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Beyond All Drought: Improving Urban Water Conservation in the West through Integrative Water and Land Use Policy

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BEYOND ALL DROUGHT: IMPROVING URBAN WATER CONSERVATION IN THE WEST THROUGH INTEGRATIVE WATER AND LAND USE POLICY

ABSTRACT

Although droughts have long plagued the western United States, rapid population growth and climate change are making the American West increasingly water insecure. In some western states, including Arizona, Colorado, and California, decisionmakers are responding to these changes with innovative water conservation-focused land use policies. In other states, however, water and land use policies are lagging decades behind. Improving water security in western cities is an enormous task, requiring extensive social, legal, and policy reform. Additional federal funding for western water security initiatives could do much to drive that reform, but state and local governments should also play a leading role. An important first step in this effort is to better integrate water and land use policy through laws that require greater collaboration among policymakers and involve relevant stakeholders in development decisions. Integrative water and land use policy creates opportunities for policymakers to efficiently promote urban water conservation in a variety of ways, including ensuring land users internalize the water costs of their actions, eliminating obstacles to water-saving land use practices, and better incentivizing household-level water conservation. These strategies, set within a broader framework of integrative planning, could help western communities preserve water supplies, promote sustainable and equitable development, and better prepare the region for the challenging years ahead.

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"By and large, our present problem is one of attitudes and implements."[1]

INTRODUCTION

The rural community of Oakley, Utah—suffering through its worst string of drought years on record—is steadily running out of water.[2] Citizens in the area are increasingly worried "that the water needed to put out a single brush fire could deplete their [water] tanks."[3] In fact, the situation became so dire in the spring of 2021 that Oakley's City Council imposed a moratorium on construction of any new structures that would connect to the municipal water system.[4] The neighboring community of Henefer, Utah has had a similar ban in place for over three years.[5] Meanwhile, in the Salt Lake Valley, rapid population growth and severe drought have caused the Great Salt Lake to lose 44% of its surface area—an area larger than the city of Houston, Texas.[6] In September 2021, toxic chemicals and particulate matter from the lakebed, together with smoke from severe wildfires, briefly resulted in Salt Lake City having the worst air quality of any major city in the world.[7]

The difficulties facing these Utah cities are just one manifestation of broader urban water security challenges facing the entire western United States,[8] about 95% of which was experiencing chronic drought conditions in late 2021.[9] Such problems are likely to become routine, and even worsen, in the coming years without significant policy changes. For much of the American West, the question is not *whether* worsening drought conditions will require comprehensive legal and policy reform, but *how* reform can be implemented efficiently and equitably.[10] Some western states, such as California, Arizona, Colorado, and Nevada, are responding

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1. ALDO LEOPOLD, A SAND COUNTY ALMANAC 225–26 (1949). Leopold, a naturalist by trade, is known for his "land ethic," a theory of natural resource management that balances humanity's needs with those of the natural world. *Id.* at 224–25 ("A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.").

2. Jack Healy & Sophie Kasakove, *A Drought So Dire That a Utah Town Pulled the Plug on Growth*, N.Y. TIMES, https://www.nytimes.com/2021/07/20/us/utah-water-drought-climate-change.html (Aug. 3, 2021).

3. *Id.*

4. *See id.*

5. *See id.*

6. *See* Simon Romero, *Booming Utah's Weak Link: Surging Air Pollution*, N.Y. TIMES, https://www.nytimes.com/2021/09/07/us/great-salt-lake-utah-air-quality.html (Aug. 23, 2022).

7. *See id.*; Christopher Flavelle, *As the Great Salt Lake Dries Up, Utah Faces an 'Environmental Nuclear Bomb'*, N.Y. TIMES, https://www.nytimes.com/2022/06/07/climate/salt-lake-city-climate-disaster.html (Sept. 22, 2022).

8. Healy & Kasakove, *supra* note 2.

9. *See* Molly Taft, *'Adapt or We'll Break': A Water Expert Lays Out the West's Risky Future in the Megadrought Era*, GIZMODO (July 28, 2021), https://perma.cc/8QAD-Y7CK; *Data Tables: West*, U.S. DROUGHT MONITOR (Sept. 1, 2022), https://droughtmonitor.unl.edu/DmData/DataTables.aspx?dregion,8 (select "Geographic Region" under "Area type" dropdown and "West" under "Area" dropdown, and proceed through table to August, 2021 rows) (indicating that in August of 2021, 94.26% of the West was experiencing some level of drought).

10. Mark Olalde, *Why the Second-Driest State Rejects Water Conservation*, PROPUBLICA (Dec. 16, 2021, 6:00 AM), https://perma.cc/GR8X-QKKK ("The last 20 years should be an enormous wake-up call that we need to rethink water planning in the West.").

effectively to water insecurity in a variety of ways.[11] Others—including Idaho and Utah—are lagging far behind,[12] despite facing some of the most serious water challenges in the country.[13]

There are many ways western policymakers can promote greater water conservation at the local and household levels. While improving water conservation in agriculture and industry is crucial to addressing the West's water challenges, water use in those sectors is largely tied to national and regional policies that may fall outside the reach of state and local governments.[14] By contrast, state and local decisionmakers can often take matters into their own hands through more localized policies designed to contend with the reality of an increasingly dry West.[15]

In particular, western state and municipal policymakers should proactively implement more integrative urban water and land use policy: holistic land and water management that recognizes, and responds to, the deep interconnections between land use and water use.[16] Integrative planning is both a process and an outcome—an attitude and an implement.[17] As a process, integrative planning focuses on collaboration and communication between policymakers and relevant stakeholders in the development of water and land use policies.[18] More importantly, as an outcome, integrative planning makes it possible to enact and improve water

11. *See infra* Part II.A (cataloguing effective examples of water security policies in several western states and offering suggestions for further improvement of these policies).

12. *See id.* (contrasting effective policy responses in some states with inadequate or nonexistent responses in others). *Compare, e.g.*, Peter O'Dowd, *Phoenix Pours $280 Million into Pipeline to Prepare for Less Water from Parched Colorado River*, WBUR (Dec. 17, 2021), https://perma.cc/LEH6-LJWC, *with, e.g.*, Olalde, *supra* note 10 (noting that despite Utah having one of the highest per-capita water use rates in the country, water policy in Utah focuses on further developing water infrastructure instead of conservation), *with Watering Idaho: As the Treasure Valley Grows, Will There Be Enough Water?*, BOISE STATE PUB. RADIO NEWS (Sept. 23, 2016, 6:15 AM), https://perma.cc/SX5X-A8YX [hereinafter *Watering Idaho*] (describing how Idaho water officials have downplayed the risks to Idahoans from drought and rapid population growth).

13. *See, e.g.*, Ben Winslow, *Utah's Farmers Explore Ways to Be More Water Efficient*, FOX13, https://perma.cc/TGU7-KXCK (June 25, 2021, 7:26 PM).

14. *See generally* George B. Frisvold, *Water, Agriculture, and Drought in the West Under Changing Climate and Policy Regimes*, 55 NAT. RES. J. 293 (2015) (discussing the role of agriculture in adaptive and sustainable water policy and proposing legal and economic policy changes to promote adoption of technological solutions to conserving agricultural water); Danielle Wolfson, *Come Hell or No Water: The Need to Reform the Farm Bill's Water Conservation Subsidies*, 45 TEX. ENV'T L.J. 245 (2015) (exploring the role of federal agricultural and water conservation subsidies in water scarcity and proposing reforms modeled on practices in Europe and Israel).

15. *See, e.g.*, CONG. RSCH. SERV., DROUGHT RESPONSE AND PREPAREDNESS: POLICY AND LEGISLATION 1 (2021) ("States and local entities . . . typically lead efforts to prepare for drought."); Olalde, *supra* note 10 ("Utah farmers have been forced to take less [water] than they have in the past, turning the spotlight to cities and towns where most water is used on landscaping. Yet in a state with suburbs full of lush lawns and tree-lined streets more reminiscent of the Midwest than the Southwest, conservation mandates are politically unpopular.").

16. *See* A. Dan Tarlock & Lora A. Lucero, *Connecting Land, Water, and Growth*, 34 URB. LAW. 971, 971 (2002) ("Cities can no longer afford to ignore the relationship between water supply, land consumption, and growth.").

17. *See id.* at 972; *see also* LEOPOLD, *supra* note 1.

18. Tarlock & Lucero, *supra* note 16, at 975–99.

conservation measures that are adaptable, sustainable, and equitable.[19] There are many promising strategies in the realm of integrative water and land use planning.[20] This article focuses on three such strategies: requiring land users to internalize the water costs of their actions through water-neutral development policies, eliminating private and public obstacles to urban water conservation, and incentivizing more water-conserving land use choices at the household level.

Part I outlines the water scarcity problems facing the western United States, including worsening drought conditions and rapid population growth; it then identifies gaps in law and policy that aggravate these problems and inhibit policymakers from addressing them. Part II describes how state and local governments can mitigate these challenges by embracing more integrative water and land use policies, including mechanisms to close persistent institutional gaps between policymakers and involve relevant stakeholders. Part III then highlights three specific integrative planning strategies capable of helping western cities better conserve water and proposes ways to make these strategies even more effective.

I. WESTERN WATER INSECURITY

The western United States is experiencing a chronic long-term drought that appears likely to worsen in the coming years. As of summer 2021, about 95% of the West was experiencing some level of drought, and for many areas of the region, drought conditions were more severe than at any other point in recorded history.[21] Though drought is sometimes called a "creeping phenomenon" because of its tendency to have quieter impacts than other natural disasters,[22] the impacts of the western drought are increasingly palpable. Ironically, drought resilience and water sustainability tend to receive far less policy attention than other natural disasters,[23] even though the aggregate impacts of drought can be just as devastating as hurricanes or tornadoes.[24]

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19. *See* JENNIE C. NOLON BLANCHARD ET AL., INTEGRATING WATER EFFICIENCY INTO LAND USE PLANNING IN THE INTERIOR WEST: A GUIDEBOOK FOR LOCAL PLANNERS 18–34 (2018).

20. *See id.*

21. *See* Lindsay Huth & Taylor Umlauf, *Severe Drought Could Threaten Power Supply in West for Years to Come*, WALL ST. J. (Aug. 14, 2021, 5:30 AM), https://perma.cc/XM5Z-US5T; A. Park Williams et al., *Rapid Intensification of the Emerging Southwestern North American Megadrought in 2020–2021*, 12 NAT. CLIMATE CHANGE 232, 232 (2022) (reporting that the 22-year period from 2000 to 2021 "was the driest . . . since at least [the year] 800"). In the summer of 2022, drought conditions were just slightly better, with 90% of the western United States. experiencing some level of drought. *See* U.S. DROUGHT MONITOR, *supra* note 9.

22. *Definition of Drought*, NAT'L CTRS. FOR ENV'T INFO. (Nov. 8, 2022, 11:00 AM), https://perma.cc/2482-DZCW.

23. *See Analysis of Federal Water Efficiency, Water Reuse, Energy Efficiency, and Renewable Energy Funding: 2000–2020*, ALL. FOR WATER EFFICIENCY (May 2021), https://perma.cc/GB9F-FPG6 [hereinafter *Analysis of Federal Water Efficiency Funding*]; Ron Burke & Mary Ann Dickinson, *Lack of Water Efficiency Funding Undercuts Fight Against Drought*, THE HILL (May 25, 2021, 9:30 AM), https://perma.cc/BQ93-KT38; Julia Fennell, *Gov. Polis Signs Letter to Biden Urging Him to Declare FEMA Drought Disaster*, COLO. NEWSLINE (Aug. 17, 2021, 2:21 PM), https://perma.cc/9NEN-EKH6.

24. *See* Jake Epstein, *Droughts Have Killed the Most People in the World's Worst Natural Disasters Over the Last 50 Years*, BUS. INSIDER (Sept. 1, 2021, 3:27 PM), https://perma.cc/6BA7-G9PJ (reporting that drought killed 75,000 more people than other major disasters in the last fifty years).

The current drought raises serious questions about the region's present and future water security. The United Nations defines water security as the ability "to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability."[25] The drought threatens several key elements of this definition: livelihoods, public health, economic development, and the natural environment.

In late 2021, water storage in Lake Mead reached its lowest level since Hoover Dam was completed in 1936.[26] Further declines in storage could threaten the generation of hydroelectric energy from the Dam, which supplies electricity to millions of people throughout the Southwest.[27] In late-summer 2021, nearly two-thirds of the State of Montana was experiencing "extreme" drought, depressing agricultural production throughout the state.[28] The drought conditions increased the cost and limited the availability of many food items in Montana grocery stores, including ground beef and strawberries.[29] That same year, in Oregon's Klamath Basin, reduced stream flows due to depleted winter snowpack and extreme heat killed thousands of juvenile salmon,[30] on which indigenous communities rely for subsistence and religious and cultural practices.[31] Nearly 90% of Utah was likewise facing "extreme" drought that stressed even native desert vegetation and drastically elevated the risk of severe wildfires.[32] While 23% of Idaho dealt with "exceptional"

25. HARRIET BIGAS, UNU-INWEH & UN-WATER TASK FORCE ON WATER SECURITY, WATER SECURITY & THE GLOBAL WATER AGENDA: A UN-WATER ANALYTICAL BRIEF 1 (2013).

26. *See* Matthew Cappucci, *Lake Mead Reaches Lowest Level on Record Amid Exceptional Drought*, WASH. POST (June 11, 2021, 3:01 PM), https://perma.cc/7P42-ETKH; Daniel Rothberg, *Water Managers Grapple with a Smaller Colorado River as the Climate Changes*, NEV. INDEP. (Dec. 19, 2021, 2:00 AM), https://perma.cc/4V4S-TC4V.

27. *See* Huth & Umlauf, *supra* note 21.

28. *Data Tables: Montana*, U.S. DROUGHT MONITOR (Aug. 16, 2021), https://droughtmonitor.unl.edu/DmData/DataTables.aspx?dregion,8 (select "State" under "Area type" dropdown and "Montana" under "Area" dropdown, and proceed through the table to August, 2021 rows); *What Is the USDM*, U.S. DROUGHT MONITOR, https://perma.cc/SFN7-WA3B (last visited Sept. 9, 2022). The U.S. Drought Monitor classifies drought into five categories according to severity: (1) "abnormally dry," indicative of "short-term dryness" and "some lingering water deficits"; (2) "moderate drought," corresponding to "developing or imminent" water shortages and limited damage to crops and pastures; (3) "severe drought," meaning water shortages are "common" and crops and pasture losses are "likely"; (4) "extreme drought," where water shortages and restrictions are "widespread" and agricultural losses are "major"; and (5) "exceptional drought," characterized by "water emergencies" owing to widespread supply shortages. *See id.*

29. *See* Andrea Lutz, *What an 'Extreme Drought' in Montana Means for You*, Q2, https://perma.cc/T7UB-TY76 (Aug. 12, 2021, 6:01 PM).

30. *See* Maurice Hall, *A Wake-Up Call for Water Resilience in the West*, THE HILL (July 5, 2021, 10:00 AM), https://perma.cc/J7FF-TKBD.

31. *See, e.g.*, Matt Mais, *Catastrophic Juvenile Fish Kill Unfolds in Real Time on the Klamath River*, THE YUROK TRIBE (May 13, 2021), https://perma.cc/MV5T-WNNZ ("Since time immemorial, the Yurok lifeway has revolved around the Klamath River salmon runs.").

32. *Data Tables: Utah*, U.S. DROUGHT MONITOR (Aug. 16, 2021, 8:00 AM), https://droughtmonitor.unl.edu/DmData/DataTables.aspx?dregion,8 (select "State" under "Area type" dropdown and "Utah" under "Area" dropdown, and proceed through the table to August, 2021 rows); *see also* U.S. DROUGHT MONITOR, *supra* note 28.

drought, the lack of water threatened popular activities such as hunting and fishing for residents and tourists alike.[33] Although the 2021–22 winter season produced healthy snows that provided temporary relief from drought conditions in western states,[34] in early 2022 experts predicted the drought would only worsen in the coming summer months.[35] Clearly, several important aspects of water security are currently at risk throughout the West.

Challenges like these are not new to the West, of course, but accelerating climate change is likely to make droughts longer, more intense, and more frequent.[36] Moreover, the impacts of these changes may affect certain socio-economic classes differently. Drought and heat impact low-income people of color and other historically disadvantaged groups far more than white middle- and upper- class individuals, meaning climate change is likely to widen existing inequality.[37] Importantly, however, neither drought nor climate change are the roots of the West's water woes. Rather, the drought is exposing deeper systemic threats related to rapid population growth and outdated policies throughout the region.

A. Population Growth and Western Water Demand

The U.S. population is projected to grow by nearly 80 million people between now and 2060,[38] with most of this growth concentrated in the West.[39] Utah, for example, was the fastest growing state in the country in 2021.[40] This growth is driving sizable increases in new urban water demand.[41] The United States consumes about

33. *Data Tables: Idaho*, U.S. DROUGHT MONITOR (Aug. 16, 2021, 8:00 AM) https://droughtmonitor.unl.edu/DmData/DataTables.aspx?dregion,8 (select "State" under "Area type" dropdown and "Idaho" under "Area" dropdown, and proceed through the table to August, 2021 rows); *see also What Is the USDM*, *supra* note 28.

34. *See* Becky Bolinger, *Drought Conditions Improve in U.S. West, But More Snow is Needed*, WASH. POST (Jan. 22, 2022, 9:00 AM), https://perma.cc/QP7G-BF7W.

35. *See* Dale Kasler, *'Drought Still Far from Over.' Sierra Snow Survey Shows Results of Dry January*, FRESNO BEE (Feb. 1, 2022, 3:09 PM), https://www.fresnobee.com/news/california/article257829673.html, ("A once-promising start to winter has given way to grim predictions about a third year of tight water supplies.").

36. *See* Kenneth Strzepek et al., *Characterizing Changes in Drought Risk for the United States from Climate Change*, 2010 ENV'T RSCH. LETTERS 5, 5 (2010); *see also* Richard M. Frank, *America's West is Drying Out. Here's What We Can Do About It*, CNN, https://perma.cc/5RDT-W6BV (July 16, 2021, 10:17 AM) ("Climate scientists warn that longer and more intense droughts are not an aberration—they're the 'new normal.'").

37. *See* Mais, *supra* note 31; S. NAZRUL ISLAM & JOHN WINKEL, UN DEP'T OF ECON. & SOC. AFFS., CLIMATE CHANGE AND SOCIAL INEQUALITY (2017); Maria L. La Ganga et al., *A Frenzy of Well Drilling by California Farmers Leaves Taps Running Dry*, L.A. TIMES (Dec. 16, 2021), https://perma.cc/C25L-PW3V (describing how impacts from water insecurity are "disproportionately felt by . . . disadvantaged communities").

38. *See* JONATHAN VESPA ET AL., DEMOGRAPHIC TURNING POINTS FOR THE UNITED STATES: POPULATION PROJECTIONS FOR 2020 TO 2060 1 (2020).

39. *See* Paul Mackun et al., *Around Four-Fifths of All U.S. Metro Areas Grew Between 2010 and 2020*, U.S. CENSUS BUREAU (Aug. 12, 2021), https://perma.cc/8GG9-FMFA.

40. *See* Healy & Kasakove, *supra* note 2. Utah also has one of the highest per-capita water-use rates in the country. *See* Olalde, *supra* note 10.

41. *See generally* Robert McDonald et al., *Water on an Urban Planet: Urbanization and the Reach of Urban Water Infrastructure*, 27 GLOB. ENV'T CHANGE 96, 96 (2014) ("[A]s cities grow in population, the total water needed for adequate municipal supply grows as well.").

322 million gallons of water each day, primarily for farming and industrial uses.[42] Thus, reducing demand for agricultural and industrial uses is a crucial part of improving water security in the West. Nevertheless, an equally pressing concern—and one that has received less academic and policy attention—is urban water demand.

Fourteen percent of all water consumed in the United States. is for domestic and municipal purposes,[43] and much of that is used to water small green plants that we cannot eat. The most irrigated crop in America, by far, is natural turf grass[44]—the soft, green stuff lining sidewalks and covering city parks and backyards. Turf grass covers over 40 million acres of land in the United States (enough to cover nearly half the state of Montana), and Americans use 9 billion gallons of water every day to irrigate grass- centric landscaping.[45] Aging and dilapidated municipal water infrastructure also inflates urban water demand. On average, 14% of all treated water in municipal systems is lost to leaks, though some systems report losses exceeding 60%.[46] For instance, Banks, Oregon loses one million gallons of water every month from pipeline leaks.[47] Despite these challenges, western state and municipal governments sometimes postpone urban water policy reform and water-saving improvements, frequently citing concerns about cost.[48]

Rapidly increasing water demand, superimposed upon extreme drought conditions and coupled with a broader climate crisis, makes the western United States increasingly water insecure. Population growth and related impacts of climate change will likely result in a long-term water supply deficit of about 3.2 million acre- feet in the Colorado River Basin[49] by 2060.[50] This could leave as many as 30 million people each year without water,[51] not to mention broader socioeconomic and environmental costs of worsening drought. Despite these growing costs, aspects of western water and land use policy at each level of government contribute to a persistent failure to respond adequately or consistently to water insecurity.[52]

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42. *See* CHERYL A. DIETER ET AL., ESTIMATED USE OF WATER IN THE UNITED STATES IN 2015 7 (2018).

43. *See id.*

44. *See* AUDREY DENVIR ET AL., TOWARD SUSTAINABLE LANDSCAPES: RESTORING THE RIGHT NOT TO MOW 1 (2016).

45. *Id.*

46. *Water Efficiency for Water Suppliers*, U.S. ENV'T PROT. AGENCY, https://perma.cc/H2XT-JQL4 (Feb. 25, 2022).

47. Amanda Arden, *City of Banks Developments Still Paused Due to Depleting Water Supply*, KOIN, https://perma.cc/BGJ7-GKHS/ (Sept. 7, 2021, 5:32 PM).

48. *See* Olalde, *supra* note 10 (describing how Utah water districts have opposed legislation that would have required utilities to find system leaks to save water).

49. An acre-foot is the amount of water that would fill one acre of land (about the size of an American football field) one foot deep. *What's An Acre-Foot?*, WATER EDUC. FOUND., https://perma.cc/SLX9-4XUU (last visited Sept. 6, 2022).

50. *See* BLANCHARD ET AL., *supra* note 19, at 14.

51. *See id.*

52. *See* Olalde, *supra* note 10 ("[C]onservation mandates are politically unpopular."); *Watering Idaho*, *supra* note 12.

B. Persistent Shortcomings in Western Water and Land Use Policy

Western water and land use policy often favors growth above all else, including sustainability and water security.[53] Some cities in the West, however, have begun to successfully shift their focus to more water-sustainable growth.[54] San Diego, for example, proactively integrated water conservation into its urban planning strategy, enabling it to add more than 300,000 new residents between 1990 and the early 2000s without increasing its overall urban water demand.[55] Cities that have undertaken such measures demonstrate the keys to improved urban water conservation include: identifying and implementing innovative structures to unify water and land use policy, educating decisionmakers, and establishing clear accountability mechanisms.[56] Unfortunately, many policymakers in the West have not yet committed to making these changes.[57]

There are many factors contributing to the West's reluctance to face its growing water scarcity problems. To start, vertical tensions between states and the federal government, as well as horizontal tensions between neighboring jurisdictions, create conflicting pressures for policymakers. State and local officials are often better equipped to respond to changing water security compared to the federal government, but state and local officials may face pressure to maintain the status quo to draw investors and commercial developers to their jurisdiction and away from their neighbors.[58]

Another factor may be regulatory capture—the process by which industries seek to obtain control over their regulators and wield that control for their own benefit.[59] Stakeholders in Utah, for example, have expressed concern that state legislators tend to place "the personal financial needs or professional whims of" water utilities "ahead of the needs of" individual water consumers.[60] Regulatory capture may explain why Utah legislators have consistently opposed metering

53. *See* A. Dan Tarlock & Sarah B. Van De Wetering, *Western Growth and Sustainable Water Use: If There Are No Natural Limits, Should We Worry About Water Supplies?*, 27 PUB. LAND & RES. L. REV. 33, 48 (2006) (describing a "super-preference for growth accommodation" throughout the American West); BLANCHARD ET AL., *supra* note 19.

54. *See* Tarlock & Van De Wetering, *supra* note 53, at 60–68; Jennifer L. Harder, *Demand Offsets: Water Neutral Development in California*, 46 MCGEORGE L. REV. 103 (2014) (discussing water-neutral development, a policy structure that requires all water demand driven by new development to be offset, and its implementation in various cities in California).

55. *See* Tarlock & Van De Wetering, *supra* note 53, at 61.

56. *See* Tarlock & Lucero, *supra* note 16, at 975–76.

57. *See* Olalde, *supra* note 10; *see also Watering Idaho*, *supra* note 12.

58. *See* Robert W. Adler, *Climate Change and the Hegemony of State Water Law*, 29 STAN. ENV'T L.J. 1, 37 (2010); Jim Rossi & Christopher Serkin, *Energy Exactions*, 104 CORNELL L. REV. 643, 685–87 (2019) (describing how fees assessed based on the energy demand of new development might be politically vulnerable because they can "raise the cost of development and so would appear to put a municipality at a disadvantage vis-à-vis its neighbors in attracting new investments").

59. *See* Jean-Jacques Laffont & Jean Tirole, *The Politics of Government Decision-Making: A Theory of Regulatory Capture*, 106 Q.J. ECON. 1089, 1090–91 (1991).

60. Olalde, *supra* note 10.

untreated water used for landscape irrigation despite evidence that metering alone can reduce consumption by more than 20%.[61]

Perhaps the most important factor contributing to the West's failure to respond to water insecurity is that, as Benjamin Franklin put it, "When the Well's dry, we know the Worth of Water."[62] In other words, most western cities are unlikely to recognize the importance of water until they do not have enough of it. Indeed, water is chronically undervalued.[63] Adam Smith described this conundrum as the water-diamond paradox.[64] This paradox and similar errors in perception about water's value—at institutional and personal scales—may disguise the need to address water insecurity and prevent efficient policy responses.[65]

These underlying political and economic issues are at the heart of the water and land use policy gaps discussed in turn below. In short, misunderstanding the importance of water contributes to inadequate federal funding for water security, while regulatory capture and the land–water disconnect cause serious negative externalities in land development. Additionally, errors of perception about water's value and scarcity among government actors and the public cause policymakers to discourage or avoid necessary water conservation.

1. Federal Policy Gaps

One of the primary reasons many western cities struggle to adequately respond to growing water insecurity is a lack of monetary support from the federal government.[66] Since 2000, federal spending on energy efficiency and renewable energy exceeded spending on water efficiency and water reuse eighty to one,[67] even though water efficiency is among the best ways to improve energy efficiency.[68] Moreover, the Federal Emergency Management Agency (FEMA) allotted more than $45 billion in general disaster relief since 2017 (not including COVID-19 relief

61. *See id.* (noting that one Utah water district that instituted "secondary water" metering saw a 23% decrease in consumption without any increase in rates). *But see* Leia Larson, *Why the Era of Cheap Water May be About to End in Utah*, SALT LAKE TRIB., https://perma.cc/CC63-QREP (Feb. 23, 2022, 1:58 PM).

62. *See* RICHARD SAUNDERS, POOR RICHARD 1746 7 (1746).

63. *See* Amy Hardberger, *Put Your Money Where Your Water Is: Building Resilience Through Rates*, 15 CONN. PUB. INT. L.J. 37, 39–41 (2016).

64. *See* Rhett B. Larson, *The New Right in Water*, 70 WASH. & LEE L. REV. 2181, 2220–22 (2013) (explaining the "water-diamond paradox" as the idea that "[t]he price of water, influenced by actual or perceived notions of scarcity, does not accurately reflect the true value of water," and that this causes water to be "undervalued" in the market).

65. *See id.* at 2221–22 (discussing how the water-diamond paradox "influences political actors").

66. *See* Karyn Stockdale, *The West Urgently Needs Federal Funds to Address Drought, Wildfire, and Climate Change*, AUDUBON (Sept. 25, 2021), https://perma.cc/M8DS-FX7Z; Burke & Dickinson, *supra* note 23 (noting that, compared to federal funding for energy efficiency, "federal funding for water efficiency . . . has been a drop in the bucket").

67. *See Analysis of Federal Water Efficiency Funding*, *supra* note 23.

68. *See, e.g.*, Edward S. Spang et al., *The Estimated Impact of California's Urban Water Conservation Mandate on Electricity Consumption and Greenhouse Gas Emissions*, 13 ENV'T RSCH. LETTERS 1, 1, 8, (2018) (calculating a 24.5% decrease in water consumption by water utilities yielded electricity savings "approximately 11% greater than the savings achieved by . . . electricity utilities' efficiency programs").

funding), but only about $10 million each to Arizona, Utah, and Montana.[69] The last time FEMA officially declared a drought disaster was in 2007,[70] and only then because severe drought was impacting the population-dense Southeast.[71] Recently, a coalition of western states formally requested that FEMA declare a drought disaster in the West, which would make additional response funding available from FEMA's budgetary allocations.[72] As of summer 2022, FEMA has not granted this request.

The relative lack of federal support for western water conservation efforts is glaring. The current drought is both more severe and widespread than the 2007 drought, and it is elevating the risk of other serious disasters such as heat waves and wildfires.[73] Moreover, inadequate funding leaves states and local governments high and dry in the fight against water insecurity.[74] Western states and cities are unlikely to have sufficient funds to respond appropriately to drought, nor the political support needed to raise the money through increased taxation.[75] An average drought in the last forty years has cost the United States nearly $10 billion[76]—more money than Montana and Wyoming each spend in an average year on all public programs.[77] And western states may face serious electoral opposition to increased taxes,[78] making it unlikely those states can cover the delta by simply levying new taxes. Thus, the federal government has an important role to play in responding to western water insecurity, since it can spread response costs across a more diffuse electorate, minimizing

69. Andrew Hurst, *Which States Depend the Most on FEMA's Aid?*, VALUEPENGUIN, https://perma.cc/V9FL-RJCS (July 24, 2020).

70. *See Declared Disasters*, FED. EMERGENCY MGMT. AGENCY, https://perma.cc/6M54-JWM4 (last visited Mar. 25, 2022).

71. *See August 2007 Drought Report*, NAT'L CTRS. FOR ENV'T INFO. (Sept. 2007), https://perma.cc/XMV5-HR4X.

72. *See* Fennell, *supra* note 21.

73. *Compare July 2007 Drought Report*, NAT'L CTRS. FOR ENV'T INFO. (Aug. 2007), https://perma.cc/6V6T-SGZ5 (reporting that in July 2007, about 25% of the contiguous U.S. was experiencing severe to extreme drought), *with July 2021 Drought Report*, NAT'L CTRS. FOR ENV'T INFO. (Aug. 2021), https://perma.cc/YAG9-WV3S (reporting that in July 2021, about 37% of the contiguous U.S. was experiencing severe to extreme drought). In 2017, Montana wildfires, exacerbated by drought conditions, burned a record 1.4 million acres of public and private land. *See* Karl Puckett, *2017 Fire Season No. 1; Produced Largest Fire in State's History*, GREAT FALLS TRIB., https://perma.cc/Z7LH-3R69 (Feb. 8, 2018, 1:37 PM); *see also* Strzepek et al., *supra* note 36, at 5.

74. *See* Stockdale, *supra* note 66. Montana initially anticipated receiving about $16 million in FEMA reimbursements out of its total $86 million cost from the 2017 wildfire season but received far less than that despite subsequent requests for more money. Puckett, *supra* note 73.

75. *See* Frances S. Berry & William D. Berry, *The Politics of Tax Increases in the States*, 38 AM. J. POL. SCI. 855, 859 (1994) (finding that "[p]oliticians are most likely to increase tax rates when the political costs of doing so are minimized," for instance, when the next election is far away and political circumstances "tend[] to shield incumbents from being blamed by the electorate for tax increases"); Adler, *supra* note 58, at 37 (describing pressures local policymakers face to compete with other localities to provide policies favorable to outside investment).

76. *See The High Cost of Drought*, NAT'L INTEGRATED DROUGHT INFO. SYS. (Jan. 23, 2020), https://perma.cc/KQ2D-WDSK.

77. *See 2020 Annual Survey of State Government Finances Tables*, U.S. CENSUS BUREAU (2020), https://perma.cc/2P6Z-6DGD (download the State Government Finance Table) (reporting Montana's total expenditures in 2020 as about $8.6 billion and Wyoming's as $6.4 billion).

78. *See* Berry & Berry, *supra* note 75, at 859.

aggregate opposition.[79] At the same time, states should also look inward to the deficiencies in their own policies.

2. State Policy Gaps

Shortcomings in state law and policy contribute significantly to the West's growing urban water security challenges. The so-called "rule of forfeiture" is particularly problematic.[80] Every state in the West uses some version of the water law doctrine of prior appropriation, which dictates that the first person to put water to a beneficial use without waste has superior rights to the water over all subsequent users.[81] Part of this regime holds that if a person does not use their full water right, they could lose it by legal forfeiture.[82] The risk of forfeiting a valuable water right discourages conservation and encourages waste, especially among those with the largest water rights (e.g., farmers and electric utilities).[83] Most western states have relaxed their forfeiture rules to promote conservation,[84] but these changes may not actually save water. For instance, Arizona now allows right holders to file conservation plans to insure against forfeiture, but these plans do not require reduced water use.[85]

In addition, many western states often fail to adequately consider the impacts on water security when making decisions about land use and urban growth.[86] This problem is known as the land–water disconnect or the land–water gap.[87] Water supply planning in the West is usually done by state or regional officials, subject to state and federal regulations, while land use planning—which inextricably drives water demand—is mostly done by local officials adhering to local rules.[88]

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79. *Cf.* Michael Klein, *The Risk Premium for Evaluating Public Projects*, 13 OXFORD REV. ECON. POL'Y 29, 35 (1997) (describing how the government can "spread risks in tiny amounts over millions of taxpayers").

80. *See* Rhett B. Larson, *Water Security*, 112 NW. U. L. REV. 139, 192–93 (2017).

81. See RHETT B. LARSON, JUST ADD WATER 97–98 (2020), for an amusing analogy comparing "first-in-time, first-in-right" legal regimes, including prior appropriation, to the childhood game of claiming the front passenger seat in a car by calling out "shotgun."

82. *See* Larson, *supra* note 80, at 192.

83. *See* MARC REISNER, CADILLAC DESERT 12 (1993) ("In the West, to waste water is *not* to consume it—to let it flow unimpeded and undiverted down rivers."); A. Dan Tarlock, *Prior Appropriation: Rule, Principle, or Rhetoric*, 76 N.D. L. REV. 881, 901–02 (2000) (explaining that the rule of forfeiture "create[s] powerful incentives to use the maximum entitlement [afforded by a water right] and to forego investments in water conservation infrastructure").

84. *See, e.g.*, CAL. WATER CODE § 1101(a) (West 2021) (allowing water right holders to retain their rights to water "saved" because of conservation efforts and stating "any cessation or reduction in" water use "shall be deemed equivalent to a reasonable beneficial use of water"); IDAHO CODE ANN. § 42-223(9) (West 2021) ("No portion of any water right shall be lost or forfeited for nonuse if the nonuse results from a water conservation practice, which maintains the full beneficial use authorized by the water right."); UTAH CODE ANN. § 73-1-4(4) (West 2021) (allowing water right holders to avoid forfeiture if they file a nonuse application and "show[] a reasonable cause for nonuse," including "the initiation of water conservation or an efficiency practice").

85. *See* ARIZ. REV. STAT. ANN. § 45-141 (West 2021) ("Conservation of water pursuant to a water conservation plan . . . does not constitute an abandonment or forfeiture of the water conserved.").

86. *See* BLANCHARD ET AL., *supra* note 19, at 9.

87. *See id.*; Tarlock & Lucero, *supra* note 16, at 972–75.

88. *See* BLANCHARD ET AL., *supra* note 19, at 18; Tarlock & Lucero, *supra* note 16, at 974.

Unfortunately, these two groups of policymakers rarely communicate or coordinate with each other.[89] This disconnect is due, in part, to a lack of education among land and water planners about the other groups' activities, which may disincentivize collaboration and reduce benefits realized upon collaboration.[90] The land–water disconnect also manifests at the intermunicipal and interstate levels. Although water is usually a cross-boundary resource (meaning it fails to respect local, state, and national borders), decisionmakers often fail to treat it as such, leading to siloed and inconsistent management regimes across jurisdictions.[91]

The consistent absence of water from land use decisions, especially in urban growth management, has created a strong policy preference throughout the West for sprawling urban growth disconnected from water supply.[92] Local land use planners often approve new developments only to later find there is not enough water to support the developments.[93] Rio Verde Foothills (RVF), Arizona, is a prototypical example.[94] When the Scottsdale suburb was first developed a few decades ago, it relied almost exclusively on pumped groundwater.[95] Later, when wells ran dry, the nearby City of Scottsdale agreed to truck in water.[96] In 2021, however, Scottsdale announced it would cease delivering water to RVF in response to the Colorado River shortage.[97] RVF residents are unsure where to get their water going forward, and the tension has caused intense conflicts among neighbors.[98]

The land–water disconnect promotes excessive water consumption, unsustainable land use practices, and needlessly harsh responses to water scarcity such as growth moratoria.[99] Sprawling urban growth contributes to greater water losses from leaks and requires far more landscape irrigation, making it harder to predict and manage water demand.[100] By contrast, increasing residential density by

89. *See* AM. PLAN. ASS'N, APA WATER SURVEY—SUMMARY OF RESULTS 4 (2016).

90. *See* BLANCHARD ET AL., *supra* note 19, at 19.

91. *See id.* at 28–29; *see also* Sarah Bates, *Bridging the Governance Gap: Emerging Strategies to Integrate Water and Land Use Planning*, 52 NAT. RES. J. 61, 62–63 (2012).

92. *See* Tarlock & Van De Wetering, *supra* note 53, at 48.

93. *See* CRAIG BELL & JEFF TAYLOR, W. STATES WATER COUNCIL, WATER LAWS AND POLICIES FOR A SUSTAINABLE FUTURE: A WESTERN STATES' PERSPECTIVE *i* (2008).

94. *See* Hunter Bassler, *Hundreds of Homes in Rio Verde Foothills are About to Lose Water; They Won't be the Last*, 12NEWS, https://perma.cc/UTC6-K9EW (Aug. 17, 2022, 9:27 AM).

95. *See id.*

96. *See id.*

97. *See id.*

98. *See id.*

99. For example, some cities have adopted policies like growth or construction moratoria based on concerns about inadequate water supplies. *See* Healy & Kasakove, *supra* note 2. In general, growth moratoria are policies that temporarily or permanently restrict or prohibit new development in a certain area, while connection moratoria restrict or prohibit new development from connecting to existing public infrastructure such as the electricity grid or water system. *See, e.g.*, ARIZ. REV. STAT. ANN. § 11-833(I)(3) (West 2021) (defining a "construction" moratorium as "a pattern or practice of delaying or stopping issuance of permits, authorizations or approvals necessary for the subdivision and partitioning of, or construction on, any land"). Though such actions may enable a community to control its growth and protect water supplies, they might also neglect other important elements of water security. *See* BIGAS, *supra* note 25, at vi–viii. Specifically, water-based growth moratoria do not promote equitable socioeconomic development since they necessarily slow or cease progress and growth. *See id.*

100. *See* BLANCHARD ET AL., *supra* note 19, at 15–16.

only 20% can reduce per capita water use by as much as 10%.[101] Though household-level land uses such as landscaping and fixture efficiency are critically important, as discussed later,[102] broader land development trends are comparably impactful for urban water demand.[103] Broader land use patterns, as compared to smaller-scale practices, are also harder to change once they are in place.[104]

Some western states have started to integrate their water and land use planning policies to address problems associated with the land–water disconnect, but these states sometimes fail to involve all relevant stakeholders in important policy decisions.[105] For example, excluding tribal nations from water policy decisions is unfortunately common practice, especially in the Colorado River Basin.[106] This approach is all but guaranteed to diminish the equity and quality of policy decisions, as indigenous communities often have some of the highest stakes in water policy development.[107] By ensuring representative stakeholder involvement, western states can promote equitable policy outcomes and engender community support for those outcomes.[108]

Clearly, western states have a key role to play in reforming water and land use policy to promote greater urban water conservation. Cities, communities, and individuals, however, may be even more important.

3. City and Community Policy Gaps

Many of the most glaring urban water policy shortcomings in the West occur at the municipal and community levels. Cities faced with serious droughts and water shortages frequently fail to respond adequately or consistently to those problems.[109] Local land use ordinances and other community rules often do not discourage—and may even actively promote—inefficient use of water.[110] Moreover, when cities try to encourage individual conservation and efficiency, they regularly do so with ineffective and unpopular incentive programs.[111] These policy gaps demonstrate not just the seriousness of the land–water disconnect in the West, but also the great potential of locally focused water and land use policy reform.

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101. *Id.* at 15.

102. *See id.*; *see also* discussion *infra* Part I.B.3.

103. *See* BLANCHARD ET AL., *supra* note 19, at 15.

104. *See id.*

105. *See* Tarlock & Van De Wetering, *supra* note 53, at 61 (discussing how San Diego, California has successfully closed the land–water gap); Kristen M. Dikeman, *Changing Currents: Climate Change and Stakeholder Involvement in the Colorado River Basin*, 69 OKLA. L. REV. 285, 314–15 (2017) (describing how Colorado includes stakeholders in water policy by holding "basin roundtables" but noting tribal nations, unlike agriculture and industry representatives, are generally not included).

106. *See* Michael Elizabeth Sakas, *Historically Excluded from Colorado River Policy, Tribes Want a Say in How the Dwindling Resource is Used. Access to Clean Water is a Start.*, CPR NEWS (Dec. 7, 2021, 7:42 AM), https://perma.cc/2NJL-FW5B.

107. *See id.* (noting that "Native American households are 19 times more likely to lack piped water services than white households" and that tribes own "about a quarter of the water that flows through the Colorado River").

108. *See* Dikeman, *supra* note 105, at 310.

109. *See infra* notes 112–16 and accompanying text.

110. *See infra* notes 117–34 and accompanying text.

111. *See infra* notes 135–46 and accompanying text.

a. Inadequate Local Responses to Drought and Obstacles to Household-Level Water Conservation

One of the most common ways local and state governments respond to drought is by restricting household landscape watering, but these actions are usually temporary and voluntary, rendering them largely ineffective.[112] One water planner from Colorado, where only half of the cities maintain permanent watering restrictions, criticized this strategy as an unsustainable "crash-dieting approach" to water conservation.[113] In general, voluntary or temporary restrictions have little effect on water demand.[114] In California, for instance, Governor Gavin Newsom asked residents to voluntarily reduce their water use by 15%, and Californians reduced their average consumption by less than 2%.[115] By contrast, comprehensive, consistent, and mandatory watering restrictions can significantly reduce daily personal water use, by as much as 20% according to some estimates.[116]

Not only do cities tend to respond ineffectively to drought, they also often maintain land use laws that discourage and even prohibit water-saving practices such as drought-tolerant landscaping.[117] In Salt Lake City, for example, many homeowners face contradictory municipal rules simultaneously promoting conservation but prohibiting certain water-saving landscaping choices.[118] One Salt Lake City homeowner replaced the turf grass in the strip of land between his sidewalk and the street (the "park strip") with a layer of gravel, to save water.[119] Several years later, in 2021, the homeowner received a notice from the City stating his landscaping violated city code, which requires at least one-third of park strips to be covered by vegetation.[120] Though the City has since halted enforcement of this and similar rules, alternative regulations have not yet been proposed.[121]

A related example of this problem comes from Oklahoma.[122] An Oklahoma woman grew a variety of fruit and nut trees, drought-tolerant herbs, and other plants

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112. *See, e.g.*, Sarah Kuta, *Watering Restrictions Work. But Only 53% of Colorado Cities Have Them*, COLO. SUN (July 14, 2021, 3:58 AM), https://perma.cc/45FA-Y349; Hayley Smith, *California Considers $500 Fines for Water Wasters as Drought Worsens, Conservation Lags*, L.A. TIMES (Dec. 8, 2021, 5:00 AM), https://perma.cc/X82J-V5QT (describing proposed regulations in California that would prohibit certain wasteful activities, assessing up to $500 fines for violations, and noting the same sort of rules were implemented in California in 2014 but subsequently relaxed or eliminated); *see also* La Ganga et al., *supra* note 37 (describing how accelerated groundwater pumping by farmers and industrial water users is threatening domestic supplies, and how rules imposed in the mid-2010s sought to reduce such pumping but were later relaxed or eliminated after drought conditions improved).

113. *See* Kuta, *supra* note 112.

114. *See id.*

115. Ian James, *Despite Newsom's Call to Cut Water Use, L.A. and San Diego Didn't Conserve in July*, L.A. TIMES, https://perma.cc/7LEA-R584 (Sept. 21, 2021, 6:52 PM).

116. Kuta, *supra* note 112.

117. *See* DENVIR ET AL., *supra* note 44, at 12–16.

118. *See* Carter Williams, *Salt Lake City Eyes Landscaping Regulation Changes Amid Ongoing Confusion, Drought*, DESERETNEWS (Sept. 11, 2022, 5:02 PM), https://perma.cc/Z7XL-QGFM.

119. *Id.*

120. *Id.*

121. *Id.*

122. *Woman Sues City of Tulsa for Cutting Down Her Edible Garden*, NEWS ON 6 (June 15, 2012, 7:39 PM), https://perma.cc/H8QM-RPLU.

for food and to treat various ailments.[123] One day, she arrived home and found city officials cutting down the plants from her garden.[124] The officials may have relied on a city ordinance prohibiting the growing of plants over twelve inches tall unless used for human consumption.[125] Similar ordinances, on the books in some western cities, could prevent homeowners from planting drought-tolerant or edible plants such as prickly pear cactus.[126] Banning edible plants often disproportionately burdens low-income neighborhoods that may lack sufficient access to fresh food, so eliminating rules against alternative landscaping can promote equality and access to healthy food, as well as save water.[127]

Private community organizations can also make it difficult for individuals to save water through alternative land use practices. About 20% of U.S. homes are part of homeowners' associations (HOAs) or similar communities, which have broad power to impose "reasonable" land use restrictions on their members.[128] These rules, typically appearing in a neighborhood's Covenants, Conditions, and Restrictions (CC&Rs), range from prohibitions on certain house paint colors to requirements that residents water their lawns, even during droughts.[129] This can prevent residents from implementing simple ways to save water.

Some CC&Rs similarly assess penalties against members who fail to water their lawns or switch from turf grass to artificial grass or xeriscaping ("the practice of designing landscapes to reduce or eliminate the need for irrigation").[130] One California resident who tried to save water by xeriscaping her lawn faced a $50 monthly fine from her HOA until she replaced some of the xeriscaping with grass the HOA thought "would look better."[131] When another Californian invested $2,500 in drought-tolerant landscaping that reduced his water use by 50%, his HOA responded by threatening a fine.[132] California later prohibited HOA rules that prevent xeriscaping,[133] but similar bans are not yet on the books in several other western states, including Montana, Idaho, and Utah. Such CC&Rs may partly explain why

123. *Id.*

124. *Id.*

125. *Id.*

126. *See, e.g.*, SODA SPRINGS, IDAHO, CODE OF ORDINANCES § 8.04.040(A) (2015) ("Lawn grass and weeds in non-lawn areas shall be kept mowed and trimmed so as to be no higher than eight inches above grade measured from the surface of the ground.").

127. *See* Donovan X. Ramsey, *'Micro Farms' Come to South L.A. Frontyards, Bringing Fresh Produce to Food Deserts*, L.A. TIMES (May 13, 2021, 5:00 AM), https://perma.cc/9TA3-AQLH.

128. *See* DENVIR ET AL., *supra* note 44, at 5–6.

129. *See What Are Covenants, Conditions & Restrictions (CC&Rs)?*, REDFIN, https://perma.cc/Z9XA-B8KK (last visited Mar. 25, 2022); DENVIR ET AL., *supra* note 44, at 5–6.

130. *See* DENVIR ET AL., *supra* note 44, at 5–6; *Xeriscaping*, NAT'L GEOGRAPHIC, https://perma.cc/J49T-N9ZQ (last visited Mar. 25, 2022).

131. Denis Cuff, *East Bay Homeowner Fined for Replacing Grass with Drought-Tolerant Plants*, MERCURY NEWS, https://perma.cc/TNA6-Z5N7 (Aug. 12, 2016, 7:57 AM).

132. *See* Nathaniel Percy, *A Rancho Santa Margarita Resident Installed a Drought-Tolerant Lawn, and Now He Could Face HOA Fines*, ORANGE CNTY. REG., https://perma.cc/T722-3MW6 (July 27, 2017, 2:19 PM).

133. CAL. GOV'T CODE § 53087.7 (West 2021); CAL. CIV. CODE § 4735 (West 2021).

homes in HOAs use over 10,000 more gallons of water each year than non-HOA homes.[134]

In short, municipal and community rules not only fail to respond adequately to worsening drought and water insecurity, but they may also actively promote inefficiency and discourage water-saving land use behaviors.

b. Ineffective Incentives for Household-Level Conservation

Many western cities also respond to drought by incentivizing urban residents to conserve water in various ways,[135] but these programs—like temporary or voluntary watering restrictions—are largely ineffective.[136] Most local water conservation incentive programs operate only prospectively,[137] meaning they do not reward people who adopted the desired activities before the program was instituted. This may raise concerns about the fairness of such programs, decreasing their popularity.[138] In addition, legislators and city officials are often reluctant to spend money on seemingly shorter-term water policies like consumer incentives, seeking instead to focus on so-called "generational programs."[139]

It is also difficult to qualify for many water conservation incentives. Mesa, Arizona, for example, provides up to $500 for xeriscaping a grass lawn, but only for projects larger than 500 square feet.[140] This requirement likely disqualifies most Mesa homeowners and disproportionately benefits wealthier residents with larger properties. Average yard size varies greatly between states—from 71,000 square feet in Montana, to 6,500 square feet in Arizona, and as small as 5,500 and 4,300 square feet in California and Nevada, respectively.[141] Importantly, however, these figures generally overestimate the actual amount of grass, since "yard size" is calculated based on the difference between average lot size and home size.[142] Much of that space is not grass and is instead occupied by other features such as driveways, garages, and pools.[143] Accordingly, many Arizonans' lawns may not meet the

134. Alicita Rodriguez, *HOAs Go Green: Colorado Bill Forces HOAs to Accept Fake Grass and Solar Panels*, CU DENVER NEWS (July 19, 2021), https://perma.cc/ZV3V-G898.

135. *See Xeriscape Incentive Program*, CITY OF FORT COLLINS, https://perma.cc/R2YN-UJAR (last visited Mar. 25, 2022); *Residential Grass-to-Xeriscape and Trees are Cool Incentive*, MESA, ARIZ., https://perma.cc/46ZV-FAGH (last visited Mar. 25, 2022); *Water Conservation Rebates & Incentive Programs*, CHANDLER, ARIZ., https://perma.cc/4ABA-HR38 (last visited Mar. 25, 2022); *Residential Rebates & Surveys*, CITY OF SANTA CLARA, CAL., https://perma.cc/4MSQ-U9WE (Sept. 1, 2022); Press Release, Cent. Utah Water Conservancy Dist., Central Utah Water Conservancy District Announces Two New Water Conservation Incentive Programs: Flip Your Strip & Localscapes Rewards (July 29, 2021).

136. *See* Olalde, *supra* note 10.

137. *See* sources cited *supra* note 135.

138. *See* Bryan Schott, *Utah Should Pay Homeowners to Replace Grass with Xeriscaping, Cox Says*, SALT LAKE TRIB. (July 30, 2021, 6:09 AM), https://perma.cc/ULE4-R5MP.

139. *See id.*

140. *See Residential Grass-to-Xeriscape and Trees Are Cool Incentive*, *supra* note 135.

141. *See* Liz Steelman, *Want a Big Yard? Move Here*, APARTMENT THERAPY (Sept. 6, 2018), https://perma.cc/577G-ZDYH; *The United States, Ranked by Yard Size*, HOME ADVISOR, https://perma.cc/YEE3-EBA4 (Oct. 11, 2018).

142. *See* Steelman, *supra* note 141.

143. *See id.*

minimum threshold to qualify for this incentive.[144] A similar problem may arise throughout the West, especially in urban areas.[145]

Additionally, available rebates and other incentives are often too small to significantly offset the cost of a new water-saving land use practice. A xeriscaping project, for example, can cost anywhere from $5 to $20 per square foot of grass replaced.[146] Assuming an average cost of $12 per square foot, a 500 square-foot xeriscaping project—the minimum to qualify for Mesa's rebate—would cost about $6,000. A $500 rebate offsets only 8% of that cost. This may unfairly benefit wealthier homeowners who can afford the high upfront cost of a xeriscaping project and leave out others who need greater support to undertake similar projects.

In sum, water and land use policy throughout the West is not well suited to promote conservation and water security. Indeed, western water policy sometimes actively discourages conservation and makes it difficult for policymakers to promote water security. This is fundamentally incompatible with the clear need for western states to adapt to presently dry conditions and a likely drier future.[147] Failure to act early can, in some cases, require states and cities to later adopt costly and aggressive solutions such as growth moratoria to get a handle on water insecurity.[148] In light of these risks, policymakers should be more proactive in pursuing integrative water and land use policies capable of securing a more equitable and sustainable water future for their citizens.

II. ATTITUDES: INTEGRATING WATER AND LAND USE POLICY IN THE WEST

Equitable and effective water security strategies in the West would ideally do three things: connect water and land use policymaking in ways that include important stakeholders and promote greater accountability,[149] adapt to the unique political and physical circumstances of individual cities and communities,[150] and confront entrenched misperceptions about water's broader societal and economic value.[151] Integrative water and land use planning is capable of both embodying these objectives, promoting an integrative attitude, as well as accomplishing them, employing integrative implements. This dual system creates valuable opportunities for policymakers to quickly improve water security. There are, of course, many other ways that western states and cities can help promote water security that are beyond the scope of this article. For example, one of the key obstacles to more effective water conservation in the West is the rule of forfeiture,[152] but most western states

144. *See* KRYSTAL DRYSDALE ET AL., CITY OF PHOENIX ET AL., MULTI-CITY WATER USE STUDY: SINGLE-FAMILY RESIDENTIAL SECTOR 18–23 (2019) (finding 64% of Phoenix-area homes have just 12% of their lots covered with grass, equal to about 1,000 square feet on average, and that many homes have even less grass).

145. *See id.*

146. *See How Much Does It Cost To Xeriscape?*, FIXR (May 18, 2022), https://perma.cc/8JMY-MU2S.

147. *See* Frank, *supra* note 36.

148. *See e.g.*, Healy & Kasakove, *supra* note 2; Arden, *supra* note 47.

149. *See supra* notes 53–57, 86–108 and accompanying text.

150. *See supra* notes 58–61 and accompanying text.

151. *See supra* notes 62–65 and accompanying text.

152. *See supra* notes 80–85 (discussing the rule of forfeiture).

have already relaxed these rules,[153] and options for further reform have been discussed at length by scholars.[154]

In the meantime, cities and states have other options available to them to improve their water security.[155] Of course, implementing effective water conservation reforms would be easier if western states and municipalities had stronger support from the federal government.[156] Backed by adequate funding, state and local policymakers could aggressively pursue integrative water and land use planning and better involve relevant stakeholders in policy decisions.[157] Within an integrative planning framework, policymakers can promote water conservation by requiring land users to internalize the water costs of their actions using water-neutral development policies, eliminating obstacles to conservation and maintaining consistent conservation requirements, and reforming incentive programs.[158] These policy measures can help to remedy the market's persistent failure to accurately value water, mitigate broader misperceptions about water supply, and adapt water policy to unique local circumstances.[159] Most importantly, they can pave the way to a more water-sustainable future in the West.[160]

A. Securing Federal Funding Support

Most of the water policy reforms outlined in this article would require some measure of increased funding to be implementable at the state or local level. Integrative water and land use planning is likely to add administrative costs to the process of planning for urban growth.[161] Consequently, a comprehensive and effective policy response to water insecurity depends largely on access to capital.[162] Though the benefits of improved water security likely outweigh the additional costs, western jurisdictions may have little money available to get worthwhile reforms off the ground.[163]

Accordingly, a crucial first step toward improving urban water security in the West would be for the federal government to allocate substantially more financial resources toward western water conservation, drought response, and incentive

153. *See* sources cited *supra* notes 84–85 (state laws relaxing forfeiture rules).

154. *See, e.g.*, Craig Bell, *Promoting Conservation by Law: Water Conservation and Western State Initiatives*, 10 UNIV. DENVER WATER L. REV. 313 (2007) (examining several strategies Western states have employed to encourage conservation within the prior appropriation framework).

155. *See supra* notes 52–55 and accompanying text.

156. *See infra* Part II.A.

157. *See infra* Part II.B.

158. *See infra* Part III.

159. *See* Tarlock & Lucero, *supra* note 16, at 971–72.

160. *See id.*

161. *See generally* Dale B. Thompson, *Beyond Benefit-Cost Analysis: Institutional Transaction Costs and Regulation of Water Quality*, 39 NAT. RES. J. 517, 520–21 (1999) (describing various institutional costs—including enactment, implementation, detection, and prosecution costs—associated with environmental policies and arguing consideration of these costs is key to evaluating the merits of such policies).

162. *See id.*

163. *See* Stockdale, *supra* note 66.

programs.[164] The federal government is likely the best source for this funding, in part because it has greater capacity than states or cities to fund major policy endeavors.[165] Among other things, this greater capacity means the federal government may be better equipped to fund water policy reform without unduly sacrificing other important programs.[166] Many in the West are also generally opposed to—or at least not focused on—the types of reform that could best protect the region's water security.[167] As a result, funding such policy reforms through increased state or local taxes would likely only decrease the popularity of such reforms.[168] By contrast, the federal government can spread the additional cost across millions of taxpayers, minimizing the extra burden and preventing cost-based opposition to beneficial reforms.[169]

Increased federal funding for western water security could come from several different sources. For instance, the Infrastructure Investment and Jobs Act, known as "the Biden infrastructure bill," was enacted in November 2021.[170] The Act authorizes over $1 trillion in spending for infrastructure, especially for roads, bridges, climate resilience, and rural broadband.[171] It also includes about $55 billion for water infrastructure and $50 billion for improving drought and flood resilience.[172] An additional $8.3 billion is specially earmarked for western water infrastructure.[173] While the Act is targeted mostly at improving physical infrastructure, some of the funds could potentially be used to support other water security initiatives, just as Utah has utilized surplus COVID-19 relief funding to improve its water security.[174]

In any event, dedicating funds specifically for non-infrastructure water security initiatives in the West could prove fruitful. As mentioned earlier, funding for the clean energy transition has greatly exceeded that for water security.[175] Indeed, the gap is widening. In August of 2022, Congress enacted the Inflation Reduction Act, devoting nearly $400 billion to the clean energy transition,[176] about four times the 2021 infrastructure bill's commitment to water security. Although responding to the threats associated with climate change clearly requires a rapid transition to low-carbon energy sources, a clean energy future will not matter if western states have

164. *See* Burke & Dickinson, *supra* note 23.

165. In 2020, the federal government spent a total of about $2.7 trillion, while Utah, Idaho, Montana, and Wyoming spent $50 billion combined. *See 2020 Annual Survey of State Government Finances Tables*, *supra* note 77.

166. *See generally id.*

167. *See, e.g.*, Olalde, *supra* note 10 (describing a general reluctance or even active opposition to reformed water policy in Utah); *Watering Idaho*, *supra* note 14 (same in Idaho).

168. *See* Olalde, *supra* note 10.

169. *See* Klein, *supra* note 79, at 35.

170. Infrastructure Investment and Jobs Act, Pub. L. 117–58, 135 Stat. 429 (2021).

171. *See* Katie Lobosco & Tami Luhby, *Here's What's in the Bipartisan Infrastructure Package*, CNN (Nov. 15, 2021), https://perma.cc/45BN-QAPP.

172. *See id.*

173. *See* Infrastructure Investment and Jobs Act, Pub. L. No. 117–58, 135 Stat. 1364 (2021).

174. *See* Olalde, *supra* note 10.

175. *See generally* sources cited *supra* note 23.

176. Hunter Voegele & Ander Ugalde, *What's in the Inflation Reduction Act?*, NAT'L L. REV. (Aug. 24, 2022), https://perma.cc/XHF4-5RAA.

no water.[177] The federal government could more than double the amount of money it currently spends on water security by reallocating a mere 12% of the money spent on energy efficiency, and thereby simultaneously promote energy and water savings.[178]

Another potential source of federal financial support is FEMA disaster response funding. Historically, FEMA has spent relatively little money in the West on drought response and resilience.[179] Even so, FEMA funding is generally elastic to changing circumstances and new kinds of emergencies, as demonstrated by the agency's $10+ billion response to the unprecedented COVID-19 pandemic.[180] That flexibility could be exploited to provide money for water sustainability initiatives by supplementing FEMA's existing Hazard Mitigation Assistance Program (HMAP), which provides money for measures meant to prevent future private and public property damage.[181] FEMA allocates HMAP money under a matching regime, fronting 75% of the cost of preventive measures and leaving states to cover the rest.[182] To ensure HMAP funds are used on appropriate sustainability initiatives, FEMA could issue categorical grants to states, which would tie the hands of policymakers to spend the money in specified ways.[183]

In short, although implementing integrative water and land use planning along with associated strategies like water-neutral development or improved incentive programs may introduce extra costs for western governments, there are several ways the federal government could lend financial support. The next step is to leverage that support to bridge persistent gaps between water and land use policy.

B. Integrating Water and Land Use Policy

Greater integration of water and land use policymaking at the state and local levels could do much to advance urban water conservation in the West. The activities of water suppliers and land use planners are inextricably connected, but policymakers often fail to recognize this relationship or collaborate on important decisions that impact both land and water.[184] The land–water disconnect, though present throughout the entire United States, is especially likely to have adverse impacts on water security in the West—where rapid population growth and worsening drought conditions are already putting stress on land and water resources.[185] Better integrating land and water use policy decisions could enable policymakers

177. *Cf.* Rhett B. Larson, *Reconciling Energy and Food Security*, 48 U. RICH. L. REV. 929, 958 (2014) ("There are only two kinds of people on earth—people with enough water to stay alive and dead people.").

178. *See Analysis of Federal Water Efficiency Funding*, *supra* note 23; Spang et al., *supra* note 68.

179. *See supra* notes 69–72 and accompanying text (summarizing the relative lack of FEMA funding for Western drought response and resilience).

180. *See* Hurst, *supra* note 69.

181. *See* FED. EMERGENCY MGMT. AGENCY, A GUIDE TO THE DISASTER DECLARATION PROCESS AND FEDERAL DISASTER ASSISTANCE 2–5.

182. *See id.*

183. *See generally Categorical Grant*, BALLOTPEDIA, https://perma.cc/YE37-Y9H7 (last visited Mar. 25, 2022).

184. *See supra* notes 86–108 and accompanying text.

185. *See* BLANCHARD ET AL., *supra* note 19, at 13.

throughout the West to get ahead of these mounting threats and make more holistic decisions affecting urban growth and water security.[186]

To mitigate the land–water disconnect, water and land use planners should work more closely together to make informed and equitable decisions about the best path to sustainable growth. Collaborating in this way has many benefits.[187] To illustrate, suppose a city's water supplier regularly communicates just two factors to its land use planner: available water supply and the state of water infrastructure. That information alone, usually not shared between water and land use planners, enables planners to consider and mitigate the impacts of current and future development plans on water security.[188] This, in turn, enables water suppliers and land use planners to design more efficient, sustainable development that protects water security while accommodating population growth.[189] Denser urban development reduces water consumption and requires shorter pipelines that lose less water to leaks,[190] potentially saving billions in water infrastructure costs.[191] Reduced water demand means more predictable consumption patterns, enabling policymakers to plan more effectively for the future.[192] Clearly, even minor changes to urban water and land use policymaking can have major benefits.

Fortunately, states and municipalities striving to better integrate water and land use policy and take advantage of such benefits need not reinvent the wheel in their efforts. They can learn from the mistakes and accomplishments of others throughout the region by consciously incorporating a few specific elements into their integrative planning frameworks. Jurisdictions that have been most successful at integrative planning legally mandate collaboration between water and land use planners and involvement by relevant stakeholders, require policymakers to take specific and measurable actions, and continually educate policymakers about the rationale behind and the benefits of integrative planning.

1. Legally Mandating Collaboration and Involvement by Stakeholders

State governments are more likely to be successful in integrating water and land use planning if they require—rather than propose, authorize, or suggest—that policymakers engage in collaborative planning and involve relevant stakeholders in important policy decisions. Merely suggesting policymakers collaborate usually does not meaningfully close the land–water gap. Utah law, for example, encourages general stakeholder involvement in state water strategies but fails to give clear direction to policymakers.[193] By contrast, Colorado law requires that local

186. *See id.* at 15.

187. *See* Heather Hansman, *Integrating Land Use and Water Planning for a Sustainable Future*, PLAN. MAG. (July 1, 2021), https://perma.cc/DL89-3Y3X.

188. *See* BLANCHARD ET AL., *supra* note 19, at 18–19.

189. *See* Hansman, *supra* note 187.

190. *See id.*

191. *See* BLANCHARD ET AL., *supra* note 19, at 15–16.

192. *See id.*

193. *See* UTAH CODE ANN. § 73-27-103(3) (West 2021) (requiring the Legislative Water Development Commission to "support community efforts to develop a unified, state water strategy to promote water conservation and efficiency that," among other things, "is created with the aid of stakeholders . . . and respects different needs of different . . . regions of the state").

policymakers integrate water and land use planning.[194] The mandatory nature of this law led the city of Aurora, Colorado to successfully implement integrative planning within its jurisdiction.[195] One aspect of Aurora's approach is a requirement that its main water supplier monitor the city's water supply and use that information to work with land use planners to incorporate water conservation strategies into land use planning.[196] This type of simple change would be relatively easy for other western states and cities to emulate.[197]

In addition, states and cities should proactively include interested parties in important water and land use policy decisions. Failing to adequately involve representative stakeholders can exclude important parties from the policymaking process, leading to less effective and inequitable decisions.[198] Colorado, for instance, holds "basin roundtables" meant to "facilitate continued discussions within and between [river] basins on water management issues," and requires that various specific stakeholder groups participate in these discussions.[199] Water utilities, agriculture and industry representatives, and others must be included, but the law does not require inclusion of Colorado's many tribal nations.[200]

Involving diverse stakeholders in water and land use policy engenders a feeling of ownership among stakeholders in policy outcomes, brings together and empowers communities, and advances equality by enabling marginalized communities to guide policy decisions.[201] Of course, involving too many stakeholders can increase transaction costs and elevate the probability of inefficient and inequitable outcomes.[202] Western communities should thus consider their own unique characteristics and seek a workable balance in how many stakeholders are involved, being especially cognizant to include local tribes given their important roles in water security in much of the western United States.[203]

Policymakers can also efficiently gain valuable insight from a wide range of interested parties through online forums. Officials in Aurora, Colorado, for instance, engage with residents by sharing detailed information about water conservation and water projects on the city's website, which enables residents to

194. *See* COLO. REV. STAT. ANN. § 37-60-126 (West 2021).

195. *See* BLANCHARD ET AL., *supra* note 19, at 20.

196. *See id.*

197. *See generally* BABBIT CTR. FOR LAND & WATER POL'Y & W. RES. ADVOCS., INTEGRATING WATER AND LAND USE PLANNING PROJECT: PHASE 1 SUMMARY (2021).

198. *See supra* notes 105–8 and accompanying text.

199. COLO. REV. STAT. ANN. § 37-75-104 (West 2021).

200. *See id.*

201. *See* James L. Huffman, *Comprehensive River Basin Management: The Limits of Collaborative, Stakeholder-Based, Water Governance*, 49 NAT. RES. J. 117, 141 (2009).

202. *See* Robert D. Cooter & Neil S. Siegel, *Collective Action Federalism: A General Theory of Article I, Section 8*, 63 STAN. L. REV. 115, 143 (2010).

203. For instance, tribes often hold high-priority water rights and are entitled to about a quarter of all Colorado River water. CHARLES V. STERN, CONG. RSCH. SERV., INDIAN WATER RIGHTS SETTLEMENTS 2 (2019); *see also* Sakas, *supra* note 106; *Water & Tribes Initiative*, CTR. FOR NAT. RES. & ENV'T POL'Y, http://www.naturalresourcespolicy.org/projects/water-tribes-colorado-river-basin/ (last visited Mar. 25, 2022).

contact policymakers with water-related questions and concerns.[204] This creates opportunities for interested parties to engage with water and land use policymakers at low cost. Online and in-person forums thus expose the policymaking process to a broader range of interests, promoting greater accountability and helping to ensure both stakeholders and policymakers are well-informed.

2. Establishing Clear Requirements for Policymakers to Act

Beyond requiring policymakers to collaborate, states and cities should also mandate specific policy actions. Jurisdictions in the West that require collaboration often only mandate that policymakers consider water in land use planning, or vice versa, but not that they act on that consideration.[205] For example, laws in Utah require policymakers to "support community efforts to develop a unified, state strategy to promote water conservation and efficiency" but do not establish any measurable requirements for doing so.[206] Similarly, Arizona has specially designated Active Management Areas subject to heightened groundwater regulation,[207] including regulatory goals of maintaining or achieving "safe-yield" of groundwater.[208] But state officials have not yet met these goals or even defined exactly what they require.[209]

To fully unlock the benefits of integrative planning, land and water planners must establish specific, measurable, and achievable requirements for improving water conservation within binding timelines. Puerto Rico, for example, requires its executive branch to reduce water consumption by 5% annually.[210] This law identifies the particular policymakers involved (the executive branch), the specific action required (reduce water consumption), how to meet the requirement (a 5% reduction), and how much time policymakers have to meet it (annually).[211] Western states could follow a similar framework by establishing clear requirements for policymakers to collaborate with each other and by setting specific deadlines for evaluating compliance with water conservation targets. Establishing objectives in this way promotes accountability and gives stakeholders chances to regularly evaluate progress toward policy goals.[212]

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204. *See Aurora Water*, CITY OF AURORA, COLO., https://perma.cc/3Z4G-8HZV (last visited Mar. 25, 2022).

205. *See, e.g.*, MONT. CODE ANN. §§ 76-1-601, 606 (West 2021) (requiring local governments to create comprehensive growth management plans but mandating only that the plans *consider* a range of issues, including water); UTAH CODE ANN. § 10-9a-101, 17-27a-101 (West 2021) (requiring comprehensive growth management plans but leaving the details to local discretion).

206. UTAH CODE ANN. § 73-27-103 (West 2021).

207. *See* ARIZ. REV. STAT. ANN. § 45-411 (West 2021); *Active Management Areas*, ARIZ. DEP'T OF WATER RES., https://new.azwater.gov/ama (last visited Mar. 25, 2022).

208. *See Phoenix AMA*, ARIZ. DEP'T OF WATER RES., https://perma.cc/YA67-95BW (last visited Mar. 25, 2022). Safe-yield means withdrawing groundwater at a rate not exceeding the natural rate of replenishment. *See id.*

209. *See* Tony Davis, *Arizona's Aquifers Remain at Risk from 'Unsustainable' Pumping*, TUCSON.COM (May 18, 2021), https://perma.cc/6YKK-PNWC.

210. *See* P.R. LAWS ANN. tit. 3, § 9402(m) (West 2021).

211. *See id.*

212. *See* Osahon Ogbeiwi, *Why Written Objectives Need to Be Really SMART*, 23 BRITISH J. HEALTHCARE MGMT. 324, 326 (2017).

3. Cross-Educating Policymakers

Another important element of effective integrative planning is the education of policymakers about water and land use policy issues. The land–water disconnect is largely driven by inadequate education about the connections between land use and water security.[213] For water and land use planners to most effectively collaborate, they must each understand the basic language and principles of the other's discipline.[214] For a land use planner, this might include learning the basics of water supplier operations, water resource planning, and water quality protection, and the interrelationships between water demand management and land use.[215] For water planners, such education might include a focus on the basics of zoning ordinances and other land use laws.[216]

Colorado provides a good example of cross-education on water and land use policy for other western jurisdictions to follow. Colorado state law requires cities to develop training programs to educate water and land use planners about "best management practices for water demand management, water efficiency, and water conservation."[217] Aurora, Colorado has imposed rules under this mandate obligating water and land use planners to continually share information with each other to examine how land use plans may impact water demand.[218] Because of these efforts, Aurora policymakers have a detailed understanding of the connections between land and water that allows them to better recognize the impacts of their separate actions and to operate as a single team.[219] One way to implement policymaker education is through online webinars, which are often cheaper and more accessible than traditional training alternatives. The Colorado Water Conservation Board, for example, recently hosted a public webinar for interested parties to learn about the state's water demand management policies.[220] Webinars such as these can encourage public discourse about the status of a community's water security, but education in any form is likely to be impactful.

4. Mitigating the Challenges of Integrative Water and Land Use Policy

Integrative planning can pose several challenges for state and local policymakers. Therefore, its successful implementation depends largely on proactively confronting those obstacles. For instance, local governments facing serious water insecurity may be more motivated to integrate their planning processes than state governments with conflicting goals like reduced spending.[221] In jurisdictions with low political support for an aggressive shift to more integrative planning, local officials can still encourage voluntary collaboration or pursue softer

213. *See* BLANCHARD ET AL., *supra* note 19, at 18.

214. *See id.*

215. *See id.* at 19.

216. *See id.*

217. COLO. REV. STAT. ANN. § 37-60-126 (West 2021).

218. *See* BLANCHARD ET AL., *supra* note 19, at 20.

219. *See id.*

220. *Webinar: The Latest on Demand Management*, WATER EDUC. COLO. (May 8, 2020), https://perma.cc/UH6F-KNEY.

221. *See* Adler, *supra* note 58, at 37.

integration mandates in municipal ordinances. Local lawmakers can also create or amend growth management plans to ensure land use planning more consistently and seriously considers water supply impacts. A variety of free resources are available online to help cities initiate such efforts.[222]

At least in the short term, integrative water and land use planning can also be more expensive than the status quo, and myopic tendencies may train focus on those short-term costs. Of course, prioritizing water conservation and water security can spare western states and cities economic hardship over the long term by avoiding costly extreme responses to drought conditions such as growth moratoria. But overcoming persistent myopia among voters and local policymakers is seldom easy. States can assist here by subsidizing local integrative planning policies through dedicated state funding programs or water efficiency grant programs.[223]

In sum, better integrating water and land use policymaking by closing institutional gaps, creating measurable legal mandates, and involving relevant stakeholders is a process-focused way many western states and cities could promote greater progress toward improved urban water sustainability.

III. IMPLEMENTS: USING INTEGRATIVE PLANNING TO IMPROVE URBAN WATER CONSERVATION IN THE WEST

Integrating water and land use policy enables policymakers to create and implement various innovative urban water conservation strategies. In particular, integrative planning can promote three interrelated water security goals: requiring land users to internalize more of the water-related costs of their actions via mandatory demand offsets,[224] eliminating obstacles to water-saving land use practices while requiring base levels of conservation,[225] and better incentivizing individual water conservation.[226] This section explores successful examples of these policies and provides suggestions for improvement and implementation throughout the West.

A. Using Water-Neutral Development to Reduce the Negative Externalities of Land Use Activities

A proven and effective way to promote greater consideration of the impacts that land use can have on water security is through water-neutral development

222. *See generally* CITY OF PHOENIX, WATER RESOURCE PLAN (2021) (state water resources plan that incorporates integrative planning); BRADLEY M. HILL, DIRECTOR, FLAGSTAFF WATER SERVS., INTEGRATING WATER & LAND USE PLANNING, A CASE STUDY (2018) (example of a city closing the land–water gap).

223. For instance, Kansas created a Division of Conservation to pursue conservation plans supported by state funding. *Water Right Transition Assistance Program Through November 15*, KAN. DEP'T OF AGRIC., https://perma.cc/72YC-ANAN (Sept. 23, 2022). Likewise, Colorado created a grant program to "provid[e] state funding to aid in the planning and implementation of water conservation plans." COLO. REV. STAT. ANN. § 37-60-126 (West 2021).

224. *See infra* Part III.A.

225. *See infra* Part III.B.

226. *See infra* Part III.C.

policies.[227] One symptom of the land–water disconnect is that many landowners do not fully account for the impacts of their land use activities on water supplies.[228] This is partly because the market fails to accurately portray water scarcity through pricing,[229] and partly because humans are simply not very good at valuing water according to its preeminence in life.[230] Integrative planning reveals the connections between land and water use and involves diverse stakeholders.[231] This creates opportunities to institute water-neutral development policies that overcome tendencies to undervalue water by compelling land users to internalize more of the water costs of their activities.[232]

Water-neutral development promotes a central tenet of integrative planning: land use that is water-conscious. Water-neutral development policies require residential and commercial developers whose projects increase the overall water demand in an area to offset that increased demand through conservation or augmenting supplies.[233] These policies ensure new or changed land use activities are "neutral" to the water supply system,[234] much like traditional municipal impact fees.[235] Water-neutral development policies have already been implemented successfully throughout California and other parts of the West.[236] Other cities can introduce these policies through new ordinances,[237] or by amending existing land use laws and development restrictions.[238] Whatever option municipalities choose, they should adopt a policy that fits their unique circumstances.[239]

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227. *See* Harder, *supra* note 54, at 111–34; BILL CHRISTIANSEN, ALLIANCE FOR WATER EFFICIENCY, WATER OFFSET POLICIES FOR WATER-NEUTRAL COMMUNITY GROWTH: A LITERATURE REVIEW & CASE STUDY COMPILATION 5–7 (2015).

228. *See supra* Part I.B.2.

229. *See* Hardberger, *supra* note 63, at 39–46.

230. *See supra* notes 48–50 and accompanying text (explaining the water-diamond paradox).

231. *See supra* Part II.B.

232. *See generally* Harder, *supra* note 54 (listing opportunities and concerns related to implementation of water-neutral development policies).

233. *See id.* at 104–05.

234. *See id.* The "neutral" element of water-neutral development requires, at bottom, "reduc[ing] the water footprint of [a land–use] activity as much as reasonably possible and offset[ting] the negative externalities of the remaining water footprint." A.Y. HOEKSTRA, TWENTE WATER CTR., WATER NEUTRAL: REDUCING AND OFFSETTING THE IMPACTS OF WATER FOOTPRINTS 5 (2008).

235. *See generally* Rossi & Serkin, *supra* note 58, at 644–46 (introducing the concept of impact fees). Unlike impact fees, however, water-neutral development policies generally do not allow developers to pay for their impact; instead, they require affirmative offsets. Harder, *supra* note 54, at 104–05.

236. *See* sources cited *supra* note 227.

237. The Alliance for Water Efficiency has developed a model ordinance builder that allows policymakers to fill in blanks and select options according to a city's unique situation and goals, yielding a unique ordinance. *See Net Blue Model Ordinance*, ALLIANCE FOR WATER EFFICIENCY, https://allianceforwaterefficiency.activehosted.com/f/14 (last visited Sept. 9, 2022) (fill out request form to receive a copy of the Net Blue Model Ordinance package via email within a few days).

238. Salt Lake City, Utah, for instance, could incorporate water-neutral development into its current mandate that all new development, and existing developments that increase their footprint or parking requirement by 25% or more, use low-water use plants for landscaping projects. *See* SALT LAKE CITY, UTAH, CODE § 21A.48.055 (2021).

239. Cities should consider a few factors in particular: (1) the city's water sources, (2) its main water problems or goals, and (3) who—i.e., what component of government—will be in charge of administration and enforcement. *See Net Blue Model Ordinance*, *supra* note 237.

Water-neutral development policies typically require developers to take two additional steps in connection with their projects, alongside other regulatory requirements.[240] For urban land use projects that increase the overall water demand in an area, developers first seek to reduce demand through on-site water-saving choices such as xeriscaping or using water efficient fixtures.[241] This step is rarely mandatory, but most developers still take it because it makes the second step—offsetting new demand—less burdensome.[242] Offsetting new demand requires *off-site* actions that either increase the overall water supply or reduce the overall demand in an area.[243] These actions aim to nullify any new demand the developer could not reduce on-site.[244] California cities typically require developers to offset demand by retrofitting old fixtures in other developments.[245]

Water-neutral development policies have many benefits, but these benefits are fully accessible only within an integrative planning framework. Failing to fully recognize the connections between land and water can obscure and frustrate these benefits, whereas closing the land–water gap enables policymakers to effectively pursue them.[246] The most important benefit of water-neutral development policies is that they force developers and other land users to internalize more of the water-related costs of their actions.[247] Thus, such policies place the burden to conserve water on developers, who are frequently the source of new demand and, therefore, best positioned to make water-saving choices.[248] By reducing consumption, water-neutral development policies also leave more water for the natural environment, improve water security and drought resilience, and facilitate continued economic growth that might not otherwise occur if jurisdictions resort to growth moratoria or similar policies.[249]

Water-neutral development policies do have some potential drawbacks, chiefly that they may increase development costs and housing prices.[250] Increased housing costs tend to disproportionately burden lower-income communities and worsen existing inequalities.[251] Water-neutral development policies also frequently have limited application because they extend only to new development,[252] thus limiting their overall efficacy. Moreover, to the extent new urban or suburban development replaces farmland, such new development might easily comply with

240. *See* NAPA, CAL., MUN. CODE § 13.09.010 (2021); SANTA FE, N.M., CITY CODE § 14-8.13 (2021).

241. *See* Harder, *supra* note 54, at 106–08.

242. *Cf.* Rossi & Serkin, *supra* note 58, at 647, 670–72 (same for energy exactions).

243. *See* Harder, *supra* note 54, at 106–08.

244. *See id.*

245. *See id.* at 112–13. A narrow set of options for developers to offset demand might make water-neutral development easier to administer, but it can also cause a diminishing returns problem. In California, this has been described as "retrofit saturation": developers' costs in offsetting demand exceed water savings when 75–90% of fixtures in an area are retrofitted. *See id.* at 135–37.

246. *See supra* Part II.B.

247. *See* Harder, *supra* note 54, at 108–09.

248. *Cf.* Rossi & Serkin, *supra* note 58, at 651 (same for energy exactions).

249. *See* Harder, *supra* note 54, at 108–09.

250. *See id.* at 110.

251. *See id.*; ISLAM & WINKEL, *supra* note 37.

252. *See* Harder, *supra* note 54, at 112–32.

neutrality requirements without reducing overall demand, since urban land generally uses less water than farmland.[253]

Nevertheless, water-neutral development policies can be valuable as part of a broader set of policy reforms,[254] and can be structured to mitigate possible drawbacks. For example, policies could exempt certain types of development, including affordable housing, from neutrality requirements. Idaho maintains similar exemptions from its basic municipal impact fees.[255] Making water-neutral development policies broader in scope can also spread the burden of conservation requirements across a greater number of land users, decreasing the likelihood that those seeking affordable housing will be unfairly impacted. In Napa, California, for example, remodeling projects that increase water demand are also subject to its water-neutral requirements.[256] Giving developers a wider range of offset options can also make neutrality policies more attractive and cost-effective by providing greater flexibility to take the most cost-effective offset actions.[257]

Concededly, there may be political and legal obstacles to adopting effective water-neutral development policies. For instance, while municipalities in California have strong legal support for adopting water-neutral development rules, laws in some other western states are not as favorable.[258] In states where the scope of municipal land use authority is more limited or less clear, state legislatures may need to assist by delegating broader land use regulatory powers to cities and counties for water conservation purposes.[259] Relatedly, weak political support for such policies may be a challenge in states that do not currently recognize urban water conservation as an urgent issue. Most California cities that have adopted water-neutral development requirements already face severe water insecurity, which may increase political support.[260] In other western states, citizens may not yet appreciate the severity of

253. *See, e.g.*, SUSANNA EDEN ET AL., ARROYO: CLOSING THE WATER DEMAND-SUPPLY GAP IN ARIZONA 4–5 (2015) (describing how, despite significant population growth in Arizona, the state's overall water demand decreased since 1980, in part because of "retiring agricultural lands . . . and widespread conservation efforts of farmers").

254. *See infra* Parts III.B, III.C.

255. *See* IDAHO CODE ANN. §§ 67-8202, 8204, 8208 (West 2021).

256. *See* NAPA, CAL., MUN. CODE § 13.09.010 (2021).

257. Options could include retrofitting old water fixtures and appliances, as in most California cities with water-neutral development policies, and repairing or replacing water infrastructure, purchasing and donating water rights, dry-leasing agricultural land, and more.

258. *Compare, e.g.*, CAL. WATER CODE § 375(a) (West 2021) (expressly allowing water suppliers in California to adopt water conservation programs, including those that condition new service on conservation measures), *with, e.g.*, MONT. CODE ANN. § 85-1-101(2) (West 2021) (declaring the "public policy of [Montana] is to promote the conservation, development, and beneficial use of the state's water resources to secure *maximum economic and social prosperity* for its citizens" (emphasis added)), *and* IDAHO CODE ANN. § 42-250(1) (West 2021) (declaring "that *voluntary* water conservation practices and projects can advance the policy of the state of Idaho to promote and encourage the conservation, development, augmentation and utilization of the water resources of this state" (emphasis added)).

259. *See* Sarah B. Schindler, *Banning Lawns*, 82 GEO. WASH. L. REV. 394, 437 (2014).

260. *See* Harder, *supra* note 54, at 113–14 (describing two factors common among jurisdictions with water-neutral development policies: dependence on a "slow-replenishing source of water supply" and multi-year droughts that reveal "the vulnerability of [a] community's [water] supply").

their water problems,[261] so policymakers might find themselves with little backing for water-neutral development policies.

Despite these challenges, pursuing water-neutral development policies that require developers to internalize more of the water costs of their actions could help to significantly reduce western cities' urban water demand.

B. Eliminating Local Obstacles to Water-Saving Land Use Choices and Mandating Minimum Water Conservation

Another promising means for western cities to promote greater urban water conservation is through rules that encourage, rather than prohibit or prevent, water-efficient landscaping. One of the best ways for western cities and communities to conserve more water is to reduce the amount used for turf grass—the most irrigated crop in the country.[262] Western states could advance this goal by invalidating ordinances and other local rules that make it difficult for individuals to voluntarily adopt water-saving land use practices such as xeriscaping, which uses up to 75% less water than turf grass.[263] Given the severity of the drought problem throughout much of the West,[264] cities should also consider mandating conservation by consistently limiting landscape irrigation.

1. Preempting Water-Unfriendly Ordinances and Private Covenants

In part because of the land–water disconnect, many city ordinances and private covenants in the West discourage efficient water use by requiring grass near parking lots, fining residents who refuse to water their lawns, and even prohibiting drought-tolerant landscaping.[265] Western policymakers, particularly at the state level from which most local land use regulatory authority is delegated,[266] can increase urban water conservation by preempting and invalidating these water-unfriendly rules.

Some western states already forbid HOA rules and city ordinances that prevent alternative landscaping.[267] An Oregon law, for example, renders "void and unenforceable" any community rules that require landscape irrigation, but the law only applies during declared droughts.[268] Statutes enacted in Washington, California, and Colorado take a slightly different approach, permanently prohibiting HOAs from enforcing rules against drought-tolerant landscaping.[269] Other western states,

261. *See* Olalde, *supra* note 10; *Watering Idaho*, *supra* note 12.

262. *See* DENVIR ET AL., *supra* note 44, at 1.

263. *See Xeriscaping*, *supra* note 130.

264. *See supra* notes 21–37, 49–52 and accompanying text.

265. *See supra* Part I.B.3 (describing ways cities and communities discourage water conservation).

266. *See* Schindler, *supra* note 259, at 437.

267. *See, e.g.*, OR. REV. STAT. § 94.779 (West 2021).

268. *Id.*

269. *See* WASH. REV. CODE ANN. § 64.38.057 (West 2021) (stating that HOA and similar community rules "may not prohibit the installation of drought-resistant landscaping or wildfire ignition resistant landscaping"); CAL. GOV'T CODE § 53087.7 (West 2021) (stating that cities and counties may not "enact any ordinance or regulation, or enforce any existing ordinance or regulation, that prohibits the installation of drought-tolerant landscaping, synthetic grass, or artificial turf on residential property"); CAL. CIV. CODE § 4735(1)-(2) (West 2021) (stating that HOAs may not forbid "the use of low-water using plants" or "artificial turf" or assess fines

however, have yet to embrace similar statutes, which are well within their police powers.[270] Indeed, nearly every western state already prohibits HOAs from restricting free political expression, solar panel installation, or the use of personal security cameras.[271] Invalidating private restrictions on xeriscaping would be consistent with such laws. Western states could, for example, enact laws providing that counties, cities, HOAs, condominium associations, and comparable organizations may not enact or enforce any ordinance, regulation, or rule that prohibits or unduly restricts water conservation or water-conserving alternative landscaping by its residents or members.[272] This language is mostly hypothetical, and much broader than most statutes currently in force. In early 2022, however, a Utah state legislator proposed a nearly identical law, though the bill appears to have died in committee.[273]

Although laws protecting landowners' rights to install water-efficient landscaping can effectively promote water conservation, western policymakers may meet staunch political opposition in efforts to enact them. For instance, one Utah water planner advocating for such policies recently remarked, "We feel like we're chasing our tails because there's this mindset in Utah that lawn is what's desirable and what looks good. We're trying to fight against an old mindset."[274] One way for policymakers to combat this resistance is to provide examples of xeriscaping done well.[275] Native grasses and xeriscaping can not only look aesthetically pleasing but also require far less pesticide use and reduce pollution emissions from lawncare.[276] By demonstrating the possibilities of alternative landscaping, policymakers may be able to persuade more voters to support it.

In jurisdictions that already protect landowners' xeriscaping rights, educating individual homeowners on their rights to fight water-unfriendly rules can also promote greater urban water conservation. In 2016, a homeowner in California

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for reduced lawn watering during declared drought emergencies); COLO. REV. STAT. ANN. §§ 38-33.3-106.5(i)(I)(A), 37-60-126(11)(a)(I) (West 2021) (stating that HOAs may not forbid "the use of xeriscape or drought- tolerant vegetative landscaping").

270. *See* Schindler, *supra* note 259, at 437 (arguing police powers "justify 'development regulations intended to conserve natural resources and protect the environment,' including regulations that 'broadly seek to curb unsustainable land development'" (quoting Carl J. Circo, *Using Mandates and Incentives to Promote Sustainable Construction and Green Building Projects in the Private Sector: A Call for More State Land Use Policy Initiatives*, 112 PENN. ST. L. REV. 731, 745 (2008))).

271. *See, e.g.*, MONT. CODE ANN. § 70-1-522 (West 2021) (forbidding HOAs from restricting political speech); IDAHO CODE ANN. § 55-115(4) (repealed 2022) (current version at § 55-3208(1)) (West 2022) (forbidding HOAs from enforcing rules "that prohibit[] the installation of solar panels"); UTAH CODE ANN. § 57-8-8.1(6) (West 2021) (providing condominium associations may not "prohibit a unit owner from installing a personal security camera").

272. *See, e.g.*, CAL. GOV'T CODE § 53087.7 (West 2017).

273. *See* Bridger Beal-Cvetko, *How One Utah Lawmaker Proposes to Conserve Water Amid Ongoing Drought*, DESERET NEWS (Jan. 6, 2022, 9:41 PM), https://perma.cc/U9QM-BCXZ; *H.B. 95 Landscaping Requirements: Status*, UTAH STATE LEG. (Mar. 4, 2022), https://perma.cc/3RLM-9QE4.

274. Beal-Cvetko, *supra* note 273; *see also* Schindler, *supra* note 259, at 401–02 ("People have long appreciated the lawn as an essential, beautiful component of the home.").

275. *See, e.g.*, Peg Aloi, *12 Xeriscape Gardening Ideas*, SPRUCE (June 6, 2022), https://perma.cc/L7KR-EHJT.

276. *See* DENVIR ET AL., *supra* note 44, at 2; *Green Landscaping*, U.S. ENV'T PROT. AGENCY, https://perma.cc/384C-FHZM (last visited Mar. 25, 2022).

asked her HOA for permission to install drought-tolerant landscaping and received a curt denial: "[O]ur HOA is not a desert . . . [w] e do not want New Mexico, Arizona, or Nevada desert landscape. The [landscaping] plan has to be 'pretty.'"[277] This exchange occurred after California had already banned HOA rules prohibiting alternative landscapes, but the homeowner involved was unaware of the state of the law.[278] States can avoid these situations by disseminating resources that educate citizens about laws preempting water-unfriendly rules.[279] Such efforts can promote a sense of ownership among individual citizens in water policy outcomes.[280]

2. Mandating Specific Water-Conserving Land Use Choices

Along with eliminating obstacles to water-saving land use practices, western cities can promote urban water conservation by requiring individual homes and businesses to conserve minimum amounts of water. Laws that merely suggest voluntary water conservation are largely ineffective and may even reinforce the land–water disconnect.[281] In particular, cities that enact watering restrictions during drought tend to lift them once water supplies ostensibly improve, generally causing water users to return to their prior levels of use and initiating a cycle that leads to new restrictions when conditions inevitably worsen again.[282]

Permanent and binding urban water use restrictions tend to be more effective at saving water, in part because they are more likely to create long-term behavioral changes.[283] If a city consistently enforces ordinances that limit the amount of water landowners can use to keep their grass green, citizens are more likely to accept those restrictions and permanently adjust. Flagstaff, Arizona, for example, has permanently imposed "Stage 1 Water Restrictions," which limit residents to watering on certain days of the week in the early mornings and late evenings.[284] In 2022, Flagstaff's Water Resources and Conservation department explained these restrictions help foster a "culture of conservation" in the city.[285] Permanent watering restrictions are also inherently proactive, so they can help a city confront water supply deficits before they reach critical levels.

277. Julia Wick, *No, Your Crazy Homeowners Association Can't Ban Drought-Tolerant Landscaping*, LAIST (Sept. 5, 2016, 11:00 PM), https://perma.cc/HP3B-FMM4.

278. *See id.*; CAL. CIV. CODE § 4735 (West 2021).

279. For instance, states should explain that if a homeowner doesn't have their HOA's CC&Rs on hand, they can go to their state's corporation commission website to find their HOA's incorporation information. Then they can go to the county recorder's website to view the HOA's CC&Rs. For a good example of these kinds of resources, and more detailed step-by-step instructions, *see* Tammy Y. Hayes, *How to Find an HOA's Contact Information and Documents*, HOMEOWNERS PROT. BUREAU, LLC, https://perma.cc/6DWP-23FU (last visited Mar. 25, 2022).

280. *See* Huffman, *supra* note 201.

281. *See* James, *supra* note 115.

282. *See* Smith, *supra* note 112.

283. *See id.*; *see also* James, *supra* note 115. *But see* Manuel P. Teodoro, *Water Cops*, MANNY TEODORO (Aug. 22, 2018, 4:00 AM), https://perma.cc/SU7G-RCUW (reporting enforcement of watering restrictions implemented by California during in 2014 was "most influential early in the drought emergency" but declined "[a]s the drought weakened," and concluding that declining enforcement efficacy makes it unlikely mandates will "promote conservation as a 'way of life'").

284. *Watering Rules*, CITY OF FLAGSTAFF (May 18, 2022), https://perma.cc/4PPU-QDZ6.

285. *Id.*

Nevada is leading the way forward in this area of urban water conservation policy. In 2021, the state enacted a "non-functional" grass ban, prohibiting irrigation of turf grass with water from the Colorado River, one of the state's primary water resources.[286] The ban also requires developers and landowners to remove turf used solely for aesthetic purposes, including grass at office parks and subdivision entrances.[287] Officials estimate this will reduce Las Vegas's use of Colorado River water by 10% (or 9.6 billion gallons) per year.[288] This ban is the first of its kind in the United States, and certainly a step in the right direction.[289] Nevertheless, the law is not perfect. It only applies to the watering of non-functional grass using Colorado River water distributed by the Southern Nevada Water Authority, and does not prevent using alternative water sources.[290] It also does not apply to many areas in Las Vegas, including golf courses and parks.[291] The ban likewise does not take effect until 2027,[292] despite the region's current and worsening water insecurity.[293] These gaps in the policy may ultimately leave billions of gallons of water savings on the table.[294] If other western jurisdictions adopt similar bans, they should structure them to impose earlier deadlines and encompass more sources of water demand.[295]

Eliminating obstacles to urban water conservation and requiring minimum levels of water conservation can go a long way to improving water security in the West, but there are additional measures policymakers should also pursue.

3. Incentivizing Household-Level Urban Water Conservation

Implementing policies that directly incentivize urban landowners to reduce their community- and household-level water use, especially for landscape irrigation, is another way western cities can improve water security and apply principles of integrative planning.[296] An effective and efficient way to do this is to implement targeted and attractive incentive programs that encourage and reward various water-saving land use choices.[297]

Many cities in the West have incentive programs rewarding urban property owners for water conservation, but the strings attached to receiving those incentives can make the programs underutilized and ineffective.[298] Fort Collins, Colorado, for

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286. *See* Act of June 4, 2021, ch. 364, 2021 Nev. Laws 364.

287. *See* Sam Metz, *Drought-Stricken Nevada Enacts Ban on "Non-Functional" Grass*, AP NEWS (June 7, 2021), https://perma.cc/Q2CS-9BP7.

288. *See Restricting Outdoor Water Use*, S. NEV. WATER AUTH., https://www.snwa.com/importance-of-conservation/restricting-outdoor-water-use/index.html#useless (last visited Mar. 25, 2022).

289. *See* Metz, *supra* note 287.

290. *See id.*; Act of June 4, 2021, ch. 364, 2021 Nev. Laws 364.

291. *See* Metz, *supra* note 287; Act of June 4, 2021, ch. 364, 2021 Nev. Laws 364.

292. *See* Act of June 4, 2021, ch. 364, 2021 Nev. Laws 364.

293. *See supra* Part I (outlining water insecurity problems facing the American West).

294. *See* Schindler, *supra* note 259, at 450–51 (describing how a lawn ban with limited coverage, e.g., one applicable to only "front yards in residential areas," would likely yield "a smaller total benefit").

295. *See id.* at 442–53 (discussing best practices in "[c]rafting [a lawn] ban"). *But see id.* at 442 (noting "substantial psychological and political barriers" to water-saving land use requirements).

296. *See supra* notes 43–45 and accompanying text (describing water demand for landscape irrigation); *supra* notes 109–34 and accompanying text (describing local policy gaps driving high water demand).

297. *See* Bell, *supra* note 154, at 318–20.

298. *See supra* notes 135–46 and accompanying text.

instance, offers water customers $0.75 per square foot of "high-water use area," including grass and other landscape features like pools, converted to "a water-wise landscape."[299] As a prerequisite, however, applicants must attend a special class, meet with city experts, and have their landscaping design approved by the city after an inspection.[300] Only then, about two months later, applicants receive their modest $0.75/square-foot rebate as a statement credit on their water bills.[301] All these procedural hoops may cause residents to feel the program's costs outweigh its benefits, reducing the likelihood they will participate.[302]

Policymakers can increase the popularity of incentive programs in several ways, including by eliminating stringent eligibility requirements, expanding accessibility, and improving advertisement.[303] Close collaboration between policymakers is crucial, as it enables states and cities to make these strides while ensuring programs also help to conserve water.[304] To make incentive programs fairer and more accessible, especially for those who have already instituted water-saving practices,[305] states or the federal government could provide yearly income tax credits to those who spend money on qualifying water conservation projects.[306] Tax credits are widely advertised by popular media, the Internal Revenue Service, online tax software, and others,[307] so individuals would be more likely to be aware of incentives. Policymakers themselves should also aggressively advertise available incentives and emphasize the accompanying cost savings: for instance, not only can xeriscaping yield a hefty rebate, but also save people money on monthly water bills.[308]

Policymakers can also improve the popularity and efficacy of incentive programs by offering greater financial rewards to participating citizens.[309] Modest incentives may not encourage most people to adopt a new, desired behavior, but rather marginally reward those who would have already adopted the behavior

299. *See Xeriscape Incentive Program*, *supra* note 135.

300. *See id.*

301. *See id.*

302. *See* Doug Mckenzie-Mohr & P. Wesley Shultz, *Choosing Effective Behavior Change Tools*, 20 SOC. MKTG. Q. 35, 35 (2014).

303. *See id.*

304. *See* Schindler, *supra* note 259, at 420 (discussing the role of informational campaigns in effective water conservation policies).

305. *See* Schott, *supra* note 138 (quoting a Utah legislator regarding his concerns about a statewide "turf buyback" incentive: "What about people who have already xeriscaped their lawns[?] . . . How do you make that fair?").

306. This could mirror the federal tax credit for electric vehicle owners. *See generally IRC 30D New Qualified Plug-In Electric Drive Motor Vehicle Credit*, INTERNAL REVENUE SERV. (May 6, 2022), https://perma.cc/LZW3-95KD.

307. *See, e.g.*, Dan Avery, *Here's How Solar Panels Can Earn You a Big Tax Credit*, CNET (Feb. 22, 2022, 9:14 AM), https://perma.cc/K8U7-TXQE; *Energy Incentives for Individuals: Residential Property Updated Questions and Answers*, INTERNAL REVENUE SERV. (Mar. 28, 2022), https://perma.cc/W3JD-SX7Q.

308. *Cf.* Schott, *supra* note 138 ("You save a lot of money in your water bills if you convert [your] lawn, so I don't know if we need to add more of a financial benefit.").

309. *See supra* notes 140–46 and accompanying text.

regardless of the incentive.[310] Thus, only people predisposed to conserving water (here called "predisposed adopters") are likely to take advantage of small incentives.[311] By contrast, those tentative about changing their familiar land use practices (here called "reluctant adopters") are unlikely to take advantage of small incentives.[312] This structure disproportionately benefits predisposed adopters and wealthy individuals who can shoulder the cost of water-friendly activities and enjoy the modest offset provided by the incentive. Reluctant adopters and people without the means to implement water-friendly landscaping likely need more than a modest offset.[313] Accordingly, cities and communities should focus primarily on reluctant adopters when designing water conservation incentive programs; the best way to do so is likely to make incentives more valuable.

Increasing the value of incentives will make programs more expensive, but worsening water insecurity and extreme responses such as growth moratoria are also very expensive.[314] As a result, the question for cities and communities failing to address their worsening water insecurity is not if, but when, they want to pay. They can pay now, when they have opportunities to shape policies to fit their unique circumstances, or they can pay later, when outside forces such as climate change drastically limit their options.[315] Ultimatums aside, states and cities can recover increased expenses through decreased water demand and federal funding. Decreased water demand may offset a portion of effective incentive program costs by mitigating the need to seek out new water supplies or develop new infrastructure.[316] Additionally, increased federal funding can help support more effective incentive programs.[317]

Western policymakers have many options to efficiently institute improved incentive programs. Tax credits, as mentioned earlier, or statement credits on water bills—a model popular in many western cities—are good places to start.[318] Whatever form water conservation incentive programs take, incorporating into them additional

310. *See* June Kaminski, *Diffusion of Innovation Theory*, CANADIAN J. NURSING INFORMATICS (2011), https://perma.cc/UX9F-N4S6 (describing how "innovators" and "early adopters," who tend to be more willing to take risks, adopt new ideas or practices long before the "late majority" and "laggards," who tend to be skeptical about deviating from the status quo).

311. *See id.* (noting that innovators and early adopters are generally "risk takers" and not particularly cost-sensitive).

312. *See id.* (noting that the late majority and laggards are usually cost-sensitive and avoid most uncertain or risky new investments).

313. *See* Schindler, *supra* note 259, at 420 (noting the possibility that "the current lawn norm will only fade when more sustainable front yard norms rapidly attract broad public interest").

314. *See* Healy & Kasakove, *supra* note 2; *Summary Stats*, DROUGHT.GOV (2022), https://perma.cc/H3N2-SMRA (reporting the national annual cost from drought events averages about $7 billion per year); Lorena Anderson, *Last Year's Drought Cost Ag Industry More than $1 Billion, Thousands of Jobs, New Analysis Shows*, UC MERCED (Feb. 24, 2022), https://perma.cc/B6TN-3XJN (reporting the 2021 drought cost the California agricultural sector alone about $1 billion and more than 8,000 jobs).

315. *See supra* note 36 and accompanying text.

316. *See supra* notes 46–51 and accompanying text.

317. *See supra* Part II.A.

318. *See supra* notes 135, 306–8 and accompanying text.

elements like support for neighborhood-level amenities[319] can make the programs even more popular and effective. To illustrate, though grass lawns are important to many people and have been a part of their lives for years,[320] not every home needs a large backyard covered in thirsty turf grass. Improving existing local amenities such as parks and dedicating additional land for new amenities can give communities the best of both worlds—saving water while retaining the familiar comfort of playing in soft, green grass.[321] Further, improving existing local amenities may drive up home values, thus improving political support for the underlying incentive program.[322]

In short, to effectively encourage individuals to adopt new (and necessary) water-saving land use practices, policymakers should adopt incentive programs that are both attractive and easy to qualify for. These programs, alongside policies that seek to eliminate water-unfriendly rules and internalize the water costs of land use activities, can significantly improve urban water conservation. The resulting water savings can advance water security throughout the West by making water supplies more flexible and promoting sustainable urban development.

CONCLUSION

The western drought is likely to worsen in the coming decades. Despite facing severe water insecurity and other growth-related challenges, many western cities have yet to seriously contend with that fact. Improving water security will require a wide variety of legal and policy solutions, some of which are outside the control of state and local governments. Other promising policy strategies, however, are readily available to policymakers and could do much to prepare them for the increasingly water-scarce conditions that lie ahead.

Although comprehensive water conservation policy reform will likely require more federal funding, policymakers can make great progress closer to home. States and cities can better integrate land- and water-use planning by closing persistent institutional gaps and proactively involving relevant stakeholders. Working collaboratively, policymakers should then seek to increase their focus on leveraging such integrative planning to reduce urban water demand. Entrenched political and institutional opposition to such reforms may present significant obstacles in some western cities, but any progress made could spare cities greater costs as water scarcity challenges intensify in the future.

If policymakers can rise to the challenge of addressing drought and water insecurity proactively, they can protect diverse livelihoods and promote sustainable urban development for generations to come. Oakley, Utah and other western cities cannot afford to stay the path of reactive, siloed water and land use policy. Oakley is a cautionary tale for the entire region, and policymakers should listen and learn, reforming both their attitudes and their implements. Integrative water and land use

319. *See* Gary Paul Green, *Amenities and Community Economic Development: Strategies for Sustainability*, 31 J. REG'L ANALYSIS & POL'Y 62, 65 (2001) (defining amenities as "non-marketed qualities of a locality that make it an attractive place to live and work").

320. *See* Schindler, *supra* note 259, at 405 ("[Lawns] are more user-friendly than, for example, a rocky desert landscape; they provide a soft place for children and dogs to play.").

321. *See id.* at 453.

322. *See* Rossi & Serkin, *supra* note 58, at 685–7.

policy can help the West grow sustainably and, most importantly, take the region and its people beyond all drought.