



Food and Water Sustainability: A Comparative Framework Across the American Southwest and Barbara Kingsolver's *Animal Dreams*

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Abstract. The American Southwest is growing more at risk of its food and water systems because of the drought, the decline in the groundwater or rather surface water flows due to a fad, and the growing food waste too. Colorado River Basin is the backbone of Arizona, New Mexico, Colorado, and Utah but these four states have been facing a lot of pressure as scientists are documenting an increase in groundwater depletion, dwindling snowpack, and decreasing Great Salt Lake storage levels. Arizona has been found to be ranked among the leading food waste producers in the country, and, in this context, the operations failure causes environmental and economic issues. Although the information on depletion and waste may be the needed quantitative parameters, they tend to ignite the cultural level in which community resilience and identity are formed. These issues can be traced in *Animal Dreams* (1990) by Barbara Kingsolver where the author focuses on irrigation systems contaminated with pollutants, poor-looking orchards, and food itself as a subject of cultural heritage. This paper constructs a comparative methodology integrating both scientific discoveries and literature review to build up existing knowledge on sustainability. It incorporates hydrological models, surface-water and groundwater measurements, along with food-waste research to determine their sustainability in terms of three variables, which include; water-resource management, environmental conditions, and social and economic effects of system inefficiencies.

Keywords: Food Environment, Water Scarcity, sustainability, Barbara Kingsolver, *Animal dreams*, American Southwest.

1 Introduction

The Southwestern part of America experiences mounting pressure on its food and water systems due to persistent drought, diminishing groundwater resources, shrinking rivers and lakes, and increasing rates of food waste. The Colorado River Basin sustains the

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states of Arizona, New Mexico, Colorado, and Utah, and they are beginning to become dissatisfied with their long-term sustainability because experts have recorded extreme groundwater loss, diminishing snowfall, and reduced lake storage [1–3]. Studies demonstrate that Arizona is ranked among the largest food-waste producers in the country, which causes both ecological and economic issues [5, 7]. Scientific reports on these issues do not give attention to the cultural aspects that influence the strength of communities and their heritage. Barbara Kingsolver discusses the work of *Animal Dreams* (1990) concerning the everyday lives of people by illustrating their practical and traditional food production and the realities of water pollution [11]. The study integrates statistical data and literary analysis to develop a dual framework for determining the sustainability of food and water.

2 Sustainability

2.1 Environmental Sustainability

General ecological degradation is occurring all over the American Southwest. Colorado River Basin water level keeps on dropping and land is getting strained. The Geological Survey recharge models in the U.S. have dictated that there is a devastating decline in the ground-water replenishment [24]. The NASA observations further show that the Arizona state has experienced a loss of an estimated 28 million acre-feet groundwater since 2002 [1]. The Great Salt Lake has also been shrinking in volume and surface area, in the period between 2002 and 2016 [20]. These developments have a distinct pattern of increase in drought, agricultural demand and pushing the whole hydrological system to its threshold. The same conditions can be observed in *Animal Dreams* (1990) by Barbara Kingsolver, whose characters are forced to deal with polluted waterways and poor agricultural fields [11]. Combined with scientific and literary points of view, the Southwest water crisis does not exist as a possible danger anymore, it is already in motion.

2.2 Social Sustainability

Food and water in the Southwest are not just a resource, but they are part of the cultural identity and community structure. Arizona is always mentioned in national reports as one of the states whose level of food-waste is extremely high, thus making the efficient utilization of scarce resources more difficult [5, 26, 27]. But statistics only part of the picture take. Food contains the memory, tradition and sense of belonging. This is highlighted in *Animal Dreams* (1990) by Kingsolver where she demonstrates the concept that food, orchards and meals that bring people together, connects generation to generation through its customs [11]. She also presents the sufferings of falling farms, and water systems that were polluted, which is closer to larger issues of identity and responsibility of moral obligations. In doing so, sustainability goes beyond material adequacy: it also indicates how food and water unite communities. As one reads empirical data in conjuncture with these cultural narratives, it is understood that scarcity is not only experienced as a factor in terms of resources but also more importantly on the foundations of societal life.

2.3 Economic Sustainability

The financial impact of misuse of resources and waste makes the economic aspect of food and water sustainability in the Southwest. The Colorado River flows and groundwater largely support farmers who particularly rely on groundwater and river flows since almost three-quarters of all diameter water is drawn in the state of Arizona [25]. This self-reliance increases the susceptibility because the supply of water reduces. Economic losses are even greater when one takes food waste into consideration since national estimates reveal that 30–40 percent of the food in the country is wasted after every year and this results in billions of dollars of wasted resources [5, 7]. Kingsolver (1990) portrays the same economic vulnerability by describing orchards that fail and agricultural livelihoods that are living on a razor edge [11], showing the impact that environmental degradation has on economic well-being. Combined, empirical evidence and literary expression indicate that ecological scarcity and economic insecurity support each other and determines the greater sustainability issues of the area.

3 Review of Literature

Considering food and water sustainability in the American Southwest, scholars use hydrology, studies on food-systems, and cultural literature. The review points out the most crucial scientific and cultural discoveries that form the basis of the current piece of work.

3.1 Environmental Sustainability of Water Resources

According to the high-resolution hydrological models of the Upper Colorado River Basin (1983–2019), long-term reductions in streamflow, snowpack, evapo-transpiration, and groundwater storage are evidenced, which will be dependable at the regional scale [25]. Additional U.S. Geological Survey data reports that its re-charge rates are dropping and the ground water is being depleted, and Arizona alone has lost close to 28 million acre-feet of ground water since 2002 [24, 1]. The records taken by the Great Salt Lake also indicate that the surface area and volume have been reduced significantly between 2002 and 2016 [20]. These studies taken collectively give the scientific frameworks of comprehending the environmental aspects of water sustainability in the area.

3.2 Social Dimensions of Food and Community

National surveillance statistics show to a third to almost a half of food in the U.S is wasted each year, of which Arizona ranks as one of the top food waste states [5, 7]. This kind of inefficiencies increases ecological pressure and reduces resilience of community. A book like *Animal Dreams* (1990) by Kingsolver fits these assessments as it demonstrates the use of food as a means of bringing up to cultural memory

and identity [11]. Through her description of orchards, gardens, and community practice, she focuses a lot on the significance of being sustainable and connecting fertility to belonging to a community and continuity of cultures.

3.3 Economic Implications of Food and Water Inefficiency

Arizona agriculture relies mostly on groundwater, since almost threequarters of the withdrawals are used in agriculture, putting producers at risk of decreasing groundwater and decreased flow of rivers [25]. Food waste also contributes to additional economic burden, translating to billions of dollars of losses to countries annually [5, 7]. The same state of affairs is reflected in the account by Kingsolver of the powerless livelihoods and the unhealthy orchards [11], in which the ecological collapse is directly converted to economic vulnerability.

3.4 Gap in Research

Whereas hydrological and agricultural research has measured environmental stress [25, 24, 20, 1], and literary research has identified cultural resilience as having an important place [11], there are a few studies that have integrated the methods. The current paper bridges this gap by combining scientific data with literary analysis to determine the sustainability of food and water by using environmental, social, and economic frames.

4 Methodology

4.1 Cross-functional Research Design

This research design integrates an empirical sustainability data with a literary analysis that underpins it with a comparative interdisciplinary design. The methodology supposes that scientific tools of measuring environmental and economic strains along with literature manifestations of cultural resilience and moral accountability present a wider picture of sustainability. The national food-waste reportages, where Arizona is one of the leading contributors [5, 26, 27], give the idea of the inefficiency of consumption and waste of resources. These empirical materials are contrasted with *Animal dreams* by Barbara Kingsolver (1990) that imagines the shortage of food and water in an Arizona mining town by describing the image of spoilt irrigation canals and withering orchards [11].

4.2 Geographic Scope: The American Southwest

The paper is devoted to four heavily dependent states on the Colorado River Basin which are Arizona, New Mexico, Colorado, and Utah. Over 35 million people are served by the region every year, which irrigates an area of over 4.5 million acres of agricultural land annually [24]. The hydrological examinations show that there exist large fractions of surface and groundwater regime that are prone, and the groundwater supports 21-58 percent of the streamflow in the Upper Basin [25]. The state of Arizona could be considered as a very harsh example since the NASA reports show the loss of almost 28 million acre-feet of groundwater since 2002 [1]. Another cause scenario that has been noted in Utah during 2002 and 2016 is the loss of the Great Salt Lake surface area and volume [20]. This geographical focus is compatible with the ecological and cultural environment of Animal Dreams [11], which happens in a fictional mining town in Arizona. The major indicators of groundwater depletion, agricultural water use, and food-waste patterns across the selected Southwestern states are summarized in Table 1.

Table 1. Key Indicators of Food and Water Sustainability in the American Southwest

State	Groundwater Loss (2002–2020)	Agricultural Water Use	Food Waste Ranking
Arizona	≈28 million acre-feet [1]	≈72% of total withdrawals [25]	High [5]
New Mexico	Significant but less documented	≈80% of total withdrawals	Moderate
Colorado	Upper Basin regional declines [25]	≈85% of total withdrawals	Moderate
Utah	Declines parallel Great Salt Lake loss [20]	≈82% of total withdrawals	Moderate

4.3 Water Sustainability: Hydrological Data Framework

Environmental sustainability is measured using several hydrological data. The Soil-Water Balance Recharge Model of the U.S. Geological Survey can be used to offer finer estimates of recharge rates within the Upper Colorado River Basin [24]. The simulations of the high-resolution ParFlow-CLM (1983-2019) also record the trend of the decreasing streamflow, snow, and groundwater sequester in the basin [25]. According to the GRACE-based measurements conducted by NASA, the state of Arizona alone lost about 28 million acre-feet of groundwater since 2002 [1]. Further, evidence of the Great Salt Lake elevation-volume shows sharp declines in the surface area and volume of water between 2002 and 2016 [20]. All of these datasets constitute the empirical basis of the evaluation of water stress in the Southwest. The hydrological datasets, their coverage periods, and their principal findings used for evaluating water sustainability are presented in Table 2.

Table 2. Hydrological Datasets Used to Assess Water Sustainability

Dataset	Provider	Coverage/Years	Key Findings
Soil-Water Balance Recharge Model	USGS [24]	UCRB; ~110,000 mi ²	Reduced replenishment, recharge variability
ParFlow-CLM Simulation	Tran et al. [25]	1983–2019	Declines in streamflow, snowpack, groundwater
GRACE Groundwater Assessment	NASA [1]	2002–2020	~28 million acre-feet lost in Arizona
Great Salt Lake Elevation–Volume Data	Root [20]	2002–2016	Sharp decline in area and volume

4.4 Data Sources on Food Waste and Consumption Patterns

The national and state-level datasets determine the food sustainability of the American Southwest. According to reports given in the U.S. Department of Agriculture and environmental protection agency, 30–40 percent of national food supply goes to waste every year leading to environmental and economic inefficiency [5, 26, 27]. Arizona has always been one of the states with the largest food-wasting amount [5], and it is a reflection of the external water prices of the wasted food. At the household level, households have the highest contribution to food waste. These data sets represent the quantitative foundation that allows attributing inefficiencies in food-systems to greater sustainability issues. The major datasets used to evaluate food-system waste and consumption inefficiencies are summarized in Table 3.

Table 3. Food-System Waste Datasets

Dataset/Source	Coverage	Key Findings
USDA/EPA Food Waste Reports	National (U.S.)	30–40% wasted annually [26, 27]
Arizona Waste Rankings	State-level (AZ)	Arizona among top waste producers [5]
Household/Retail Waste	U.S. households	Household waste largest contributor

4.5 Literary Representation of Food and Water in *Animal Dreams*

Literary analysis is an addition to empirical data since it encompasses the lived experiences in food and water scarcity. In *Animal Dreams* (1990), Kingsolver places her narrative in Grace, Arizona, where mining pollution is the water quality killer and the life of the agricultural people is under threat [11]. She talks of field water (rust-colored) and orchards (drinking poison) (p. 47) and images the effects of pol-polluted resources dramatically. Such statements as every meal are a memory (p. 156) help us understand how food helps to perpetuate the culture. These literary insights compare with the empirical data about depleting ground water and food waste as well as emphasizing sustainability as an environmental and cultural issue.

4.6 Comparative Analysis Framework

Comparative model is based on the synthesis of quantitative and qualitative evidence to assess the environmental, social and economic sustainability. With themes in *Animal Dreams* [11], which symbolically represent cultural survival and environmental helplessness, such empirical pointers, as Arizona is ranked high on food-waste, [5], are contrasted with orchards in decline or community dinners. Kingsolver explains that the orchards were taking poison (p. 47) is similar to information about groundwater contamination, whereas the thought that the orchards were our family stories (p. 102) indicates the cultural interests of farm loss. This paradigm relates quantifiable scarcity to experienced cultural significance.

4.7 Ethical Considerations and Study Limitations

The available dataset is timely and geographically limited with the study. USGS recharge models [24] and simulation in ParFlow-CLM [25] relate to particular intervals and might not be entirely associated with recent climatic variability. NASA estimates of water-loss of ground water do not provide fined-grained spatial hotspots [1]. The data on food-waste are based on wastage assessments and state rankings [5], which might not reflect household-level change. The interpretation of *Animal Dreams* [11] cannot be directly compared with empirical data since it is literary analysis. However, the validity of the study could be improved with the help of triangulating scientific datasets with cultural representation to be able to correlate quantitative evidence with personal experience.

5 Results and Findings

5.1 Water Sustainability under Environmental Stress

The hydrological records show an alarming trend of the loss of water all over the Southwest. According to the USGS Soil-Water Balance model, groundwater recharge rates are becoming less in the regions that are adhered to by agricultural activity [24]. Simulations carried out with par-Flow-CLM show that there is a decline in streamflow and snowpack, as well as an increase in evapotranspiration in warm-er conditions between 1983 and 2019 [25]. According to NASA tests, Arizona has already lost approximately 28 million acre-feet of groundwater since the year 2002 because of heavy agricultural run as well as lack of recharge [1]. In addition, the Great Salt Lake lost almost half of its water mass, which was between 2002 and 2016, which indicates that there was an unstable state in the ecology of the region [20]. Such results indicate the unsustainability of the environment due to excessive use and climate pressure. The human implications of this crisis are reflected in *Animal Dreams* (1990), when Kingsolver comments on this: water in the fields was the rust-colored. The gardens were poisoning themselves (p. 47) [11]. The fact that empirical information and narrative de-scription come together highlights the fact that depletion involves not only an empirical loss, but a lived disaster. The scale of groundwater depletion in Arizona between 2002 and 2020 is illustrated in Fig. 1.

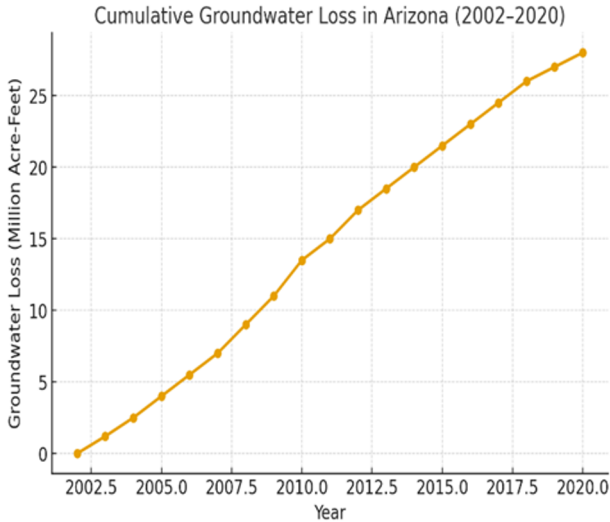


Fig. 1. Cumulative groundwater loss in Arizona (2002–2020), estimated at nearly 28 million acre-feet [1].

5.1 Social Implications of Food and Community

Food waste is an important social sustainability problem. According to national assessments, between 30-40 per cent. of food produced in the U.S is wasted every year

and Arizona ranks in the list of states with highest rates of food waste [5, 7, 26, 27]. The biggest proportion is done on a household waste, which means there is inefficiency in the production as well as patterns of consumption in the day-to-day. On taking these numbers together with water scarcity, it is apparent that big amounts of embedded water are being wasted in discarded food and further exerting ecological strain. Kingsolver gives us a cultural understanding of this problem when King said that it was not an orchard that were trees but our family stories (p. 102) [11]. Her description of the peoples whose identity is visibly connected with the food production process is consistent with the existing empirical research on the topic, indicating that sustainability cannot be isolated and detached. A comparative overview of food waste, water footprint, and economic losses at the national and Arizona levels is presented in Table 4.

Table 4. National and Arizona-specific estimates of food waste, water footprint, and economic costs [5].

Category	Food Waste (% of supply)	Water Footprint (gallons/person/day)	Economic Cost (USD per capita/year)
National Average	30–40%	~660 gal	~\$1,600
Arizona	≈35–40%	~720 gal	~\$1,800

5.2 Economic Consequences of Water and Food Inefficiency

Sustainability challenges have two major forms in terms of their economic contribution to the economy, which include increased costs of water shortage and the losses incurred due to food waste. Agriculture constitutes approximately three-quarters of the total water consumption in Arizona, so the farmers are highly susceptible to man-made water loss and diminishing rivers [25, 1]. Rising water prices decrease the profitability of farms and put budget pressure on rural economies. This burden is exacerbated by food-waste, and in the US alone millions of dollars are wasted annually because of wasted food [5, 7]. In *Animal dreams*, Kingsolver scoops up these weaknesses and writes: We were squeezing the apples with our fingernails and waiting till the water made us good (p. 156) [11]. It reflects economic precarity as a statistical reality and as a manifestation. The comparative economic and water-related impacts of food waste in Arizona and at the national level are illustrated in Fig. 2.

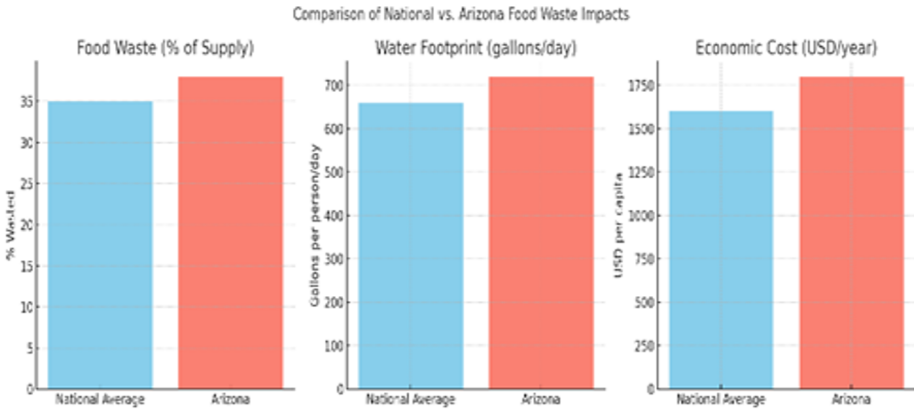


Fig. 2. Comparison of national and Arizona-specific food-waste impacts, showing higher economic and water losses in Arizona [5].

5.3 Integrated Insights

According to the results, food and water sustainability in the Southwest can be explained only on an integrated basis. Scientific records capture loss of ground-water, diminishing lakes and food-system inefficiency whereas literary expression captures the impact of these pressures on the communities on personal and cultural scale. Kingsolver shows in *Animal Dreams* that identity, memory, and social continuity change under the ecological decline [11]. Combined, these impressions indicate that sustainability does not include merely looking after the resources, but cultural values, social cohesion, and economic resilience, as well.

6 Future Scope and Limitations

6.1 Future Scope

The combination of hydrological information and food-waste evaluation with the literary analysis used in this research can prove the effectiveness of the multidisciplinary approaches toward sustainability. The future studies can build on this model by inserting in it climatic projections of the Colorado River Basin to assess the effects of climate change in the long term on agricultural water demand [25]. Equally, the possibility of replicating food-wastes research to New Mexico, Colorado, and Utah would present a more generalized analysis of the region [5, 26, 27]. This could also be extended to other works of Southwestern authors to enhance the cultural understanding of sustainability as done by Rajalakshmi and Clement [17], Ridha Ali and Sasani [18], Wang [29], and

Wrede [31]. Moreover, better transfer of scientific research through map-ping and enhanced visualization would help to improve the policy-making and decision-making of community.

6.2 Limitations

The limitation of the research is the time and space of the available datasets. The USGS models of recharge and the simulations made using ParFlow-CLM have valuable historical records, but these models and simulations might not represent the changes in climate beyond their domains [24, 25]. The evaluation of the groundwater-loss in NASA occurs in state level and does not have finer resolution in terms of watersheds [1]. Exceptional national data and overall comparisons between states form the basis of food-waste evaluation [5], potentially not being comprehensive to capture household-specific trends. The literary evaluation of *Animal Dreams* [11] is of interpretative quality and the fictitious natural setting is not an ideal match of actual ecological factors. However, scientific evidence and literary representation enhance the validity of the research over-all as it creates a balance between quantitative results and cultural and experience-based aspects.

7 Conclusion

This paper demonstrates that food and water sustainability in the American Southwest needs to be cognized as quantifiable ecological state and a cultural discourse. The U.S. Geological survey hydrological reports [24, 25], NASA groundwater research [1], and Great Salt Lake records [20] showcase substantial grounds of dwindling inducement of the groundwater, decreased streamflow and diminutive surface-water supplies. Food-system evaluation also shows that Arizona contributes to food waste nationally at a rather high level [5, 26], exacerbating both the environment-wide stress and economic threat. When these scientific findings are considered in conjunction with the earliest story of the *Animal Dreams* by Barbara Kingsolver [11], there is evidence that there are ecological pressures that can potentially destroy cultural identity, memory and social continuity. The images of dirty irrigation canals, withered orchards, and shared meals by Kingsolver can show that the lack of moral and emotional orientation due to the environmental crisis alters the moral-spiritual map. A combination of empirical data and literature interpretation is that the current study holds that sustainability is an issue of resource management as well as a issue of values, practices, and belonging preservation. Future studies with a scientific and cultural outlook can be more comprehensive in offering solutions to the food and water insecurity in the Southwest.

References

1. Abdelmohsen, K., Scanlon, B.R., Rateb, A., Faunt, C.C., Pool, D.R., Reager, J.T.: Arizona's declining groundwater: A GRACE-based analysis. NASA Earth Observatory (2025). <https://earthobservatory.nasa.gov/images/154567/arizonas-declining-groundwater>
2. Allen, D.M., Cannon, A.J., Toews, M.W., Scibek, J.: Variability in simulated recharge using different GCMs. *Water Resources Research* 46(10), W00F03 (2010). <https://doi.org/10.1029/2009WR008932>
3. Cook, B.I., Ault, T.R., Smerdon, J.E.: Unprecedented 21st-century drought risk in the American Southwest and Central Plains. *Science Advances* 1(1), e1400082 (2015). <https://doi.org/10.1126/sciadv.1400082>
4. Dalin, C., Wada, Y., Kastner, T., Puma, M.J.: Groundwater depletion embedded in international food trade. *Nature* 543(7647), 700–704 (2017). <https://doi.org/10.1038/nature21403>
5. Escoffier: Food waste in America: Facts and statistics. Auguste Escoffier School of Culinary Arts (2023). <https://www.escoffier.edu/blog/world-food-drink/food-waste-in-america/>
6. Famiglietti, J.S.: The global groundwater crisis. *Nature Climate Change* 4(11), 945–948 (2014). <https://doi.org/10.1038/nclimate2425>
7. Food and Agriculture Organization of the United Nations: Food wastage footprint: Impacts on natural resources. FAO, Rome (2013). <https://www.fao.org/4/ar429e/ar429e.pdf>
8. FoodPrint: The water footprint of food. FoodPrint (2024). <https://foodprint.org/issues/the-water-footprint-of-food/>
9. Gleick, P.H.: Roadmap for sustainable water resources in southwestern North America. *Proceedings of the National Academy of Sciences* 107(50), 21300–21305 (2010). <https://doi.org/10.1073/pnas.1005473107>
10. Hoekstra, A.Y., Mekonnen, M.M.: The water footprint of humanity. *Proceedings of the National Academy of Sciences* 109(9), 3232–3237 (2012). <https://doi.org/10.1073/pnas.1109936109>
11. Kingsolver, B.: *Animal Dreams*. HarperCollins (1990)
12. Konar, M., Stevens, J.R., O'Brien, M.: Nearly 80% of agricultural blue water footprints occur west of the 97th meridian. *Water Resources Research* 56(9), e2020WR027144 (2020). <https://doi.org/10.1029/2020WR027144>
13. Liao, F.H., Heinse, R., Saul, D., Newman, S., Huang, L., DePhelps, C., Peterson, S.: Assessment of the environmental impacts of a localized food system and food waste reduction in a water-scarce region using diet optimization models. *International Journal of Environmental Research and Public Health* 20(10), 5890 (2023). <https://doi.org/10.3390/ijerph20105890>
14. Lo, M.H., Famiglietti, J.S.: Irrigation in California's Central Valley strengthens the southwestern U.S. water cycle. *Geophysical Research Letters* 40(2), 301–306 (2013). <https://doi.org/10.1002/grl.50108>

15. Mekonnen, M.M., Hoekstra, A.Y.: The green, blue and grey water footprint of crops and derived crop products. Value of Water Research Report Series, No. 47. UNESCO-IHE Institute for Water Education, Delft (2010)
16. Milstein, T.: Environmental communication theories. In: Senecah, S. (ed.) Environmental Communication Yearbook, vol. 3, pp. 1–25. Routledge, New York (2009)
17. National Research Council: Water Reuse: Potential for Expanding the Nation's Water Supply Through Reuse of Municipal Wastewater. The National Academies Press, Washington, DC (2012). <https://doi.org/10.17226/13303>
18. Rajalakshmi, E., Clement, S.K.: Reconceiving Animal Dreams from an ecocritical perspective. IIS University Journal of Arts 11(3), 208–217 (2023)
19. Ridha'a Ali, Sasani, S.: An ecofeminist study of Barbara Kingsolver's Animal Dreams and Prodigal Summer. Research Journal in Advanced Humanities (2024). <https://doi.org/10.48308/cjlls.2023.103678>
20. Root, T.L.: Great Salt Lake elevation–area–volume tables (2002–2016). U.S. Geological Survey Data Release (2023). <https://catalog.data.gov/dataset/great-salt-lake-elevation-area-volume-tables>
21. Scanlon, B.R., Faunt, C.C., Longuevergne, L., Reedy, R.C., Alley, W.M., McGuire, V.L., McMahon, P.B.: Groundwater depletion and sustainability of irrigation in the U.S. High Plains and Central Valley. Proceedings of the National Academy of Sciences 109(24), 9320–9325 (2012). <https://doi.org/10.1073/pnas.1200311109>
22. Scialabba, J.H.A., Iweins, M., Tubiello, F.N., Peiser, L., Batello, C.: Food wastage footprint: Impacts on natural resources (Phase II Working Paper). Food and Agriculture Organization, Rome (2013). <https://www.fao.org/4/ar429e/ar429e.pdf>
23. Shiklomanov, I.A., Rodda, J.C. (eds.): World Water Resources at the Beginning of the Twenty-First Century. Cambridge University Press, Cambridge (2003)
24. Tillman, F.D.: Input digital datasets for the soil-water balance groundwater recharge model of the Upper Colorado River Basin. U.S. Geological Survey Data Release (2015). <https://doi.org/10.5066/P9ZFQFJD>
25. Tran, H., Maxwell, R.M., Condon, L.E.: A high-resolution integrated hydrologic model of the Upper Colorado River Basin (1983–2019). Scientific Data 9(1), 1–15 (2022). <https://doi.org/10.1038/s41597-022-01123-w>
26. U.S. Department of Agriculture: Economic Research Service: Food waste. USDA (2020). <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-waste/>
27. U.S. Environmental Protection Agency: From farm to kitchen: The environmental impacts of U.S. food waste. EPA (2021). https://www.epa.gov/system/files/documents/2021-11/from-farm-to-kitchen-the-environmental-impacts-of-u.s.-food-waste_508-tagged.pdf

28. Wada, Y., Van Beek, L.P.H., Bierkens, M.F.P.: Nonsustainable groundwater sustaining irrigation: A global assessment. *Water Resources Research* 48(1), W00L06 (2012). <https://doi.org/10.1029/2011WR010562>
29. Wang, X.: An analysis on eco-related traditions of North American Indians in Animal Dreams. *Pacific International Journal* 5(1), 37–45 (2022). <https://doi.org/10.55014/pij.v5i1.149>
30. West, R.: Ecopsychological approaches to environmental literature. *Journal of Ecocriticism* 10(2), 45–62 (2018)
31. Wrede, T.: Barbara Kingsolver's Animal Dreams: Ecofeminist subversion of Western myth. In: Vakoch, D.A. (ed.) *Feminist Ecocriticism: Environment, Women, and Literature*, pp. 39–64. Lexington Books, Lanham (2012)

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