HASTINGS L.J. 367, 386 (2019) (arguing public property should not be used to raise revenue based on the Public Trust Doctrine).

under said doctrine the trustee—the state—cannot treat the resource as a source of revenue, those who have rights assigned over it should not either.

The next iteration of the bill shifted the definition slightly to consider the marketing by investment funds[439] with speculative aims ranging from not reasonable to wasteful.[440] The bill received opposition from the farming sector and those who believe there was an opportunity to leverage private capital to mitigate water scarcity.[441] This bill moves the analysis of beneficial use from the use itself to the motives behind the transaction with the presumption that certain types of users are per se speculators.[442] Interestingly, the definition of speculation that the May version of the bill contained seems to make the bill quite toothless. It defines speculation as "the sale, transfer, or lease of an interest in a water right by an investment fund to profit from an increase in the water's value in a subsequent transaction or without a plan to put the water to beneficial use."[443] An investment fund, like Water Asset Management in Colorado, can always show a plan to put the water to use by leasing it.[444]

The California legislature watered down the bill. Instead of adopting any mandatory water rights measure, AB 1205 proposed a mandate for the State Water Resources Control Board to report to the legislature and its committees by 2027 on the

439. The definition of investment fund is broad: "a private equity fund, public equity fund, venture capital fund, hedge fund, fixed income fund, real estate fund, infrastructure fund, or similar pooled investment entity that is, or holds itself out as being, engaged primarily, or proposes to engage primarily, in the business of investing, reinvesting, owning, holding, or trading securities or other assets." Assemb. B. 1205, 2023–24 Leg., Reg. Sess. (Cal. as amended in Assembly, May 8, 2023).

440. *Id.* (declaring speculative use to be wasteful or unreasonable).

441. *See, e.g.*, William Bourdeau, *Sacramento Wants to Upend Calif.'s Water Market. It Could Kill Farms, Housing*, SUN (June 26, 2023), https://sjvsun.com/ag/sacramento-wants-to-upend-calif-s-water-market-it-could-kill-farms-housing [https://perma.cc/HZM3-LYKM] (criticizing California State Assembly Bill 1205 for impeding solutions to the water crisis that could be provided by private capital).

442. *See id.* (defining speculation based on intent to profit or moving without a plan).

443. *Id.*

444. *Id.*

existence of speculation.[445] The bill listed the content of this report.[446] The list recognized that the purchase of agricultural land may be motivated by the underlying groundwater, and it recognized the potential negative effects for communities from the purchases by investment funds.[447] However, not even this study and data bill could get enough support, and it did not pass.

B. POTENTIAL REFORMS

As the following Subsections illustrate, in order for water regimes to benefit from water markets while resisting the negative effects that large, absent, owners cause by treating water as a financial asset, water markets should be regulated dynamically, prioritize the rights of the community of origin with respect to water originating in their area, and ensure equity prior to building efficiency through transactions. Regulations of water markets giving effect to these principles could take different forms. First, there could be new institutional structures safeguarding market integrity and ensuring information flows; second, jurisdictions could reform water market regulations being strategically instrumentalized; third, jurisdictions could introduce measures tweaking the status quo by expanding what externalities are compensable or introducing a more thorough review; and fourth, governments could give power to areas of origin to decide the fate of water. Beyond water markets, but within water law, states could engage in a reform of the existing property rights to limit their appeal for financial investors. Some of these reforms could be contested as potential restraints on alienation amounting to a taking or as potential violations of the dormant commerce clause. The experience in other natural resources is useful to sidestep those. Finally, beyond water law, corporate regulations may help those firms investing in water reduce their potential externalities.

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445. Assemb. B. 1205, 2023–24 Leg., Reg. Sess. (Cal. as amended in Senate, July 13, 2023) (adding more detail to the proposed CAL. WATER CODE § 100.1 amendment).

446. *Id.* (providing a non-exhaustive list of information for the State Water Resources Control Board to include in their report to the legislature).

447. *Id.*

1. Water Market Reforms

a. New Regulators for Dynamic Control and Information Provision

Few would disagree that water markets need to be regulated to prohibit large investment firms from engaging in anti-competitive conduct. Correcting water market failures that the presence of Wall Street-like firms bring about is low-hanging fruit. In many markets, antitrust enforcement takes care of that. In addition to the antitrust authorities, in water markets there could be a market regulator such as the "independent system operators" (ISOs) common in the energy world as Thompson has proposed.[448] Thompson envisions it as a mechanism to reduce transaction costs connecting buyers and sellers while ensuring stability in the market.[449] Such authority may be better positioned to also curb anticompetitive behavior.[450] A model with a central market regulatory authority is far more dynamic than the current control by state water agencies[451] that predate water markets and where approval of transactions could take years.[452] Even in the absence of investment firms, a market regulator could buttress market integrity.

A more interventionist institutional reform would be to subject water markets to the oversight of a public utilities commission (PUCs) or a similar body. PUCs regulate utilities in markets such as electricity, telecommunications, water, or gas.[453] These commissions must ensure that investor-owned utilities provide a reliable service at reasonable prices.[454] Price regulation is part

448. *See* Barton H. Thompson Jr., *Water Market Agonistes* (arguing that the ISO model could be adopted in the realm of water law), *in* A RESEARCH AGENDA FOR WATER LAW 237, 257 (Vanessa Casado Pérez & Rhett Larson eds., 2023); Tade Oyewunmi, *An Instrumental Perspective on Power-to-Gas, Hydrogen, and a Spotlight on New York's Emerging Climate and Energy Policy*, 38 PACE ENV'T L. REV. 221, 247 (2021) (describing how ISOs formed and became popular in electricity markets).

449. *See* Thompson, *supra* note 448, at 261 (explaining the benefits of such a system).

450. *See generally id.*

451. *See id.* at 263 (citing studies from Australia).

452. *See id.* at 242 (comparing models to research from Australia).

453. *An Overview of PUCs for State Environment and Energy Officials*, U.S. ENV'T PROT. AGENCY 1 (May 20, 2010), https://www.epa.gov/sites/default/files/2016-03/documents/background_paper.pdf [https://perma.cc/CMB8-VD36].

454. *Id.*

of their toolkit.[455] Price regulation, at least in the form of price caps, would address the equity concern over obtaining high financial return from water, a public resource, and may discourage speculators—those who want to rely on hoarding practices to influence prices and obtain high returns. While PUCs cover retail markets to level the playing field between end costumers and firms, in the case of water rights markets, they would regulate the wholesale market. In that sense, this water market oversight body could be considered closer to the Federal Energy Regulatory Commission (FERC). However, in water there is not necessarily a production and an infrastructure impact.[456] When FERC approves how rates are set, it influences what types of energy are produced and whether transmission lines are built.[457] Furthermore, the wholesale utility-like regulation would have more heterogeneous market actors than FERC because they would include individual right holders.

These measures do not prevent someone from making a profit off water but are making the water market less attractive by regulating price and by policing anti-competitive behavior. One key aspect of these institutional regulators is provision of information. Sophisticated parties have better resources to gather information which generates an asymmetry harmful to small users.[458] Even in the absence of institutional reform, state

455. *Id.*

456. *See generally* Kathryne Cleary et al., *FERC 101: Electricity Regulation and the Federal Energy Regulatory Commission,* RES. FOR THE FUTURE (Aug. 12, 2021), https://www.rff.org/publications/explainers/ferc-101-electricity-regulation-and-the-federal-energy-regulatory-commission [https://perma.cc/Y5X8-XZ2N] (expanding on FERC and its duties).

457. *See generally id.*

458. The Australian water market offers a good example. In 2021, an Australian Competition and Consumer Commission's report identified the risk that large financial actors leverage available information because they are more sophisticated than average Australian farmers and water users. *See, e.g.*, *Murray–Darling Basin Water Markets Inquiry*, *supra* note 261, at 341 (discussing the effect of information availability); *see also* Aither Pty Ltd., *Effectiveness of Victoria's Water Markets*, VICTORIA DEP'T OF ENV'T, LAND, WATER & PLAN. 33 (Feb. 2018), https://waterregister.vic.gov.au/images/documents/Effectiveness%20of%20Victorias%20water%20markets_final%20report.pdf [https://perma.cc/SDQ4-SGFE] (analyzing different markets in the province of Victoria and finding most present some risk of anti-competitive behavior due to the lack of regulation); *Victorian Water Market Effectiveness: Findings and Actions from the 2017 Review*, VICTORIA DEP'T OF ENV'T, LAND, WATER & PLAN. 5 (2018), https://waterregister.vic.gov.au/images/documents/Victorian%20water%20market%20

agencies should strive to provide better public information on water rights and water transactions, instead of leaving it to private brokers.[459]

b. Curtailing Strategic Use of Current Water Regulations

Prior appropriation has some tenets that make speculation a tad more difficult. Water Asset Management may probably be happy to just let water rights sit unused until they can enter into an extremely profitable transaction instead of leasing those rights. Doing so may increase instream flow for a while, but the ultimate effects in terms of price increase, power over governments, and long-term development for the community outweigh those environmental benefits. There are several current regulations that could be tweaked to reduce the penetration of powerful players in the water market.

The strategic use of current regulations, such as the Water Trust in Washington state,[460] would have to be curtailed by perhaps requiring use by the water right holders who want to bank water rights for a certain number of years before and after the period the right is in the bank. This measure may be disfavored by current water users because it may limit their possibilities to lease water. This measure of active use would imply that the holder of the right must put water to the beneficial use the water right is for itself, at least for a period. This echoes the regulations limiting corporations from owning farmland. Some farmland regulations have a requirement of active engagement in the day-

effectiveness_findings%20and%20actions.pdf [https://perma.cc/URY7-LZEB] (noting issues of transparency and awareness in various markets).

459. In 2019, the Australia Competition and Consumer Commission concluded that the Australian water market presented deficiencies in terms of intermediaries, such as brokers, conduct, and information. In 2023, the Water Act was reformed to ensure transparency, mandating agencies to provide information about rights and transactions, regulate intermediaries, and ensure large players could not manipulate the market. *See generally Water Amendment (Restoring Our Rivers) Act 2023* (Cth) (Austl.); *Overview of the Water Market Reform in the Water Amendment (Restoring Our Rivers) Act 2023*, AUSTL. GOV'T DEP'T OF CLIMATE CHANGE, ENERGY, THE ENV'T & WATER (2024), https://www.dcceew.gov.au/sites/default/files/documents/overview-water-market-reforms-water-amendment-act-2023.pdf [https://perma.cc/JTW2-HU5W].

460. *See generally* COLLINS, *supra* note 376 (discussing history, formation, and function of the State of Washington's Water Trust).

to-day operation by a member of a family corporation[461] allowed to hold farmland. These corporate-farming regulations have been struck as unconstitutional for violating the dormant commerce clause either by facially discriminating against out of state interests or by causing discriminatory effects.[462] However, the active engagement in the operation requirement does not discriminate against out of state players.[463] Such a requirement may help mitigate both speculation and absentee ownership. It may still be profitable for corporations to invest today in water rights and run a farm because the prospects of selling water rights in the future are so profitable. This restriction is not that different than the requirement imposed on homesteaders of farming the land for a certain number of years.[464]

Beyond the dormant commerce clause problems stated, these measures explored here and the California proposal redefining beneficial use could be considered restraints on alienation, that is, reducing the ability to sell the asset. Whether a restraint on alienation can be considered a taking depends on the restraint and the jurisdiction. The Supreme Court decided that prohibiting the alienation of Native American artifacts made using feathers as a result of the Migratory Bird Treaty Act and the Eagle Protection Act was not a taking because removing one of the rights in the bundle, the right to sell, does not devoid the right of economic value.[465] The water rights measures—such as the use requirement or the redefinition of what is a beneficial use—are at best a partial restraint on alienation. Both would

461. *See, e.g.*, NEB. CONST. art. XII, § 8(1) (outlining Nebraska's approach to corporate ownership of farmland). *See generally* Anthony Schutz*, Nebraska's Corporate-Farming Law and Discriminatory Effects under the Dormant Commerce Clause*, 88 NEB. L. REV. 50 (2009) (examining the subject of corporate farm ownership in greater detail).

462. *See generally Corporate Farming & Land Ownership Laws – An Overview*, THE NAT'L AGRIC. L. CENTER, https://nationalaglawcenter.org/overview/corporatefarminglaws [https://perma.cc/9Y6P-5A4G] (summarizing cases in which corporate farming laws were deemed unconstitutional).

463. Schutz*, supra* note 461, at 93 ("[Both] insiders and outsiders . . . would have to become actively engaged on that farm to engage in the restricted activities using a corporate form.").

464. *See* Susan Rose-Ackerman, *Inalienability and the Theory of Property Rights*, 85 COLUM. L. REV. 931, 936 (1985) (expanding on the homestead restrictions); Casado Pérez, *supra* note 251, at 52–54 (recounting the history of homesteading and placing it within the antimonopoly policy of U.S. public lands).

465. *See generally* Andrus v. Allard, 444 U.S. 51 (1979).

still preserve the trading of water rights but reduce the possibility of selling to financial investors. While those who are confident markets are the solution to many of our social problems see inalienability with skepticism, restraints on alienation play multiple public policy roles beyond just mere paternalism.[466]

c. Strengthening the Review of Water Transactions

Almost every water transaction is subject to a review to ensure there are no externalities to other users or the environment.[467] Today, this review does not cover all the potential harms that speculation and ownership concentration could cause.[468] Standards of review could be modified in a way that these potential effects are analyzed and policed. One option would be a review under a broad standard, such as "public interest." Such an approach would introduce huge uncertainty and using those standards to assess and compensate the long-term impacts in the community or the environment will not be easy. This is different than Colorado's failed proposal.[469] Colorado aimed at prophylactically preventing transactions where water was conceived as a financial asset by the buyer through a different review process of large transactions.[470] Here, the proposal focuses not on aims but on the effects on those transactions. Transactions are allowed if they can afford to compensate other stakeholders. If transactions have to compensate for all the effects that a jurisdiction considers negative, beyond the narrow definition of externalities, transaction costs increase, and it may deter some of these investment funds from entering the game.

d. Area-of-Origin Laws

Another set of measures that do not necessarily rival but often complement the ones already analyzed are the ones ensuring the community of origin is protected. If a lot of water is transferred out, the community will have to transition to other economic activities much like how the Appalachian region may need

466. *See generally* Rose-Ackerman, *supra* note 464 (examining inalienability in great detail). *Cf.* Richard A. Epstein, *Why Restrain Alienation?*, 85 COLUM. L. REV. 970 (1985) (responding to parts of the Rose-Ackerman article).

467. *See* ADLER ET AL., *supra* note 15, at 200–02 (elaborating on review procedures and traditional water rights).

468. *See id.* (discussing the modern practices).

469. *See generally* S.B. 22-029, 73d Gen. Assemb., 2d Reg. Sess. (Colo. 2022).

470. *See generally id.* (restricting only some transactions).

to rebuild their future after coal mining was less profitable after market trends and regulations[471] or the Rustbelt after the collapse of manufacturing.[472] Community measures range from blunt measures of banning or taxing transbasin transfers to more procedural ones, such as granting the community some decision-making power once a certain amount of water is transferred out of the region.[473] In a way, these measures extend compensable externalities and give areas of origin the ability to determine those externalities.

In California, these area of origin restrictions have been put in place.[474] States could restrict water exports outside the state or outside certain basins, but restricting exports could run afoul of the dormant commerce clause.[475] In 1982, in *Sporhase v. Nebraska*, the Supreme Court determined that groundwater is an article of commerce and held invalid, under the dormant commerce clause, the provision of a Nebraska statute limiting water export.[476] However, the decision leaves the door open to potential export restrictions in the arid West if they are not protectionist

471. David J. Hess et al., *Advocating a Just Transition in Appalachia: Civil Society and Industrial Change in a Carbon-Intensive Region*, ENERGY RSCH. & SOC. SCI., May 2021, at 1 (expanding upon the energy transition in the Appalachian region).

472. Allison Libbe, *The Rust Belt & the Ruhrgebiet: Post-Industrial Economies in Transition*, MICH. J. ECON. BLOG (Nov. 18, 2020), https://sites.lsa.umich.edu/mje/2020/11/18/the-rust-belt-the-ruhrgebiet-post-industrial-economies-in-transition [https://perma.cc/VDV3-PZW7] (discussing the transition in the Rustbelt region in greater detail).

473. *See* Casado Pérez, *supra* note 202, at 95–96 (listing potential methods for addressing water market externalities to include local veto, total bans, and partial bans).

474. ELLEN HANAK, WHO SHOULD BE ALLOWED TO SELL WATER IN CALIFORNIA? THIRD-PARTY ISSUES AND THE WATER MARKET 46–52 (2003) (discussing different counties' approaches to water transfer issues).

475. *See* Klein, *supra* note 235, at 133 (acknowledging the reasoning in *Sporhase*, but putting forward a more nuanced understanding of water and water regulations in light of more recent dormant commerce clause jurisprudence in areas other than water).

476. *See generally* Sporhase v. Nebraska *ex rel.* Douglas, 458 U.S. 941, 941–42 (1982) ("The reciprocity requirement of the Nebraska statute violates the Commerce Clause as imposing an impermissible burden on interstate commerce. . . . [T]he reciprocity provision operates as an explicit barrier to commerce between Nebraska and its adjoining States.").

per se but motivated by conservation goals.[477] If the concern is the community of origin, the border should not be the state one, but narrower.

2. Metagovernance: Efficiency and Distributive Justice with Limitations of Water Rights

Many of the critiques of water markets and some of the problems related to the size of certain actors in the market are less about the market itself than they are about the underlying distribution of rights.[478] The reforms in this section will relate to this distribution.

First, states could limit who can hold a right. It is possible to require certain characteristics of the property rights holders. Requiring certain characteristics of property owners uses proxies to deal with the concentration problem. Some jurisdictions may toy with the idea of prohibiting corporate ownership of water rights, like many states do with farmland.[479] Those states often exempt family farms.[480] This corporate restriction, though, has not proven to be successful: Family-owned does not necessarily mean family-farmed. In Iowa, for example, large corporations are farming leased land from multiple landowners.[481]

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477. "A demonstrably arid State conceivably might be able to marshal evidence to establish a close means-end relationship between even a total ban on the exportation of water and a purpose to conserve and preserve water." *Id.* at 958. For a thoughtful review of the dormant commerce clause regarding water, see Klein, *supra* note 235.

478. *See* Wheeler, *supra* note 115, at 813 (examining water rights issues based on research in Australia).

479. *See, e.g.*, Kristine A. Tidgren, *Iowa's Anti-Corporate Farming Laws*: *A General Overview*, IOWA ST. UNIV. CTR. FOR AGRIC. L. & TAX'N (Oct. 25, 2015), https://www.calt.iastate.edu/article/iowas-anti-corporate-farming-laws-general-overview [https://perma.cc/E8J6-MSYH] (describing Iowa's approach to corporate farming laws); Casado Pérez, *supra* note 251, at 59 ("[T]he Iowa legislature passed . . . . a moratorium preventing corporations from acquiring new agricultural land.").

480. *See, e.g.*, Tidgren, *supra* note 479 (discussing Iowa's definition of family farms and how they are exempted); Casado Pérez, *supra* note 251, at 59–60 (explaining the family-owned exception to Iowa's restriction on corporate ownership of farmland).

481. Wendong Zhang, *Who Owns and Rents Iowa's Farmland?,* IOWA ST. UNIV. EXTENSION & OUTREACH: AG DECISION MAKER (Dec. 2015), https://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-78.pdf [https://perma.cc/HV25-TTF8] (outlining land ownership in Iowa's farmlands).

Second, as an alternative to antitrust for dealing with potential concentration, states could also amend the property system underlying that market and not allow concentration to even arise by quantitatively limiting how many water rights a user can hold. Water rights, and by extension water markets, can be constrained in order to achieve a fair allocation of those rights. What is fair can be defined by the particular jurisdiction. This is the approach we have followed in many natural resource areas (oil and gas leases in federal land, fisheries, or the homestead) where someone can only hold a certain number of rights and volume of the resource.[482] Deconcentrating measures are not focused on making sure the property right structure maximizes productivity, although that may be part of the calculation, but on the effects on the broader society,[483] both today and in terms of future development. The historian David Schorr, among others, suggests that the idea of anti-monopoly was part of the genesis of prior appropriation in the mining camps where the regime was born.[484]

It must be acknowledged that some of the examples of ownership concentration restrictions in the public lands realm or fisheries implemented a new system from scratch.[485] In water markets, we have existing rights, so to avoid takings issues, it could be implemented on new rights and transactions. A simple limitation on the number of water rights someone could hold at any time, combined with whatever grandfathering provision for those who today hold more than such a limit, will disincentivize the entry of financial actors because a certain scale is necessary.

For some, natural resources regulations set both quantitative and qualitative limits. In sablefish and halibut fisheries in Alaska, there was a limit on how many quotas one holder could

482. Casado Pérez, *supra* note 251, at 54–59 (discussing types of resources that historically limited concentrated ownership or banned coroporate ownership).

483. CASADO PÉREZ, *supra* note 21, at 73–74 (arguing transaction caps and imposing barriers on water transactions resulting in water transfers out of the jurisdiction are mechanisms for prioritizing effects on the community).

484. SCHORR, THE COLORADO DOCTRINE, *supra* note 68, at 31 (examining the early water laws of the Colorado Territory); *see also* Rudolph, *supra* note 249, at 359–60 n.91 (quoting Schorr's view on the development of pro-settler and anti-speculation sentiments in mining camps).

485. It should be noted that even in the absence of formally recognized property rights, there can be uses of the resource and, as such, the recognition of property rights may disrupt those uses and the users' expectations.

hold,[486] but in addition there was a tiered system of non-fungible quotas depending on the size of the boats.[487] A large business holding a large business quota could sell it to a small boat, but not the other way around.[488] This approach is thus different than the "anti-corporate" approach that Midwestern corporate farming laws have taken because,[489] if the fisheries tiered-system is copied, any size or nature of right-holder can obtain water rights.[490] Such a property rights distribution will also ensure the viability of family farms, a constant in United States agricultural policy.[491]

3. Environmental and Social Governance and Corporate Regulations

Financialization may be hard to stop in water. Either because money, like water, always finds an outlet or because there is not enough political appetite to take measures against it. This Article has focused on water law measures to stop financialization, but states may have a hard time crafting regulations that are palatable to the majority. One measure, at the federal level, that could rally support is to increase information for shareholders and stakeholders about the involvement that financial companies have in water, particularly in water rights. The types of concerns arising from water financialization fall squarely in the realm of Environmental and Social Governance (ESG). Many of us would prefer not to invest our retirements in fossil fuel companies. But the greater concern is benefitting from climate

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486. Casado Pérez, *supra* note 251, at 56 (describing the development of halibut and sablefish quotas in Alaska); Clarence G. Pautzke & Chris W. Oliver, *Development of the Individual Fishing Quota Program for Sablefish and Halibut Longline Fisheries off Alaska*, N. PAC. FISHERY MGMT. COUNCIL 13 (Oct. 8, 1997), https://www.npfmc.org/wp-content/PDFdocuments/Publications/IFQDevelopment10-97.pdf [https://perma.cc/HJA4-CFD6] (explaining the passing of halibut quotas was necessary due to the rapid expansion of foreign fisheries compared to domestic operations).

487. Bonnie J. McCay et al., *Individual Transferable Quotas (ITQs) in Canadian and US Fisheries*, 28 OCEAN & COASTAL MGMT. 85, 95 (1995) (describing a Canadian system of fishery quotas).

488. *Id.*

489. *See generally* Tidgren, *supra* note 479 (describing Iowa's approach).

490. *See* Casado Pérez, *supra* note 251, at 56–59 (expanding upon the fishing quota system in greater detail).

491. For an attack on the idea that family farms need to be protected, see Jim Chen, *The American Ideology*, 48 VAND. L. REV. 809 (1995).

change by investing in water while the community depending on that water suffers social and environmental consequences or profiting off of the sale of water rights by exploiting governments in need of water. More transparency will help the public make informed decisions about their investment. Even before those educated consumers' decisions move the market in a different direction, the need for transparency may be a sufficient nudge for some financial investment vehicles to refrain from investing in water rights. But potential ESG frameworks enacted by federal regulators are only mandatory to public companies and the financial institutions providing them with capital.[492] Nonetheless, while private companies' disclosures are voluntary, the normalization of ESG frameworks should make all companies be more open.[493] Beyond ESG and the scope of this Article, some financial regulations could offer another source of protection: The Investment Company Act[494] or the Investment Advisers Act[495] could be amended to impose procedural and substantive regulations to water funds.[496] These measures are not a magic wand that will cure all the financialization issues, but they could help mitigate them.

CONCLUSION

Water markets are a tool that public agencies managing water cannot do without in the time of climate change where water supply is insufficient to meet demand. While water markets are always regulated given the nature of the resource itself, current investments by large financial actors with only profit-making goals have prompted several jurisdictions to consider how to

492. *See* Thomas Singer, *Five Reasons Private Companies Care About ESG*, THE CONF. BD. (March 2, 2022), https://www.conference-board.org/topics/sustainable-business-integration/5-reasons-private-companies-care-about-ESG [https://perma.cc/U4FX-Z8K7] (providing an overview of ESGs and their relation to private companies).

493. *See* Wanda Lopuch, *Should Private Companies Embrace ESG Disclosure Practices?*, PRIV. CO. DIR. (Feb. 28, 2023), https://www.privatecompanydirector.com/features/should-private-companies-embrace-esg-disclosure-practices [https://perma.cc/Z3TB-3CYY] (discussing disclosure benefits if private companies embrace ESG practices).

494. *See generally* Investment Company Act of 1940, 15 U.S.C. § 80a-1.

495. *See generally* Investment Advisers Act of 1940, 15 U.S.C. § 80b-1.

496. *See* Shoemaker & Tierney, *supra* note 40, at 13 (proposing several amendments to the aforementioned acts relating to farms that could be repurposed for water law).

further regulate their water markets. Current prior appropriation doctrine cannot respond to the challenges posed by these large, often absentee owners, and their potentially murky water market practices.

Some jurisdictions do not question the need for water markets and aim to regulate them as any other market by eliminating potentially shady conduct by investors and brokers.[497] However, debates in some jurisdictions in the United States suggest that there is a desire by many—citizens, users, politicians, and scholars—to further constrain those water markets to serve values other than just efficiency.[498] This Article reviews why speculative investment in water is deemed both normatively and practically undesirable. With financialization, prices go up, the environment suffers, communities see their current and future development jeopardized, and governments lose control over this essential resource. There are measures that jurisdictions could implement based on not only efficiency, but also on equity, to address these negative effects of financialization. Some of the measures discussed will also reign in large interests in water that can cause similar effects to Wall Street firms' investment in water rights. While many potential measures exist, limiting the amount of water rights someone can hold seems to align with other natural resources policies and the spirit of our water regimes where water is public and private rights are use rights to put water into productive activities.

This Article's goal is to start a conversation on how to best regulate water markets in the era of climate change and financialization. Financialization goes against the spirit of prior appropriation and exacerbates the negative effects caused by large interests in agriculture. State legislatures will be debating this matter for the next few years. Financialization is not just a trend. It is a reflection of our social power structures and values. Financialization of water is on the horizon unless measures are taken.

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497. *See, e.g.*, *Murray–Darling Basin Water Markets Inquiry*, *supra* note 261 (explaining Australia's successes); THOMPSON, *supra* note 147, at 108–09 (commenting on the results seen in Australia).

498. *See supra* Part IV.A; Börk & Ziaja, *supra* note 111, at 1366–78 (discussing how water market morality does not align with modern water management goals).

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