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**The Role of Vulnerability, Anticipation, and Narrative Structure in California's Drought
Management and Water Allocation Strategies**

Presented to The Faculty of
The Environmental Studies Program

In partial fulfillment of the requirements
for the degree of Bachelor of Arts

By
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Bates College
Lewiston, Maine
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Chapter 1: Introduction

Drought is not a new phenomenon for the state of California as this area's semi-arid region and lack of consistent rainfall renders it easily susceptible to drought conditions. Since the late 19th century, California has suffered extensive dry periods marking drought as a seemingly eternal condition of the state. However, California's mediterranean climate allows for fertile agricultural production and so despite consistent drought conditions, California evolved into the one of the largest international economies and agricultural producers. To support and sustain this agriculture sector, California built a complex system of infrastructure which redirected water into the heart of the San Joaquin Valley, the hub of California's agricultural industry, as well as to Southern California in order to sustain the growing population of urban residents in the southernmost regions of the state.

Since the onset of the Gold Rush in the late 1800s, California has been defined by a culture of extraction. The state's resources attracted an army of hopeful entrepreneurs looking to profit off of the precious metal hidden in California's rivers and the liquid gold that allowed for fertile farming ground across the vast range of the state's Central Valley. Within its first 100 years as a state, California's population doubled every 25 years and with this population increase, unprecedented stress was placed upon the state's water resources (St. Clair 1998/1999, 187). International and domestic migration into California caused a drastic change in the state's landscape as urban, residential, industrial, and agricultural infrastructure and development increased across the state. As agricultural activity accelerated, irrigation increased as well, intensifying the stress placed upon California's underwater aquifers and natural water systems. Further, the exportation of California's produce within the United States as well as overseas continuously escalated water demand, decentralizing water systems throughout the state and

introducing a national incentive to encourage the unsustainable production of agriculture in California. While undeniably profitable, California's consumption of water for agricultural production exacerbates drought conditions by depleting underground aquifers and redirecting water away from local communities and ecosystems vulnerable to drought conditions.

This demand for the economic potential of California's agriculture heavily dictates California's current water allocation strategies. Water is prioritized for the production of goods that are then exported across the globe rather than to local communities who are increasingly vulnerable to drought in the face of anthropogenic climate change. As global warming and climatic changes to precipitation continue to limit the water availability in California, the state will need to reconsider its current prioritization of water allocation. A refusal to acknowledge or rectify the unsustainable distribution of water across California will lead to increasing rates of environmental injustices as local communities go without water for the benefit of the state's agricultural economy. Additionally, the ways in which the state chooses to image the future of its water landscapes will have important implications for the ways water is prioritized in the present as well as in the future. For this reason one should question the solutions the California employs to confront its drought problem and should remain critical of the intentions behind such solutions.

Through an exploration of California's governing politics of water allocation, this thesis works to assess the ways in which politics of anticipation and vulnerability invoke notions of slow violence throughout the state in order to influence California's drought narrative. Further, this thesis argues that California's current water allocation strategies fail to account for the socioeconomic factors that render marginalized farm worker communities within the San Joaquin Valley increasingly vulnerable to drought conditions, perpetuating the slow violence of this

environmental injustice. This thesis suggests that California needs to reassess the ways in which its current water allocation strategy illustrates vulnerability in its drought narrative and how it invokes anticipatory tools to prioritize a certain future for water in California.

Chapter 2: Literature Review

The accelerated pace of globalized climate change tasks our modern world with an increased demand for adaptation to the structural shifts within the environmental, social, political, and temporal spaces we occupy. As the impacts of climate change become increasingly tangible for people across the world, environmental injustices will need to be a political priority and focus of institutional change (Banzhaf et. al. 2019, 189). Key to discussions of environmental injustices is the realization that such inequities cannot be addressed in totality without an understanding of their origins. Literature surrounding environmental disamenities often fails to identify the relevant root cause of such injustices, instead relying on an overly technical discussion of data aggregation and analysis isolated from the social roots of such inequity (Ibid). In this sense one should question the effectiveness of environmental justice initiatives which fail to properly identify the comprehensive root causes of injustice. Failure to do so may result in inadequate policy prescriptions which do not target the correct areas of unjust institutionalized action.

An Overview of Environmental Injustice

Conversations of environmental justice first arose through a recognition of the correlation between waste facility location and the ethnic identity and economic status of the surrounding community which highlighted a pattern of residential inequity and segregation relative to environmental hazards (Anderton et. al. 1994, 230). Modern economic theory presents three rationalizations for disproportionate patterns of pollution and environmental degradation: discrimination, the Coase Theorem, and the Theory of Collective Action (Hamilton 1995, 109). The latter two theories suggest that any group which attempts to provide a public good will have

difficulty doing so efficiently and firms motivated by profit maximizing incentives will tend to identify areas with relatively low incomes and education levels related to low willingness to pay for better environmental amenities. While this recognition of the spatial patterns of environmental inequities do not necessarily indicated discriminatory intent, they do illustrate how modern social, political, and economic institutions can get away with environmental injustices as an externality of profit maximizing ambition (Ibid). On the other hand, community organizing around environmental injustices appeals to larger political goals of populism and often allows for new initiatives of coalition-building against unjust local politics. This is often evident through the mobilization of grass-root networks and place-based injustice claims against oppressive industry, highlighting the capacity of environmental justice discourse to invigorate marginalized communities against local governments and environmental disamenities (Chandrasekaran 2021, 596).

Environmental injustice claims tend to require a specific perpetrator to blame for the stark unfairness of their disamenities but oftentimes, the institutional tools and systems used to process, imagine, estimate, and understand systems of injustice may themselves be ingrained in and manipulated by past processes of injustice. While policy makers and social justice advocates often look to find the source of environmental injustice in acts of discriminatory intent, outcomes may stem from ingrained institutional bias as opposed to explicit acts of prejudice (Wikstrom et al. 2018, 9). Further, desires to resolve environmental conflicts quickly and fairly runs the risk of doing so in a manner that further conceals the full extent of such inequities from view. In this sense, we circle back to the political imperative to properly identify the root cause of injustice in order to prescribe an adequate solution (Banzhaf et al. 2019, 189).

Slow Violence

A crucial aspect of environmental injustice is its capacity for “slow violence,” a term coined by Rob Nixon (2013) to emphasize the ways in which violence may not always be immediately seen or felt but still holds the capacity for destruction, degradation, and disenfranchisement. Nixon defines slow violence as a violence that occurs over a dispersed plane of time and space, manifesting gradually and out of sight in a manner that is often not interpreted as violent or destructive (Nixon 2013, 2). The lagging pace of slow violence often allows for its implications to be overlooked or disassociated from its core source of injustice, highlighting the urgency of appropriately pinpointing sources of violence and harm (Nixon 2013, 7). If the temporal aspects of injustice are not properly understood, any attempt to rectify said injustice may exist on a temporal plane out of sync with the source issue.

The slow grind of climate change and its detrimental effects renders environmental conflicts subject to temporal conflation, highlighting how slow violence misconstrues and conceals prescriptions of innocence and responsibility. In the context of slow violence, innocence functions as a temporal configuration as well as a structure of absence in which the innocent is often understood as static and without exposure to harm, experience, or struggle (Cecire 2015, 164). Such configurations of the innocent perpetuated the harm of slow violence against disenfranchised members of society, illustrating the necessity to account for the temporal dispersion of slow violence and the ways in which such violence influences our perception of those that are innocent and those that are guilty. In this sense, it is essential to remain critical of the intention behind narratives that construct images of innocence and guilt. Additionally, it is important to note that the pace and expansive nature of climate change often limits the ability to identify sources of slow violence as the disproportional destruction of climate change may easily

be misidentified or inadequately managed (Nixon 2013, 40). In this way, it is essential to understand environmental violence as a contest over time in order to parallel environmental action along a scale which matches the temporal and spatial implications of the source injustice. Failure to do so will only perpetuate the violence of environmental injustice, further marginalizing those who have been institutionalized to bear the brunt of this destruction and allowing those constructed as “innocent” to avoid consequences.

Nixon’s portrayal of slow violence highlights how temporal dissonance can both delay and effectively conceal the repercussions of injustice, stressing the importance of adopting practices and policies that will expose the full extent of slow violence. When slow violence is not properly identified, it allows the perpetrators of violence to buy time and escape consequence (Nixon 2013, 40). Therefore, the legacies of slow violence are allowed to fester and institutionalize their degradation under the fruitless workings of inadequate injustice identification protocols. It is essential to pair the identification of violence as slow with identifications of hope that function on a parallel temporal plane. This is imperative as a recognition of hope provides room for the uplifting of narratives and stories in conversations of environmental disamenities as opposed to solely prescribing an economic solution, providing alternatives to institutionalized ontologies of progress and success (Mauch, 37).

Politics of Anticipation

This demand for a reassessment of the pace of slow violence can be appraised through the politics of anticipation, a concept which assesses the governance as well as the construction of time and the larger implications of this political act. Anticipation shapes how we think about the future as well as how we actively construct the future through the present. The ways in which the

future is actively imagined in the present structures anticipation not as a reactionary process but as an exercise of temporal orientation through which future time is understood out of place in the present (Adams et al. 2009, 247). This process of anticipation allows the future to appear in the present as previously constructed and fully formed, granting anticipation an inherent façade of objective reality despite the fact that it has not yet occurred. This temporal dissonance grants anticipation a stark political power which must be understood as a construction of various temporal possibilities as well as a product of current political and social anxieties (Brown 2004, 439). If we contextualize this understanding of anticipation through earlier conversations of environmental justice, we can use this temporal conflation of the present as constructing the future to more completely identify instances of slow violence which stem from environmental degradation.

The ways in which the future is theorized or imagined in the present actively influences how the future unfolds through its competing essences of uncertainty and inevitability which express themselves as entanglements of hope and fear (Adams et. al. 2009, 246). By emphasizing the importance of identifying the root cause of injustice to properly prescribe a solution, the politics of anticipation suggests that different styles of anticipation and prioritization of future horizons cultivate competing constructions of the future and the present which may inhibit the capacity to properly identify injustices or instances of slow violence. Additionally, anticipation allows for perception into notions of progress and political change which consequently bring the past and the future together in time in order to create ideals for the present (Brown 2004, 439). The political question of what becomes a problem of public concern and how to appropriately highlight connections between the past and processes of anticipation dictates how certain actors are uplifted or overlooked in their capacity to draw on anticipatory processes (Groves 2017, 30).

If we understand the present as inherently and frequently constructing the future, we can understand how environmental conflicts are created by distinct anticipatory thought processes and the ways in which these anticipatory styles distribute power between social coalitions, lending meaning to certain imagined futures that then become objects of public concern (Groves 2017, 33). Conflicting prioritizations of environmental, social, and political anticipation shape different futures, therefore highlighting the ways in which different forms of knowledge are prioritized through these systems as a central political concern.

The politics of anticipation functions as a form of environmental politics through the ways it prioritizes different patterns of fear and hope to construct objects of urgent concern. Traditional scientific tools are limited in their capacity to appropriately study the future as environments are constantly changing, however, adopting analytical socio-ecological lenses that explore a range of potential futures will provide a more holistic view of environmental outcomes (Bengston 2012, 3). As a form of environmental politics, the politics of anticipation can function as an evaluation of the unequal distribution of power among actors involved in constructing visions of the future and producing objects of representation in the public sphere (Groves 2017, 33). Therefore, restructuring modes of anticipation to adequately reflect the present desires and experiences of local communities is of the utmost importance and should be considered a central political problem (Groves 2017, 27). Despite this reality, it remains unclear whose responsibility it is to restructure these styles of anticipation for the goal of political clarity, justice, and effectiveness.

International Anticipatory Regimes

The International Panel on Climate Change (IPCC) is one of the largest governing environmental bodies that functions on a global scale and holds a unique capacity to influence

the politics of anticipation. The IPCC has the potential to change the ways in which we theorize future pathways of climate policies as it could highlight alternative technological possibilities for climate management and environmental adaptation (Beck and Mahoney 2017, 312). Through its use of solution-oriented assessments, the IPCC functions as a key facilitator for conversations surrounding policy alternatives for climate change and the larger political and social implications of such changes (Hackmann 2014, 3). While the IPCC definitely holds the capacity to shift the structures of policy, we must question the ways in which this organization prioritizes knowledge. If this institution could properly balance the roles of science, culture, environments, socialization, and lived experiences in generating climate knowledge, we could potentially witness effective fundamental change in climate policy and climate action. However, failure to do so will only further perpetuate the slow violence of temporally misaligning knowledge and action. Modern environmental degradation is inherently anthropogenic and therefore, environmental controversies must be considered social issues, requiring solutions for various stakeholders from a range of disciplines in order to generate the most appropriate, fair, and just policy prescription (Bengston 2012, 6).

As climate change continues to accelerate, local climate knowledge and valuation of ecological systems must be brought to the foreground of anticipatory considerations. If we hope to avoid rendering concepts of slow violence and environmental injustice invisible we must consider the ways in which science-based anticipation constructs a future that perpetuates the concealment of these issues in the name of political progress and economic growth.

Science-based anticipation is mediated by political and economic incentives and cannot be isolated from capitalistic valuations of capital, technology, and resources in Western societies (Granjou et al. 2017, 9). Modern financial, commercial, and state institutions of power utilize

anticipatory calculations of risk to predict future action, highlighting anticipation as inherently subjective as well as essential to capitalist agendas (Ibid). Therefore, the ways in which we anticipate risk must place the ecological and social implications of slow violence at the foreground of future-making processes in order to halt the perpetuation of institutionalized environmental injustice and illuminate the ways environmental futures are told, transformed, and predicted (Granjou et al. 2017, 10).

An analysis of how modern anticipation is constructed and mobilized reveals technological development as a political tool to portray, know, and predict futures (Alvial 2016, 137). Therefore, interpreting and studying science as a practice of anticipation and anticipatory tools rather than a system of knowledge highlights the human agency involved in constructing technology and visions of the future. Further, *who* is imagined as the current and future users of technology or policy plays a crucial role in the construction of these institutions, highlighting the agency of users in shaping the technology used to construct the future (Wilkie & Michael 2009, 505). Future assemblages are imagined through this construction of the “future user,” demonstrating how the “user” acts as a joint between social and technological entities. The very use of the term “user” or “stakeholder” identifies the future as requiring action by particular actors who are deemed important enough to have a stake in the issue at hand (Wilkie & Michael 2009, 506). Therefore, it is essential to remain critical of how technology is modeled around an idealization of its “user” and how this projection shapes visions of the future, highlighting anticipation as a mediation of technological development, social capacity, and the arrangement of time.

Vulnerability Discourse

The language and knowledge used to assess environmental futures and current instances of environmental disaster directly influences the capacity of a society to respond to these environments. Western discourse around natural disasters and environmental destruction is steeped in an imperialist history of expansion and exploitation which often looks to blame the people rendered vulnerable by said discourse (Bankoff 2001, 25). The use of terms such as “vulnerable” can perpetuate the harmful generalization and oversimplification of societies and communities as weak or passive, rather than working to identify the source of such vulnerability (Bankoff 2001, 29). Often, processes that generate vulnerability are the same systems that perpetuate disparities in wealth, resource control, and national and international power (Cannon 1994, 5). Therefore, in the face of environmental and climate hazards, disaster policy should focus on the vulnerability of people rather than the vulnerability of economic, social, and political systems (Wisner and Luce 1993, 128). Further, to avoid an oversimplification of vulnerability to correlate with inferiority, it is the duty of larger governing bodies, like the IPCC, to work to identify the environmental, social, and economic processes that render certain people more vulnerable than others to climate hazards (Greene 2018, 284).

If proper disaster mitigation requires a heightened focus on the causation of vulnerability, it also is reliant on a restructuring of knowledge systems. Modern vulnerability discourse stems from a dominant Western imperialist knowledge system that predetermines the agency of certain peoples in the face of climate hazards (Bankoff 2001, 29). By deconstructing the dominant discourse of vulnerability, we can prioritize knowledge systems that reveal how slow violence can steal the political agency and autonomy of certain demographics. Additionally, most disaster policy disproportionately highlights the role of nature in the creation of hazard, rather than

identifying the systems that encourage an unequal distribution of the disaster. While climate hazards are naturally occurring, the scale of disaster depends on the condition of people subjected to said hazard and their exposure to risk and access to mitigation opportunities (Cannon 1994, 1). In order to avoid an inadequate hazard mitigation strategy that enhances the vulnerability of certain peoples, it is essential to identify the role of social and economic systems in rendering vulnerability as well as the role of technology in prescribing or predicting such vulnerability.

A focus on the vulnerability of people and their communities demands an assessment of society's transformational capacity, particularly within resource-dependent industries such as agriculture. Transformational capacity, as compared to adaptive capacity, occurs over the long term, encompassing the management of risks, mobilization of skills, flexibility of financial and psychological resources, and anticipation of the need and willingness to undergo fundamental change in the face of climate emergencies (Marshall et al. 2012, 5). Such transformation of resource-dependent industries requires the mobilization of anticipation and risk awareness to assess the necessity of change, therefore participating in the constructions of the future.

Community interest in future adaptation is typically hindered and influenced by local attachment to place and attachment to occupation where local perceptions of self-identity strongly dictate how a community views the necessity of change as well as their own capacity for adaptation (Marshall et al. 2012, 8). In order to make space for local people entrenched in resource-dependent industries to assess their transformational capacity, we must dismantle the dichotomy of western scientific knowledge vs local knowledge in order to make room for multiple forms of knowledge to exist simultaneously.

Any attempt to read local worlds through the static objective lens of western science, effectively subverts and works to delegitimize other forms of knowledge and modes of being (Shah et al. 2017, 408). While lived experiences are not prioritized in western scientific knowledge systems, they function as alternative ontologies for knowing the world in many places around the globe (Shah et al. 2017, 401). By effectively restructuring knowledge systems to prioritize lived experiences and cultural knowledge, we may be able to construct politics of anticipation which do not ignore the relevance of slow violence by making space for the lived realities of local people involved in resource-dependent industries such as agriculture. In order to do so we must recognize how placing western scientific knowledge and indigenous traditional knowledge in a contrasting dichotomy allows the asymmetries of power that stem from this divide to be overlooked and ignored (Agrawal 1995, 431). Therefore, by rejecting notions of the static objectivity of western scientific knowledge we can make room for science to be understood as a form of practice and an expression of culture. This shift in the perception of knowledge will allow for multiple forms of knowledge to exist simultaneously, enhancing society's capacity for truth, justice, and adaptation. Additionally, delegitimizing the dichotomy between western science and indigenous knowledge opens up room for the recognition of intragroup differentiation as well as a more inclusive dialogue to effectively address the interests and needs of marginalized peoples (Agrawal 1995, 433).

Future Expectations and Narrative Construction

As knowledge has become an increasingly important driving force behind socio-economic and industrial change, scientists are expected to outsource knowledge from technical experts in other fields to construct more holistic understandings of the natural world (Borup et al. 2006,

287). As previously mentioned, this coordination of different disciplines in the construction of knowledge relies on the mobilization of future expectations as well as perceptions of vulnerability and valorization. Through their capacity to link technical knowledge and social issues, expectations about the future are foundational to the coordination of peoples and communities in conversations of environmental justice (Borup et al. 2006, 286). Therefore, expectations, and their resulting anticipation, are crucial for instituting social and environmental change and must be critiqued when their assessment of relevant crises is limited or exclusive. Future-oriented thinking originated in the 1960s around the notion that technology and increased development could “steer the future” and navigate efficiently through the wealth of expectations and opportunities (Seefried 2013, 2). While this naive optimism in the power of technology was roundly critiqued in the 1970s, remnants of this belief system remain prominent in western scientific knowledge today and must be challenged to make room for other knowledge systems in global discourses surrounding climate change. For this reason, it is essential to remain conscious of how technology and western knowledge systems orient narratives of ecological urgency.

Many modern vulnerability assessments overlook the temporal aspect of slow violence and institutionalized disenfranchisement by portraying vulnerability as a static condition. As mentioned early, this prescription of vulnerability often masks the processes that generate such risk for certain peoples by concealing the violence of systemic institutions such as racism and colonialism (Greene 2021, 34). Portrayals of vulnerability differ across different environmental narratives and this rhetoric of vulnerability is often weaponized, disabling the possibility for the inclusion of local climate knowledge in larger conversations of climate change response and adaptation. Competing environmental narratives can construct contradicting depictions of how

the dynamics between water, agricultural, labor, and rural communities cultivate drought vulnerability (Greene 2021, 34). In this sense, the contextualization of local knowledge plays a huge role in illustrating vulnerability which in turn can dictate who is prioritized or excluded from considerations of resource allocation in the face of environmental distress. Local knowledge utilizes different spatial and temporal constructions to generate knowledge relative to the quantification and aggregation tools used by western scientists (Greene 2021, 34). Failure to recognize the interdisciplinary nature of climate change may encourage the exclusion of local knowledge in conversations surrounding climate change, opening up discourse for disagreement on this issue, a topic that is increasingly reliant on globalized consensus and collaboration to effectively mitigate its effects.

Vulnerability discourse holds a key role in shaping future narratives that are used to inform political decisions around the environment. Control over the narrative of drought vulnerability will have increasingly material political, social and economic impacts as this control will dictate who is consulted, represented, and excluded in drought relief programs and future water system restructuring strategies. In this sense, it is imperative to remain critical of the ways in which our modern discourses of vulnerability influence concepts of anticipation and political response to environmental issues. Whose narratives are highlighted and whose are excluded in political conversations directly influences the ways in which future systems are theorized and constructed, whether or not this is actively realized in the movement. For this reason, it is more relevant than ever that we reexamine the foundations of our anticipatory thoughts and identify systems of slow violence that escape our broader narratives of environmental justice.

Chapter 3: Background

Water allocation has dictated the composition of California's social, political, and economic contexts since the onset of American settler conquest in the state in the mid 19th century. Following the discovery of gold along the American river at the base of the Sierra Nevada mountains, California was ceded to the United States by Mexico in the cessation of the Mexican-American war in 1848. This new discovery of economic potential as well as the addition of California's land mass to the United States immediately placed the state's indigenous peoples and natural water systems at risk. Before the gold rush and the consequential mass migration of hopeful miners into the state, roughly 150,000 indigenous peoples resided throughout California. The presence of these peoples was understood by the United States as a direct problem for the extraction of gold from California's rivers. This began California's history of genocide throughout the state as approximately 100,000 indigenous people died during the first two years of the Gold Rush, leaving only 30,000 indigenous people in California by 1873 (Blakemore 2017). California's first governor, Peter Hardenman Burnett, fueled this violent slaughter and onset of disease by funding local militias with state money to commit mass genocide (Blakemore 2017). To this day, California fails to properly acknowledge or work to rectify this violent erasure of indigenous populations, however, the legacy of this violence can be seen through the modern prosperity of California's economy and the technified distribution of water throughout the state.

Prior to this displacement of indigenous peoples and the discovery of gold in California's rivers, there were no major settlements throughout the state and as a result, water flowed freely through a system of unregulated streams and large wetland areas. However, following the discovery of gold, waterways were redirected through flumes and ditches in order to transport

water and more efficiently sift out the precious metal. Miners who lacked luck in their pursuits for gold established farmlands and city centers, increasing demand for water infrastructure and regulation. During its first century as a state, California's population doubled roughly every twenty five years, increasing from 92,597 people in 1850 to roughly 865,000 people by 1880 (St. Clair 1998/1999, 187). This steady increase in population led to a drastic increase in industrial activity with flour milling, lumber, sugar refining, machinery, and malt liquors characterizing the five largest industries for the state in 1860 (St. Clair 1998/1999, 194). Following the rise of California's agricultural and industrial sectors, the state realized the increasingly important role of water throughout the state and the necessity of a centralized water distribution system. In 1933, the state legislature passed the Central Valley Act, a project which aimed to supply the Central Valley of California with domestic and industrial water while also providing water to settlements in San Francisco and Southern California by diverting local tributaries of the San Joaquin River south. However, the Great Depression halted this process as the project bonds were not selling and no funding was generated. Efforts to establish a state water plan resumed in the 1950s following World War II as California's economic success attracted many people inspired by the promises of the American dream and economic independence. Between 1920 and 1960, California's population increased from roughly 3.5 million people to approximately 10.6 million people, inspiring a new urgency for water regulation and infrastructure across the state (US Census Bureau 1975, 25).

The Rising Prominence of Agriculture

This population growth was coupled with an increasing prominence of agriculture that was largely reliant on the cyclical migration of immigration labor. Inspired miners who traveled



Image 1: A map of California's natural water systems and major tributaries of the Sacramento-San Joaquin River Delta.

to California looking for gold found agriculture offered a similarly lucrative potential given California's dry mediterranean and subtropical climate (Bennett 1939, 155). The mobilization of irrigation systems throughout the state accelerated the pace of agriculture production, allowing

farmers to capitalize on the moderate climate and productive land. California's agricultural economy, which is marked today as the seventh largest economy in the world, was built on the abuse of immigrant labor from Latin America, Japan, and China. This pattern of extractive labor has characterized farming communities throughout California, with a stark divide between the rights and needs of farm owners, largely white wealthy families or non-local financial firms, and farmworkers, typically poor rural residents of the surrounding area (Pompeii 2020, 18). Where farmers are understood by the state as the primary target for economic agricultural assistance, farm workers are largely ignored, creating a rift between migrant workers and farm owners. Agriculture in California today was modeled on the large plantation-style farms in the south, reliant on high quantities of labor and relatively low wages (Greene 2021, 38). These essences of southern plantation-style slave-based labor ran deep throughout California's agricultural systems—and still do to this day—enabling the growth and proliferation of California's economy into a system heavily dependent on migrant labor and the abundance of water.

Specifically within the San Joaquin Valley, California's agricultural hub, there are 700 farms averaging 825 acres on the west side of the valley and 15,000 farms averaging between 2 and 200 acres in the eastern valley, a size difference determined by the geographical layout of the valley and surrounding settlements. Further, many of the crops grown in this region are labor—and water—intensive commodities such as almonds, grapes, tomatoes, fruits, etc. whose labor creates undesirable and unjust working conditions for farm workers. This abundance of farm land has sustained itself through a reliance on the cyclical pattern of employing, exploiting, and then evicting migrant workers. From 1942 to 1965, the Bracero Program was enacted in the United States, a process which brought migrant workers from Mexico into the farmlands of California, increasing the agricultural reliance of this state on the labor of immigrants who

lacked the social and political capacity to demand better living conditions (Greene 2021, 35). This program helped build the foundations of California's agricultural economy as one which capitalizes on the vulnerability and marginalization of certain demographic groups while perpetuating poor living conditions, inadequate access to education, food, water, and healthcare, and enabling potent exposure to pesticides, pain, and illness for farmworkers (Greene 2021, 35).

Today, roughly 45 percent of farmworkers in the San Joaquin Valley are classified as food insecure and approximately 68 percent of these farmworkers were born in Mexico (Greene 2021, 35). Additionally, all eight counties of the San Joaquin Valley are among the top ten most food insecure counties in California with 33 percent to 41 percent of low-income residents in these counties classified as food insecure (Wirth et al. 2007, 2). Many of these workers live in rural communities without access to proper infrastructure, relying on water systems that are highly susceptible to drought and pesticide contamination and are often overlooked in state conversations about the prioritization of water distribution.

California's Water Systems

California's water distribution has been characterized by two main systems: the California State Water Project and the Federal Central Valley Project. Both of these projects utilize the damming of reservoirs to redistribute water through rivers and canals from Northern California to the San Joaquin Valley and communities in Southern California. Specifically, the Central Valley Project relies heavily on the Shasta dam situated on the Sacramento River and the Friant dam located on the San Joaquin River (Thornton and Weiland 2016, 29). The State Water Project is the largest constructed water project that is funded by a state and is most noted for its



Image 2: A map of the State Water Project and Central Valley Project infrastructure across the state.

capacity to manage floods in the Sacramento Valley, support the tech manufacturing of Silicon Valley, fuel the population growth of Southern California, and support the agricultural industry centered in the San Joaquin valley. Today approximately 30 percent of the water from the State

Water Project is reserved for irrigation in the San Joaquin valley while the remaining 70 percent is diverted for residential, municipal and industrial utility in the Bay Area and Southern California (Water Education Foundation, 2022). The State Water Project utilizes 700 miles of canals, 34 storage facilities and 24 pumping plants to move water across the state (Thornton and Weiland 2016, 29). While some water in California is locally sourced through community use of wells and access to freshwater sources, the majority of the state's water is controlled by the combination of the State Water Project and the Central Valley Project. On average, 50 percent of California's water is used for environmental systems such as local streams and waterways while 40 percent is used for agriculture and 10 percent for urban populations throughout the state. However, this ten percent underrepresents the use of water by urban populations as the average American consumes roughly 300 gallons of California water per week through the consumption of fruits, nuts, and vegetables grown in the state (Ibid). Both the State Water Project and the federally funded Central Valley Project export water out of the Sacramento-San Joaquin River Delta, a process requiring the installation of water infrastructure throughout the Delta. This infrastructure threatens the resiliency of the Delta's ecosystems and biodiversity.

The Sacramento-San Joaquin Delta

While the Sacramento-San Joaquin Delta provides water for roughly 27 million people in California as well as the state's \$50 billion agricultural industry, it is also the largest freshwater estuary on the West coast, providing habitat for a wealth of species and ecosystem processes (Water Education Foundation, 2022). The Delta consists of over 700 miles of waterways which connect the Sacramento river and the San Joaquin river along the northern edge of the San Francisco Bay. However, today only three percent of the Delta remains unaltered wetland habitat

as the Delta houses over 1,000 miles of levees which protect the half-a-million people who live in the Delta from flooding (Ibid). For this reason, the United States Geological Survey (USGS) designated this region one of the most human-transformed environments on earth (Pompeii 2020, 16).

Despite the important ecological role this environment plays in regulating water flow and protecting native species, the Delta has been victim to a mass accumulation of infrastructure as five highways, three railroads, two shipping channels, and several natural gas and transmission lines pass through this ecosystem since its development began in the 1930s (Water Education Foundation, 2022). This industrial activity throughout the Delta has introduced harmful pollutants such as mercury and lead which accumulate in the Delta's soil, peat, and water, negatively influencing all life that resides in the region. Further, the Delta helps irrigate over 1.3 million acres of farmland to the west of the San Joaquin valley through the draining of wetland areas, a process which has caused most of the central Delta to rest 10 to 25 feet below sea level. In the face of increasing climate change and rising sea levels, this subsidence leaves the Delta ecosystems and surrounding communities vulnerable to increased flooding, storm surge, and earthquakes.

Due to the high concentrations of nutrients, optimal resources, and climatic conditions, the San Joaquin Valley houses the majority of California's agricultural activity and productive farmland. In this region, the agriculture industry acts as the main source of economic activity as well as the largest consumer of water resources as 89 percent of the water in the valley is used for farming (Hanak et al. 2017, 16). As California continues to be plagued by drought, the San Joaquin Valley lacks enough water to adequately irrigate local farms, leading to groundwater overdraft, increased pumping costs and land subsidence. Regional water balance in the Delta

remains a critical issue in this valley as only 56 percent of the Delta's water comes from local rivers, streams, and precipitation. The remaining water in the valley is imported from non-local tributaries sourced by the infrastructure of the Central Valley Project and the State Water Project while 16 percent of this water comes from the overdrafting of groundwater aquifers (Hanak et al. 2017, 16). While these aquifers can theoretically be replenished by the natural cycling of water through the atmosphere, groundwater overdraft in this region pumps water faster than it can be renewed, leading to the crashing of underground aquifers and land sinkage throughout the region. In 2014, the Sustainable Groundwater Management Act (SGMA) was enacted in California in order to get local water users to comply with the sustainable management of groundwater resources in the state. Of the 94 water basins throughout California, SGMA identifies 21 of these basins as critically overdrafted (State of California, "Basin Prioritization," 2022). For this reason, SGMA works to investigate and analyze groundwater conditions in order to promote better water management practices and the sustainable use of water for the proliferation of ecosystems and agricultural activity.

Another organization created to assess the sustainability of water in California agricultural regions is the Delta Stewardship Council, a council created under the Sacramento-San Joaquin Delta Reform Act of 2009 which grants funding for the restoration of the San Joaquin Delta region. The council is composed of seven members, with four members elected by California's governor, one member appointed by the Senate and Assembly, and the final member appointed by the Chair of the Delta Protection Committee (State of California, "Delta Stewardship Council Members," 2022). The council's current members have a diverse background of experience in government and corporate roles, ranging from a previous federal judge, California State Legislature member, chief financial officer, and a range of state official

California's Critically Overdrafted Groundwater Basins



Map created from B118 Groundwater Basin Boundaries Published 02/11/2019. This map published 01/2020.

Image 3: A map of critically overdrafted groundwater basins across California and within the Central Valley.

occupations. The Delta Stewardship Council has worked diligently since its installation to develop “The Delta Plan” in order to construct a more reliable water system for the state of California while protecting and enhancing the environmental quality of the Delta (Delta Stewardship Council 2018, 27). More specifically, The Delta Plan aims to protect populations of native and migratory species as well as their migratory corridors, reduce stresses to the Delta’s ecosystem, align with goals in existing species recovery programs, sustain the economic vigor of

the state, improve water quality for human and environmental health, and meets the needs of water users throughout California. This plan hopes to balance the Delta's role in water distribution with its ecosystem health and agricultural and residential demands. This process of restoration will rely on different methods of prioritization as council members will need to determine which aspects of the Delta call for different levels of aid. Such projects will rely on a subjective determination of vulnerability and valuation which begs the question: who will be made visible and invisible in this process of prioritization and what current institutions will enable this?

The Drought Problem

As California enters its fourth consecutive year of drought, the state's reliance on unsustainable water systems is increasingly evident. Drought is not a new phenomenon for California as this landscape has experienced periodic droughts for much of its history. The first recorded multi-year drought occurred from 1918 to 1920. Since then, the mobilization of water, labor, and capital into the San Joaquin Valley has accelerated the consumption of water for agricultural and industrial purposes at a rate which can not be replenished by California's natural cycles of dry and wet years. This manipulation of the San Joaquin Valley to meet a national demand for food production has rendered its local people and environments vulnerable to larger policy decisions which do not adequately prioritize the people and ecosystems most threatened by water insecurity. Most of California's water plans trend towards a prioritization of agricultural production and urban consumption — through the direct use of water for residential purposes as well as the indirect consumption of water through food produced in the valley — a decision that

further disenfranchises farmworkers and rural communities who are often left to rely on local wells for their water needs.

For this reason, it is essential to understand the ways in which these decisions surrounding water distribution are made and the processes through which water priorities are assessed. Additionally, we must wonder whose narratives are highlighted in these conversations of drought vulnerability and whose are ignored. Which voices are amplified in state discussions of water insecurity and why do they echo louder than others? To answer these questions, this paper will work to dissect California's most recently published water strategy and its processes of prioritization in order to better understand how narratives of vulnerability and anticipation are constructed by the state and how such narratives render certain peoples and ecosystem services more worthy of aid.

Chapter 4: Discussion

Drought is not a new phenomenon for California as politics of water allocation have constructed the state's political, social, and economic environments since the onset of European settlement in the 16th century. However, state-wide dictation of water stress and environmental instability has been reserved for governmental agencies and water control boards throughout the state, often ignoring or erasing the climate realities of local people. These organizations disseminate information about California's water stability and are prioritized in larger discussions of water allocation. These institutions include but are not limited to the California Natural Resources Agency (CNRA), California Water Boards (CWB), California Environmental Protection Agency (CEPA), California Department of Food and Agriculture (CDFA), California Department of Water Resources (CDWR), as well as regional and state government agencies. Due to their access to federal and state instituted funding, these agencies work to develop plans for California's water landscape and therefore can be considered the main keepers of California's dominant state-centric water narrative.

Recently, as the state's drought exposure has been exacerbated by the aridation of California's climate, and as poor maintenance of water infrastructure coupled with increased development and population growth leaves the state increasingly vulnerable to inundation events, California's water agencies have been called to develop a new water management plan to support a more sustainable future. This plan titled, "California's Water Supply Strategy: Adapting to a Hotter, Drier Future," was released in August of 2022 and outlines statewide adjustments to modernize and increase the efficiency of current infrastructure to enable increased water access across the state for residential, agricultural, and industrial usage. In the following section of my thesis I will deploy strategies of narrative analysis to understand the ways in which this new

water management plan shapes the narrative of drought, vulnerability, and water prioritization in California. Narrative analysis is a form of qualitative research that looks at linguistics, plot construction, character development, and narrative structure to assess the story being told by certain actors and their intent behind the larger narrative (Barthes and Duisit 1975, 239). Through an analysis of California's water supply strategy, I will assess the equity and sustainability of California's proposed water management plan and work to understand the ways in which these adjustments prioritize certain social and economic services of California's landscape as well as the larger implications of such prioritizations. Further, I will dissect how California's dominant drought narrative deploys slow violence and the politics of anticipation in order to prioritize certain water allocation strategies over others.

The agencies that control California's water consumption, distribution, and usage hold a lot of power over California's water allocation as their assessment of the state's water crisis cultivates a narrative of urgency which assigns various character roles and plot designations to differing aspects of California's environments. Environmental narratives reveal valuations of land, natural ecosystems, social roles, societal responsibilities, and the larger relationship between nature and society (Cronon 1992, 1376). In this way, the narratives used to explain or assess environmental events expose the estimated merit of environmental resources relative to human development and play a crucial role in dictating the onset of political action. Value systems directly influence narrative orientation and therefore, when environmental narratives provide an incomplete illustration of environmental truth, we must critically assess the narrative being disseminated (Ibid). The politics of climate knowledge are plagued with this struggle of narrative control as differing environmental narratives render competing interpretations of the sources, perpetrators, and victims of vulnerability (Greene 2021, 39). Therefore, as drought

narratives are riddled with proposed assessments of vulnerability and valuations of land, agriculture, and water structures that work to determine the best allocation of resources, their influence in dictating state-wide understandings of environmental crises should not be understated.

The Role of Narratives

While all narratives hold their own merit, environmental narratives are particularly interesting for the ways in which they illuminate societal valuations of the relationship between humans and nature. Humanity has used narrative tools to make sense of reality for thousands of years, highlighting the use of stories as an inherently social activity that has defined societal understandings of past, present, and future. Narratives allow for a social reproduction of knowledge that illuminates societal values, fears, and vulnerability (Cronon 1992, 1369). Further, environmental narratives are cultivated by moral codes and value systems that have been constructed by human interests and conflicts with nature (Ibid). While it is important to remain critical of the values that narratives can reproduce and disseminate, it is naive to imagine that stories can be isolated from such valuation systems as to do so negates the role of human agency in cultivating social, economic, political, and natural environments (Cronon 2013, 1376).

Our environmental narratives often center around the role of humanity in natural systems due to capitalism's intrinsic utility-based valuation of the natural world. However, different constructions of plot and character assignments generate different, and often competing, stories about this human-nature relationship (Barthes and Duisit 1975, 239). Christiana Greene, a research scientist based in the American southwest, offers a valuable example of the competing nature of environmental narratives through her exploration of drought conditions in the San

Joaquin Valley. Greene conducted a series of 45 interviews among rural communities in the San Joaquin Valley, speaking with a variety of individuals including farmers, farm workers, non-profit organizations, agricultural service representatives, and governmental representatives at the local and state levels (Greene 2021, 36). Greene's interviews focused on the community's perception of the 2012 to 2014 drought's impact, causes, victims, and resulting adaptation initiatives.

Through the use of MAXQDA software, Greene's interview and field notes were coded into four narrative structures identifying different causal and temporal explanations for the region's drought vulnerability. The first narrative generated from these interviews identified environmental regulations and governing agencies like the CEPA as villains who prioritized the needs of local fisheries over local people. In this narrative, farmers and LatinX communities in rural farmlands were spotlighted as victims to the prioritization of water for environmental purposes rather than social well being. The second and third narratives identified farm workers as victims due to inequitable access to proper wages, food, and water sources resulting in increased economic stress and anxiety in these communities. However, where the second narrative highlighted the historical exploitation of farm labor in the San Joaquin Valley as that main perpetrator of drought vulnerability and argued for a mediation of agricultural inequalities to allow for greater community resilience to drought, the third narrative spotlighted California's extractive economy as the greatest villain and argued that the lack of diverse economic investment in rural communities increases social vulnerability to drought in these regions. The final narrative illustrated physical processes such as low rainfall, low snowpacks, and increasing temperatures as the villainous force that decreased water availability in the Valley. This narrative

suggests that drought vulnerability can be reduced by increasing the efficiency of irrigation techniques and capacity for water storage throughout the extent of the San Joaquin Valley.

Greene's ability to highlight four distinct narratives from her interviews and engagements with local peoples and agencies in the San Joaquin Valley demonstrates the power these narratives could hold in dictating the onset of political action and the direction of investment funding if such narratives were prioritized by state institutions. While equally relevant, these four narratives construct stories of drought that feature different villains and victims, granting agency to different human and nonhuman actors in the creation of drought vulnerability. In this way differing valuations of water, agriculture, and land produce different understandings of the root causes and implications of drought vulnerability, allowing for conflicting prioritizations of drought mitigation and adaptation measures. While none of these narratives are considered more correct than others, their production illustrates the importance of acknowledging how and why certain narratives are brought to the foreground of political, social, and economic discussion and why other narratives are often ignored.

Further, it is important to recognize how simplifying someone to their vulnerability exposure can expand or reduce the capacity for lived experiences in certain narratives, influencing the production of the future through processes of anticipation. Therefore, Greene's research and narrative analysis offers a valuable illustration of the power of narrative orientation while reminding us that there is always more than one narrative present in environmental conflicts due to differing valuations of human-nature relationships. Which narratives are granted dominance in systems of water governance hold drastic implications for agricultural structures as well as the livelihoods and well-being of rural farm working communities.

With this in mind, I will now move to construct my own narrative analysis of California's water supply strategy released in August 2022. Using tools of narrative analysis I will use the following sections to assess how California as a state identifies the root causes and catastrophic extent of drought, using the governing bodies who constructed this water strategy as a proxy for the author of California's water narrative. I will first explore California's mismanagement of water allocation during the state-wide drought that occurred from 2012 to 2016. I will then proceed to investigate how California's current narrative of drought circumscribes vulnerability across the state and will determine to what extent this narrative makes room for the socially vulnerable communities within the San Joaquin Valley. Through an exploration of California's previous droughts and current water strategy, I will work to assess how California as a state perpetuates notions of slow violence through their current prioritization of anticipation and expectations of drought vulnerability.

The Social Production of Drought

Most climate vulnerability assessments neglect to include the ways in which drought influences social vulnerability, focusing instead solely on the biophysical and economic stability of changing environmental conditions. As agriculture relies heavily on the labor of farmworkers who are often situated in relatively isolated rural communities, the impact of drought can not be considered holistically if it does not also evaluate the vulnerability of such farmworkers and their rural communities (Greene 2018, 283). Waged farm workers constitute roughly 40 percent of global agricultural workforces; therefore, drought narratives that fail to include the social implications of dry periods must be considered an inadequate assessment of the environmental crisis (Ibid). Failure to highlight the social vulnerability of drought contributes to the slow

violence of this environmental calamity, allowing for a disconnect between the sources of drought vulnerability and its main victims (Nixon 2013, 2).

Specifically in terms of the evaluation of vulnerability within agricultural systems, it is crucial to understand the underlying socioeconomic and environmental factors that influence the structure and stability of agricultural processes over time. Inadequate understanding of these factors may lead to the adoption of maladaptive practices in agricultural regions that fail to properly assess the drivers behind agricultural systems and institute vulnerability reduction measures that consequently increase exposure to risk. When adaptive actions are implemented without proper understanding of the social and environmental landscape in the region, the burden of increased vulnerability often falls on previously marginalized groups who have been ignored or removed from larger narratives of environmental crises (Greene 2018, 284). This highlights the importance of appropriately identifying the root causes and effects of drought when constructing environmental narratives as the inability to do so may increase the disenfranchisement of certain communities and inadequately prescribe notions of risk and vulnerability.

While drought is often simplified in its definition as a prolonged period of low rainfall or a shortage of surface water, the larger implications of drought conditions function as a product of the prioritization and distribution of social goods. Therefore, drought is not simply a climate crisis determined by environmental conditions but rather a crisis of socioeconomic distribution (Pompeii 2020, 15). As explored previously, the San Joaquin Valley operates as the center point of California's water allocation due to its central location within the state as well as its integral role in distributing water from the Sierra Nevadas down to the southernmost regions of California. This region's dependence on water-intensive agriculture and facilitation of water

across an elaborate system of levees rendered the San Joaquin Valley particularly vulnerable to California's unprecedented drought conditions from 2012 to 2017 (Ibid). This drought, often referred to as The Great California Drought, exposed the multitude of ways in which water is unjustly allocated and distributed throughout California, prioritizing agricultural output for national and international export over the health of local rural communities. Additionally, the mismanagement of water allocation during this drought period highlights the current inefficiencies of California's water strategy and tendency of this strategy to perpetuate slow violence inflicted upon marginalized farm-worker communities in the San Joaquin Valley (Nixon 2013, 3).

California's previous governor Governor Jerry Brown declared a state of drought emergency on January 17, 2014 and yet a drought hazard response was not instituted in the San Joaquin Valley's most socially vulnerable communities in Tulare County until seven months after. While farms in Tulare County were granted \$32.4 million in agricultural subsidies annually from 2012 to 2017—in addition to an allotment of \$15 million from 2014 to 2016—roughly 1,800 households in the town of East Porterville—of which 85 percent were employed as farm workers—remained without running water until 2017 as a result of dry domestic wells (Pompeii 2020, 31). While these households had access to local community wells, there was no available groundwater during this drought due to over pumping for agricultural production. Further, fear of deportation, entrapment, child snatching, increased citation costs, and loss of welfare led many residents to underreport their exposure to drought, further reducing the effectiveness of drought mitigation and water allocation initiatives during the drought period (Ibid). In this way, California's 2012 to 2017 drought highlighted the vast distribution of socioeconomic inequalities throughout the San Joaquin Valley and emphasized the bias of water redistribution policies

towards wealthy urbanized communities and agricultural industries. Additionally, the governance of water allocation during this drought illuminated the disconnect between stakeholder incentives, policy regulations, local needs, and geographic development throughout the San Joaquin Valley but particularly in the region's most socially vulnerable communities. This disconnect between California water authorities and the local people of the San Joaquin Valley illustrates how California's politics of anticipation during this drought failed to adequately include local farm-workers in this region into the state's prioritization of water allocation.

The Great California Drought and the inadequate response of governing bodies highlighted a key aspect of environmental justice: the people most frequently exposed to the greatest environmental threats are also the people who lack efficient access to social, political, and economic resources to mitigate or adapt to these conditions (Wikstrom et al. 2018, 9). An investigation of California's environmental vulnerability from the University of California at Davis (2012) revealed that throughout the San Joaquin Valley, vulnerability to environmental hazards overlapped with social vulnerability most strongly in rural farm-worker communities of color who are exposed to pesticide used by local agriculture and chemical pollution from industrial activity (Huang and London 2012, 1602). This spatial analysis in addition to the governing response of the Great California Drought reveals the ways in which the production of agriculture and industry has been prioritized by California's water governance over the living conditions of rural farm-worker communities. Due to cultural and language barriers, these communities, constituted mainly of migrant workers, are continuously taken advantage of and overlooked in decisions of water and resource allocation. Therefore, drought must be understood as a function of the socioeconomic limitations that dictate the capacity for community response and adaptation to environmental crises.

For this reason, it is imperative that state-wide and local drought narratives consider the social conditions that contribute to vulnerability and the uneven distribution of adaptation capacity. Additionally, as climate change accelerates and environmental conditions become more extreme, drought narratives must apply a future-oriented approach in their planning for environmental catastrophe management. One specific point of urgency for drought mitigation planning in narratives of drought lies in the San Joaquin Valley's increasing exposure to levee failure due to aging infrastructure, poor maintenance, and increasing local development. Of the 1,100 miles of levees that facilitate California's water distribution throughout the San Joaquin Valley, only 385 miles of levees are incorporated in the Sacramento and San Joaquin Federal Flood Control Projects and maintained by the US Army Corps of Engineers (Burton and Cutter 2008, 137). The other 750 miles of levees are controlled by local districts and are not up to federal project levee standards (Ibid). This renders local communities throughout the valley increasingly susceptible to inundation events, a threat further exacerbated by subsidence and earthquake potential in this region.

In order to understand which communities are most susceptible to catastrophic flooding potential, vulnerability should be considered as a function of both resident proximity to poorly maintained or unstable levee infrastructure as well as local social vulnerability. Social vulnerability can be understood as a product of the existing socioeconomic constraints that increase a person's exposure to risk or limits their ability to prevent risk exposure and adapt in the face of environmental catastrophe (Wisner and Luce 1993, 128). Such factors may include socioeconomic status, age, access to health care, ethnicity, documentation status, capacity for property ownership, occupation, and access to welfare. These social conditions influence an individual's capacity for resilience in the event of inundation or prolonged drought (Marshall et

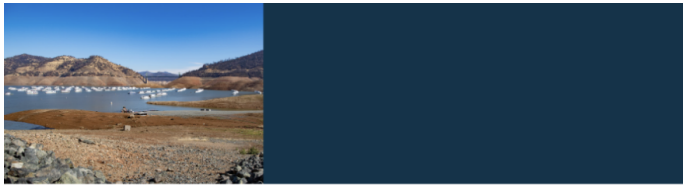
al. 2012, 5). Specifically, with the San Joaquin Delta area, residents directly north of Isleton to the west of Interstate 5 are particularly susceptible to environmental risks as these areas have the greatest combined exposure to levee-failure and highest concentration of social vulnerability (Burton and Cutter 2008, 145). This place-based vulnerability emphasizes the significance of spatial differences in exposure to risk defined by existing social conditions. Further, the influence of socioeconomic characteristics in dictating inundation risk illustrates the necessity of a mitigation plan that accounts for these differences and addresses the drivers of such vulnerability.

Due to the high prevalence of social vulnerability in the San Joaquin Valley region as a result of an economic reliance on agriculture and a lack of diverse economic opportunities as well as a high concentration of LatinX communities and communities of color in this area, the counties in this valley are not prepared for a worst-case scenario in the face of an earthquake or mass flooding event that stresses the region's fragile levee infrastructure (Flynn 2007, 82). A collapse of the delta's levees would allow for billions of gallons of saltwater to contaminate water systems throughout the valley, damaging agricultural production and influencing the majority of the state's population. However, the distribution of damage from this potential flooding event would not be dispersed equally due to the variety of social vulnerabilities that compose California's populations and regional demographics. Therefore, it would be naive to assume that a one-size-fits-all management plan would adequately address the damages caused by an inundation event of this scale if it fails to account for the social and economic conditions that drive differences in vulnerability. In a similar vein, a drought mitigation and adaptation strategy that fails to consider the role that cultural differences, language barriers, community dependence on agriculture, and limited access to health care and education play in community capacity for risk adaptation should be considered as insufficient and should be recognized for

contributing to the slow violence inflicted on local people. Therefore, drought strategies that exclude the realities of farm workers and rural communities from state-wide narratives of drought impact should be criticized for their simplification of state demographics, the political erasure of vulnerable populations, and their contribution to locally experienced slow violence. This potential for maladaptive drought mitigation and water allocation strategies highlights the merit of adopting an analytical lens when dissecting state water plans in order to understand how California's drought narrative excludes or makes room for the drought realities of marginalized populations.

The Rhetoric of California's Water Supply Strategy

In August of 2022, California released its latest strategy to conserve and develop more water supplies titled "California's Water Supply Strategy: Adapting to a Hotter Drier Future." This water strategy was released by California governor Gavin Newsom and his corresponding Administration team in compliance with multiple state-wide environmental organizations including California For All, the California Natural Resource Agency, the California Department of Water Resources, the California Water Boards, the California Environmental Protection Agency, and the California Department of Food and Agriculture. It is worth noting that the Newsom administration released this water strategy at the end of Governor Newsom's term and just prior to his reelection in November, 2022. Therefore, we can most likely assume that the timely release of this water doctrine right before the state election process was partially intended to rejuvenate interest in Newsom's position as state governor and encourage voters that Newsom has been creating change for California.



**AUG 2022 CALIFORNIA'S WATER SUPPLY STRATEGY
Adapting to a Hotter, Drier Future**



Introduction

Our climate has changed. We are experiencing extreme, sustained drought conditions in California and across the American West caused by hotter, drier weather. Our warming climate means that a greater share of the rain and snowfall we receive will be absorbed by dry soils, consumed by thirsty plants, and evaporated into the air. This leaves less water to meet our needs.

This is our new climate reality, and we must adapt.

During his first months in office, Governor Newsom issued an **executive order** calling on State Agencies to create a comprehensive **Water Resilience Portfolio**. The Portfolio prioritized key actions to secure California's water future. *Over the last two years we've made major progress that includes:* working to bring our groundwater basins into balance; updating infrastructure to move water throughout the state; restoring river systems, including the nation's largest dam removal effort on the Klamath River; and improving water management through new voluntary agreements and technology investments.

California is investing billions of dollars into these actions to secure the future of California's water supply.

Over the last three years, **state leaders have earmarked more than \$8 billion to modernize water infrastructure and management.** The historic three-year, \$5.2 billion investment in California water systems enacted in 2021-22 has enabled emergency drought response, improved water conservation to stretch water supplies, and enabled scores of projects by local water suppliers to become more resilient to current and future droughts. The 2022-23 budget includes an *additional \$2.8 billion* for drought relief to hard-hit communities, water conservation, environmental protection for fish and wildlife, and long-term projects to permanently strengthen drought resilience.

CALIFORNIA'S WATER SUPPLY STRATEGY - ADAPTING TO A HOTTER, DRIER FUTURE - INTRODUCTION - AUGUST 2022

This water strategy doctrine can be found on the California Natural Resources Agency as well as on other corresponding water agency websites. This piece suggests that through a modernization of existing infrastructure and water systems, California can work to develop new water supplies, expand capacity for water storage, and improve forecasting data and management. Additionally, this document suggests that individual Californians can enact change by reducing water demand and changing their water use habits. Through its repeated use of large font, bolded sentences, italicized phrases, and lay language, this article appears to be directed to the average citizen of California as the material is approachable, accessible, and easy to follow. In this sense, this water strategy operates as a set of guidelines for the lay reader and an overview for Californians of the work being done by their elected state officials.

Further, this water strategy doctrine employs repeated use of plural pronouns to invite notions of collective agency and control in dictating the future of California's water landscape. This piece utilizes frequent use of "we," "us," and "our" throughout its eighteen pages to command a sense of group responsibility to combat California's drought crisis. On the first page of this document the sentence "This is our new climate reality, and we must adapt" is bolded and its font is enlarged, emphasizing the importance of collective responsibility while also suggesting that these drought conditions are a relatively new phenomenon that can be corrected or adapted to (Rep. *California's Water Supply Strategy*, 1). Additionally, in the first sentence of the introduction, this document refers to California as situated in the "American west" (Rep. *California's Water Supply Strategy*, 1). This reference to the west coast of the United States as "American" prefaces this water doctrine with a notion of patriotic responsibility in which the individualistic, innovative, and determined citizens of the "American west" are being asked to help preserve California's vitality and its American identity of development and economic success.

This document continuously emphasizes the utilitarian value of water and the necessity to protect this resource not for the sake of more resilient ecosystems and environmental stability but to allow for the continuation of water use and consumption across the state. This doctrine repeatedly stresses—in large, italicized font—the financial imperative to "secure the future of California's water supply" (Rep. *California's Water Supply Strategy*, 1). However, in the face of accelerating global climate change, I wonder how realistic it is to push for a "secured" water system as a changing climate necessitates a resilient and dynamic water supply capable of future adaptation rather than a fixed supply. Additionally, the use of this phrase implies a positive, future-oriented outlook but does little to assert how this positive change will be implemented.

Further, this doctrine repeatedly uses the phrase “stretch water supplies,” which implies that there is an expansionary capacity of water resources that has not yet been utilized (Rep. *California’s Water Supply Strategy*, 1). This idea is supported also by the repeated declaration of state goals to find “new” water through desalination plants and increased investment in water storage capacity across the state (Rep. *California’s Water Supply Strategy*, 4).

These are rather misleading statements as they allude to the reader that California’s existing quantities of water can be expanded to new capacities through new management techniques. While technology can help reduce the amount of water lost, there is no such thing as “new” water or water that can be “stretched” and the use of these two terms are employed in order to falsify a sense of new resource discovery. Additionally, this emphasis on the role of technology in adapting to the aridification of California’s climate highlights a key aspect of the state’s politics of anticipation, suggesting that California understands technology as a solution to drought conditions and anticipates a mediation of the impact of climate change by technological innovation (Granjou et al. 2017, 9). This reliance on technology highlights California’s politics of anticipation as shaped by western scientific modes of thought and tools of calculation, emphasizing the dependence of California’s current water strategy on technological prescriptions and solutions (Alvial 2016, 137).

Throughout this water supply strategy, there is a repeated emphasis on the divide between society and nature through the personification of environmental resources as well as the repeated villainization of environmental processes. This article utilizes consistent personification of ecosystem services as it describes how the “thirsty” soils and air “claim more” water and “lift moisture into the clouds” (Rep. *California’s Water Supply Strategy*, 3). By assigning agency to abiotic conditions, this article effectively places the physical processes of drought and the larger

water cycle in the position of the villain in this conversation of environmental crisis. Through the anthropomorphizing of natural environmental processes, this piece suggests that these ecosystem services are unnaturally utilizing more water than usual, restricting the capacity for society to take advantage of water for residential, industrial, agricultural, and domestic use. Further, this villainization of ecosystem processes effectively valorizes state agencies as the heroes in this narrative through the ways in which they are searching for “new” water that has not yet been “lost... to hotter, drier weather” or “consumed by thirsty plants” (Rep. *California’s Water Supply Strategy*, 2, 3). This portrayal of state agencies as heroes in their quest for more efficient water distribution processes further emphasizes the divide between social and natural environments, a seemingly contradictory intent for a document aiming to increase the resilience of one of earth’s most precious resources. In this way, this document seems to be constructed along a storyline in which anthropocentric technological innovation at the hands of state agencies functions as a solution to the villainous effects of climate change (Greene 2012, 36).

Additionally, if the villain in this narrative is the aridification of California’s environments, this storyline positions California water users as victims, repeatedly stressing the utilitarian necessity for increasing water efficiency throughout the state. Despite declared incentives to decrease water demand, this doctrine emphasizes the prioritization of water conservation “as population grows and more housing is built” (Rep. *California’s Water Supply Strategy*, 12). Therefore, despite the increasing stress evil environmental processes are placing on water systems, this article declares that these systems must increase their efficiency in order to support the future growth and development of California’s population and infrastructure. This future-oriented valuation of California’s water sustainability illustrates how the state views future utilitarian consumption of water and capacity for future agricultural, economic, industrial,

residential, and urban development as key priorities among state incentives (Adams et al 2009, 247). In this sense, we can understand California's state agencies as emphasizing the future developmental capacity of water as a key factor in their politics of anticipation through the construction of future expectations surrounding the innovation capacity of technological development. In this way, California's anticipation which highlights technology as a key solution to drought conditions allows for this perspective to become a central political and public value, granting power to coalitions involved in water infrastructure development rather than sources of local knowledge or place-based solutions (Groves 2017, 33).

Moreover, this water doctrine stresses the need for better forecasting data and management technologies in order to better understand how the state's environments change over time. This emphasis on the value of forecasting technologies illustrates how state agencies envision future changes in California's environments as continuously evolving, requiring a modernization of data infrastructure. However, many of the environmental effects of California's changing climate are a result of environmental stress placed on ecosystems many years ago, suggesting that the effects of today's industrial activity will not manifest in the form of environmental change for many years. Despite this, California's demand for better forecasting infrastructure rather than changes in water consumption habits highlights how the state views the future in isolation of the present, rather than a product of current industrial and economic activity. This temporal misunderstanding of ecological change will be catastrophic for California's capacity for drought adaptation, suggesting that the state needs to increase their perceived temporal timeline of environmental change.

Not only will this temporal dissonance disable adequate drought adaptation but it will also enable an increasing prevalence of slow violence among socially vulnerable communities in

the San Joaquin Valley. The reliance on technology to forecast the future expresses the state's prioritization of western scientific tools of anticipation which conceal many of the environmental impacts of drought conditions. In this way, the technological emphasis in the state's anticipatory processes will perpetuate notions of slow violence by failing to incorporate local knowledge into processes of anticipation, consequentially masking many of the local ecological and social implications of drought conditions for farm workers in the Central Valley (Granjou et al. 2017, 9). If California continues to fail to foreground the social and ecological risks of drought conditions in their anticipatory processes, this will allow for the repeated erasure of local climate realities, perpetuating experiences of slow violence through the temporal confluences of drought impacts (Nixon 2013, 2).

Further, this document exposes a misalignment of perceived adaptive capacity to water shortages in California as the piece suggests that it can "correct decades of over-pumping" and other forms of environmental abuse (Rep. *California's Water Supply Strategy*, 8). While adaptation measures can work to mitigate the long term impact of utilitarian practices such as agriculture and industrial activity, the damage these institutions cause to the natural world can not be "corrected" and therefore, the use of this term is incredibly misleading. Additionally, I would argue that this term oversimplifies the complex nature of California's drought crisis as a problem that can be fixed and holds capacity for a remedied solution. In instances where this article references adaptive measures for the state to mobilize towards, these methods almost always rely on new development of infrastructure throughout the state. Specifically, this water strategy suggests that increasing desalination efforts in brackish water environments holds a large capacity to develop new water resources for the state. These brackish environments, like the San Joaquin Valley, are incredibly delicate ecosystems reliant on a fragile balance of abiotic

and biotic equilibriums, however, this water doctrine fails to mention how state agencies would prioritize development that does not further destabilize environmental processes in these areas (Flynn 2007, 82). In this sense, it is evident that California's politics of anticipation do not prioritize the ecological impact of increasing drought management infrastructure nor does it adequately address the impact this will have on socially vulnerable populations within the San Joaquin Valley. Failure to address this vulnerability on a state-wide platform reduces the agency of socially marginalized communities and effectively perpetuates the oversimplification of these communities as weak, passive, and at the liberty of state-wide decisions (Bankoff 2001, 29).

In a similar vein, this narrative of California's drought adaptation strategy fails to comprehensively account for the realities of the state's most socially vulnerable demographics. In fact, marginalized communities and initiatives for equitable distribution of water are not mentioned in this doctrine until its tenth page. The relative lack of space in this eighteen page document for the socially vulnerable populations of California illustrates how the Great California Drought was able to disproportionately impact rural farm workers relative to farmers and other communities as state agencies do not prioritize these vulnerable populations in its larger conversations of water conservation and allocation. In fact, the only implications of vulnerability in this document center around the potential instability agriculture and residential water users could face in the case of a prolonged drought event. While the document does state it will "address equity concerns," this drought narrative fails to address the social conditions that suppress California's most vulnerable populations and does little to provide its readers with a sense that the state will institute future measures to protect these communities in the instance of an environmental crisis. Through this lack of emphasis on the state's socially vulnerable demographics, this document allows for the infliction of slow violence on these communities as

drought infrastructure changes that do not take into account the impact these changes will have on vulnerable populations will enable future marginalization which may not be obviously linked to the state's water management decisions (Nixon 2013, 2).

However, this document does reference the potential for local fragmentation and resistance to state authority, suggesting that in the case of such fracturing, the state will tighten control of resource distribution. The document states that “should local actions become too fragmented or inefficient to maximize recharge opportunities, the state should consider a coordinated, state-level approach to provide orderly, efficient disbursement of rights” (Rep. *California's Water Supply Strategy*, 8). This sentence implies that in the event of ineffective drought management or adaptation initiatives, state agencies reserve the right to institute their oversight and take over the distribution of local water rights. This could potentially manifest in further perpetuation of harm upon marginalized farm working communities, leaving these populations vulnerable once again to the desires of state incentives. Due to the complexity of social factors that render certain communities in the San Joaquin Valley particularly susceptible to drought, a one size fits all approach to water management will not effectively address the inequities at hand and instead, will work to further disenfranchise these communities as actions are taken that do not consider the drivers of such vulnerability. For these reasons, I criticize the ways in which water allocation strategy fails to prioritize the climate knowledge and social vulnerability of farm working communities in the San Joaquin Valley, instead deeming these populations increasingly vulnerable to state discretion and rash oversight.

In general, this water strategy fails to offer any concrete changes to California's water strategy and consequentially, fails to address the social, economic, and environmental vulnerability of communities within the San Joaquin Valley. This document continuously

prioritizes perspectives of agriculture growth, residential water consumption, and industrial development despite the instability of ecosystems and social communities situated in the heart of California's water distribution system. State authorities promise to modernize and streamline current allocation and distribution processes by finding new water through desalination and recycling techniques as well as reducing the amount of water lost to environmental processes through runoff and evaporation. However, this document fails to present any major changes to California's water management protocols, a system which currently leaves far too many communities susceptible to catastrophic environmental change from prolonged drought, flooding events, earthquakes, increasing temperatures, aquifer collapse, and subsidence. This strategy targets individual Californians as essential actors in streamlining water management and yet the document fails to clarify who it considers "Californian" and fails to address any societal limitations that might reduce a person's capacity for agency. By failing to highlight social and ecological vulnerability in its politics of anticipation, California's current water strategy will continue to perpetuate notions of slow violence in the San Joaquin Valley, consequentially increasing the vulnerability of local farm workers by failing to include local climate knowledge in its overly technical prioritization on increasing drought infrastructure across the state.

Chapter 5: Conclusion

Water has shaped California's politics since its induction as a state in the mid 19th century and, through the acceleration of global climate change, will continue to do so as California struggles to adapt to its shrinking resources. As drought continues to stress the state's underground aquifers, ecological communities, and natural water systems, California's prioritization of water allocation is becoming increasingly important. Through its capacity for slow violence and environmental injustices if improperly managed, drought is marked as a social production rather than simply an environmental stress. Therefore, the ways in which the state of California anticipates and theorizes the future distribution of water resources across its landmass will have profound implications for the marginalized communities of the San Joaquin Valley as well as the prevalence of agriculture in the nation's economy.

California's most recently released water strategy fails to account for the socioeconomic conditions that render marginalized communities in the San Joaquin Valley increasingly susceptible to drought conditions and vulnerable to structural levee collapse. This water strategy presents increased development as the most viable solution for increasing California's water sustainability rather than working to restructure the current system that renders far too many people vulnerable to increasing drought conditions. This current narrative fails to anticipate the vulnerability of marginalized communities of the San Joaquin Valley, emphasizing instead the vulnerability of infrastructure and agricultural systems, highlighting this narrative as one that perpetuates the slow violence of this environmental injustice.

While increasing the efficiency of water distribution and drought infrastructure is a viable solution to more effectively manage water allocation throughout the state, this thesis critiques the ways in which California's drought narrative fails to prioritize social and ecological

vulnerability. Through a reliance on western scientific tools and technology-based solutions, California highlights their politics of anticipation as one that prioritizes dominant scientific discourse and technological anticipatory tools rather than the lived experiences of local climate realities. This thesis suggests that this prioritization is not sustainable in the long term as it will perpetuate slow violence inflicted upon local communities in the San Joaquin Valley.

It is more imperative than ever that California works to restructure their current water allocation strategy to prioritize the socially vulnerable communities most burdened by drought conditions rather than the economic success of the state's agricultural production. By incorporating local climate knowledge into state-wide valuations of water stress, California can more accurately identify drought-induced vulnerability and work to prescribe more holistic solutions to drought which do not perpetuate slow violence or render local communities more vulnerable to future drought conditions.

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