The Peoples' River
Decision-making for Urban Resilience in the Los Angeles River Corridor

by

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A dissertation accepted and approved in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

in Political Science

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University of Oregon
Summer 2026

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Dissertation Abstract

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Title: The Peoples' River: Decision-making for Urban Resilience in the Los Angeles River Corridor

Environmental management efforts have grown significantly in the last century to address the decline in ecological health. In urban social ecological systems (SES), often characterized by the dynamic interplay of power, institutions, and people within a natural and built environment setting, the planning and development of environmental management projects becomes a complicated endeavor. To complicate this further, urban environmental management practices have shifted towards urban resilience initiatives that are meant to support environmental and community strength in the face of climate change.

Despite the proven advantages of bottom-up, decentralized decision-making within environmental management and urban resilience initiatives, it is not uncommon that decision-making authority remains among a select and powerful few. The social-ecological framework attempts to resolve this challenge with a systems-approach for urban resilience in social ecological systems that fosters environmental management based on community participation. However, because of the novelty of the social-ecological framework and its wide scope, its application varies on a case-by-case basis. In turn, its success rate also varies across project areas. Urban SES often contain environmental justice (EJ) communities, who have been underrepresented in decision-making processes and frequently bear the burdens of projects without many of the benefits. An unsuccessful social-ecological framework has significant negative effects on these already vulnerable communities. The social-ecological framework requires deep analysis to determine where success gaps are, and how they may be closed.

This study uses the 2020 Los Angeles River Master Plan as a case study to evaluate the social-ecological framework. The LARMP is designed to increase environmental and community resilience along the 51 miles of the channelized Los Angeles River, originally concreted by the U.S. Army Corps of Engineers in the mid-1900s for flood control. The plan aims to balance flood management, natural ecosystem rehabilitation, and sustainable urban development while cultivating community-wide recreation opportunities, generating environmental awareness, and implementing economic opportunities. Spanning the next 25 years, the LARMP seeks to address the needs of over 1 million Angelenos living within the one-mile Los Angeles River corridor, many of whom reside in EJ communities.

The 2020 LARMP has undergone significant evolution since its initial release in 1996, reflecting growing ambitions for environmental restoration, urban revitalization, and community engagement. While the original LARMP emphasized aesthetic and recreational enhancements alongside flood control, subsequent plans, including the 2007 Los Angeles River Revitalization Master Plan (LARRMP), sought to balance ecological and economic priorities. However, the LARRMP faced criticism for inadequate community inclusion, leading to gentrification and displacement in corridor communities. Responding to these critiques, the updated 2020 LARMP was developed using a social-ecological framework, integrating urban infrastructure and environmental restoration, while emphasizing sustainability, equity, and resilience.

This study examines the effectiveness of the 2020 LARMP's social-ecological framework in addressing local concerns, particularly within EJ communities. Through analysis of public meeting attendance, feedback from community engagement meetings, and surveys, the research assesses the inclusivity and equity of the LARMP's methods. The study finds a number of issues within the social-ecological framework that create a gap and allow for covert exclusion within the decision-making process. To remedy these issues, the study uses data from the LARMP to develop a new urban resilience social-ecological framework that is both clearer and stricter with its guidelines.

Whether it's ugly or beautiful,
poisoned and imprisoned,
or flooding fresh and free,
the Los Angeles River
will always flow;
and lovers will always walk
along its banks holding hands;
and people who have no homes
will make it their homes,
washing their ragged garments
in the concrete inverts,
dwarfed by the desert
of downtown concrete,
going about the business of their lives.

(looking upstream
From the 4th St. Bridge)

No. 25, *The River*
(MacAdams 2007)



I sing of a River resurrected
one pocket park at a time.
Blades of grass breaking concrete,
Riparian Wetlands in the Compton Creek,
Oleanders in Atwater,
Re-instate the native garden!

Ode to the Los Angeles River, *Letters to my City*
(Sonksen 2023)

Acknowledgements

I wish to express my sincere appreciation to the following:

My committee, Dr. Craig Kauffman, Dr. Alison Gash, Dr. Janel Jett, and Dr. Sarah Wald, for their valuable comments, advice, and patience during the preparation of this manuscript.

My mentors and advisors during my undergraduate studies, including Dr. Haco Hoang, for her support throughout the years. Dr. Michael Brint, for providing me opportunities to expand my global perspectives and scholarship. Dr. Bryan Rasmussen, for reigniting my passion for the Los Angeles River.

The Friends of the Los Angeles River, Los Angeles Waterkeeper, and Bailey Duarte, Kelly Shannon McNeill, and Ben Harris, for their support and aid during research and development.

My research assistant, Emma Caputo, for accompanying me on community outreach endeavors and data collection, while braving the 101/405/110 rush hour traffic.

My family, who pushed me to be the best I could be, and to my mother especially. Mom, you may not have understood why I was so interested in the LA River from such a young age, but you supported me anyways, even if that meant walking me by the river in a stroller when I was a toddler, driving me to early morning weekend cleanups before I had my driver's license, and coming with me to check out flood catchment during the 2019 and 2023 storms (even if it was mostly to make sure I wouldn't fall in).

My friends who had to listen to me talk about my love of Los Angeles, the Los Angeles River, and environmental justice for years and never (openly) complained: Ashlee Joan Macalino, Mel Keller, Isaiah Zamora-McGuire, Kit Schau, Dan O'Neil, Lexi Milton, Sam Johnson, and Merissa Souza.

My partner, Mac Keale, who always believed in me. Thank you for the thousands of hours you spent listening to me talk through particularly difficult chapters, the many LA River events you attended with me, the meals you cooked, and the care you provided for our cat (and my co-author), Finn River.

And finally, to the people of Los Angeles: growing up in this city has shown me what it means to care for community and the natural and built environment. It's not about survival, it's about resilience when everything is stacked against us.

I could not have done this without you all.

Dedication

To the Paayme Paxaayt, the Pahime,
the orit, the wenot, the wanüt,
the Río de Nuestra Señora la Reina de los Ángeles de Porciúncula,
the West River, the Life Giver, the beast,

the Los Angeles River

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List of Abbreviations

CES: CalEnviroScreen
EIR: Environmental Impact Report
EIS: Environmental Impact Statement
EJ: Environmental Justice
EJI: Environmental Justice Index
IPLC: Indigenous peoples and local communities
LA: Los Angeles
LACDA: Los Angeles County Development Authority
LACFCD: Los Angeles County Flood Control District
LARMP: Los Angeles River Master Plan
LARRMP: Los Angeles River Revitalization Master Plan
LEED: Leadership in Energy and Environmental Design
LEP: Limited English proficiency
SES: Social-ecological systems
USACE: United States Army Corps of Engineers

Chapter 1. The People's River

My Los Angeles River research journey began in 2018. For years, I had heard acquaintances and neighbors complaining about the County of Los Angeles and its decision-making processes, many of them feeling unsupported and misled during recent environmental management efforts. They complained of gentrification and coming home to a neighborhood that no longer resembled the one they had lived in for years, or even generations. They complained of rising costs of living, unaffordability, and being pushed out of their communities. As I lived and volunteered around the Los Angeles River, many of the complaints concerned the Los Angeles River Revitalization Master Plan (LARRMP), which had begun implementation in the 2010s. As a burgeoning political science undergraduate, I wanted to understand what the LARRMP did and why so many people blamed it for the rapid changes taking place within communities around the Los Angeles River.

During my initial information gathering in 2018, I reached out to colleagues working in the environmental sector for informal interviews. In one of these discussions, my interviewee highlighted a lack of meaningful community engagement on behalf of decision makers within Los Angeles. His parents were low-income immigrants who did not speak English. They lived in Chinatown, one of the target project areas for the LARRMP. Over the years, they had created a community within Chinatown that they had grown to care deeply about. One of their main concerns was increasing green accessibility and urban infrastructural safety and opportunity within their community.

In fact, many communities in urban areas advocate for a better balance between the urban built environment and the natural environment. When the couple heard of the LARRMP from their son, they immediately asked to be added to the list of community partners. Over the next

few years, they received notices to attend community engagement meetings and neighborhood council events. The notices were first sent in English, and in an effort to increase accessibility, later in Spanish. Other language needs were not recognized in any subsequent notices, even for Chinatown, where many residents spoke Mandarin or another Chinese-language dialect.

When the LARRMP Public Draft was made available for community comments, it could only be accessed online or at the Los Angeles Public Library Central Branch in downtown. Even if the couple had reliable access to internet or could travel to the Public Library, they would not be able to read the LARRMP draft and provide comments. Had they been able to access the LARRMP, decision-makers did not make it clear how those comments would be judged and measured, and the extent to which they would be incorporated into the final LARRMP.

During our discussion, my interviewee admitted his pessimism towards the LARRMP and other similar environmental management projects, calling them a "land and economy grab" for wealthy developers – and for good reason. A few years following LARRMP implementation, his parents' apartment became unaffordable, and they had to leave their home. The community they had built over multiple decades began disintegrating as local mom & pop grocery stores and tea houses were taken over by "modern Chinese fusion" restaurants and French-inspired bakeries. My interviewee predicted this back in 2018, complaining that before long, eateries would no longer be accessible for long-time community members. Instead, wealthier folks would be attracted to these neighborhoods. While Chinatown now benefits from many new urban amenities the neighborhood desperately needed, much of the community that could have benefitted most are now long gone.

This was not an isolated incident. During my primary research I focused on a small neighborhood, Elysian Valley, that had become the epicenter of LARRMP efforts. Elysian

Valley, colloquially known as Frogtown, had been a safe haven for economically disadvantaged individuals, namely immigrants and artists, since the early 1900s. While the LARRMP was still under development, Frogtown's affordability and proximity to the Los Angeles River made it an attractive location for developers. The community began feeling pressure to sell or leave their properties. Following LARRMP implementation, the Frogtown community changed quickly and dramatically. Developers bought single-family homes and small apartment buildings to construct luxury apartment buildings. Even though these buildings expanded housing availability in the community, they did not create housing affordability. The monthly rent for many of these dwellings fell outside the range of median monthly income for many residents. New residents moved in, and as the median income of Frogtown's residents increased, so did the cost of living. Elysian Valley residents criticized the changes, seeing a "steady loss of intangible assets that cannot be measured" (Weiner 2019). Even today, the neighborhood's population continues to grow, while only remnants of the original community remains.

The social and cultural tapestries that define many of Los Angeles' unique communities are unravelling. Often, this is the result of entrenched and systematic policies that shape decision-making in ways that are exclusionary, and even harmful, when applied within them. In Los Angeles, even initiatives framed as community-centered and environmentally restorative are not immune to these dynamics. Plans and projects aimed at improving the Los Angeles River, of which there have been many, have repeatedly fallen short of their goals. These outcomes point back to how foundational decision-making continues to constrain Los Angeles River plans today.

Los Angeles River restoration history

Los Angeles is a floodplain. Historically, the LA River's stream changed location according to rain and geography across this floodplain, and sometimes even changed flow direction entirely. Indigenous Native American tribes based in the area, namely the Kizh, or

Gabrielino-Tongva, and Tataviam, moved seasonally according to these patterns (McCawley and Lehman 1996). Prior to California statehood in 1850, settlers noticed the unpredictability of the river and built retaining dikes and other structures to protect their farmland from floods (Gumprecht 1999, 173–76). Following a particularly devastating flood in 1914, Los Angeles officials proposed creating a committee of engineers to work on flooding solutions and legislation. The Los Angeles County Flood Control Association was created, and it approved new flood control measures in 1915 (Gumprecht 1999, 177–78).

Flood control mechanisms were implemented over the following years, with millions of dollars appropriated for LA River improvements. The construction of channels, dams, and levees did not stop the disaster of the flood of New Year's Day in 1934. After days of heavy rain in the region and a Los Angeles record 7.4 inches of rain in 24 hours, floodwaters poured into neighborhoods (Gumprecht 1999, 203–5). Thousands of homes flooded, people were stranded, and Los Angeles faced millions in damages. The disaster quickly made national news, which resulted in both federal and state attention on flood mitigation for Southern California. This forever changed the course of flood management practices in Los Angeles.

The federal government approved funding for flood control work on the entire length of the Los Angeles River. The initial plan consisted of digging wider and deeper channels to increase water capacity, confining the river between wide concrete levees, building debris channels, and constructing a flood control dam (Gumprecht 1999, 205–207). Construction began in October 1935, supervised by the U.S. Army Corps of Engineers (USACE). In 1936, Congress passed the Flood Control Act which significantly expanded USACE flood control duties (Flood Control Act of 1936). Additional surveys were conducted that found these plans inadequate, and a new plan was submitted shortly after, in December 1936 (Gumprecht 1999, 208).

The new plan set new requirements for specific sections of the river. Some areas would be confined between sloping concrete banks, some would have reinforced rectangular concrete channels, some would have thirty foot vertical walls, and one section would have concrete retaining walls but remain unlined on the bottom (Gumprecht 1999, 208-209). Though alternatives to this mass construction, such as prohibiting developments on flood prone land, had been suggested, they were not considered. By the time construction was underway, most of the land surrounding the river had been developed with farms, residences, shopping areas, and other commercial sites (Gumprecht 1999, 210). Buying that land and moving the communities and amenities to other areas of the quickly growing city would be prohibitively expensive. Construction had not yet been completed when another flood, much more intense than those of 1914 and 1934, occurred in March 1938. In response to the sheer destruction and new flooding patterns brought on by the flooding, the USACE and city planners again offered another round of improvements. Channels with reinforced concrete and increased water capacities were built, many riverbanks were paved over, and bridges were raised and strengthened (Gumprecht 1999, 221). When construction was finally completed in 1959, the USACE proclaimed the new LA River a “water freeway”.

The channelization transformed the river from a free-flowing stream to a protected flood control channel. Since its channelization, it has been largely inaccessible by residents. Even now, much of the river is surrounded by high fences, physically dangerous walking routes, and a lack of green places. By design, the channel’s 51-mile path through Los Angeles County collects city runoff and drains water from Canoga Park through Long Beach and empties into the Pacific Ocean.

The river takes many forms. Sometimes it rages, swelling with thousands of gallons of rainwater as it swiftly follows its path into the ocean. Sometimes it is barely a trickle, collecting sprinkler runoff and soapy car wash water. Often, it is almost completely dry, reflecting the city's near-constant droughts and water use limitations. Now, during the increasingly common "abnormal" weather events that bring torrential downpours to Los Angeles, we thank the USACE and Los Angeles planners and officials who poured concrete into the river almost 100 years ago. And yet, the LA River looks nothing like a "real" river. Channelization prevents replenishing the watershed, destroys natural spaces, and interrupts ecosystem connectivity.

Before channelization, much of Los Angeles was strikingly green, thought of as an oasis that could provide everything residents could ever need – a claim supported by its exponentially growing population. Following channelization, the human-nature relationship quickly deteriorated as communities were separated from the natural environment as the built environment grew. With the exception of almost 15 miles, the LA River serves little riparian or ecological purpose other than to ensure that water moves quickly out of Los Angeles.

Angelenos' disconnected human-nature relationship meant that many residents remained largely unaware of the LA River. Understandably so, as the concrete channel was often hidden away, rarely resembling a river, much less a water system at all (Sabbion 2017). Moments of fleeting recognition were captured on movie screens, the dry and concreted 'riverbed' offering the perfect filming locations for scenes requiring a long speedway for high-speed chases. In *Terminator 2,* Arnold Schwarzenegger barreled down the Bull Creek Spillway and LA River Canals on his motorcycle, and the iconic racing scene in *Grease* was filmed in the LA River channel near the 6th Street Viaduct in Downtown Los Angeles.

This was until Los Angeles-based activists Lewis MacAdams and his friends, tired of the inaccessibility and alienness of the river, cut a hole through the fencing and declared that the Los Angeles River would now and forever be "the people's river". Founding Friends of the Los Angeles River (FoLAR), MacAdams' work spearheaded a movement focused on its rebirth, making it a part of the community, improving the surrounding ecosystems, and instilling a new life into it that would recenter its importance for Los Angeles.

In the mid 1980s and 1990s, greater concern for pollution in the Los Angeles River brought on a city-wide effort for beautification and the "identification of beneficial use potential" (Browne and Keil 2000, 175–76). Because the river acts as a water catchment system, it collects not just rainwater, but also runoff from urban areas, irrigation systems, and water treatment plants. As a result, water in the river is polluted with waste materials, bacteria, and nitrogen compounds, which has "caused the loss of plant and wildlife species, and hinders residents from contact with a natural environment" (Sabbion 2017, 220). Damage to the riparian system disturbs the ecosystem, and communities surrounding the river must manage poor environmental health and inaccessibility to natural spaces.

Rapidly growing urban environments that lack environmental management guidelines are also responsible for poor ecosystem health. Prior to strict environmental regulations in Los Angeles, there was a common practice of placing heavy industrial sites, rail yards, and freeways along the banks of the Los Angeles River (Los Angeles Waterkeeper 2022). The accumulation of contaminants over time caused significant ecological deterioration, which was (and still is) particularly harmful for communities around the river. The Los Angeles River corridor, or the one mile stretch of land on either side of the river, is the home of over 1 million people (U.S. Census Bureau 2000, 2010, 2020). A majority of these residents live within environmental

justice communities, meaning they are socioeconomically disadvantaged and at higher risk of facing environmental burdens, such as pollution or lack of access to green spaces. Ensuring these communities do not continue facing environmental injustices requires significant oversight within decision-making practices.

To improve conditions, in 1991 the Los Angeles County Board of Supervisors approved a motion that directed the Departments of Public Works, Parks and Recreation, and Regional Planning to begin research on Los Angeles River enhancements. This increased coordination across all interested parties, both public and private, for the planning, financing, and implementation of the project (Los Angeles River Master Plan 1996, 4). They eventually created the first LA River Master Plan of 1996 (LARMP). The LARMP was chiefly concerned with bringing greater value to the river, where it could, "serve human needs in a much broader sense…" (Los Angeles River Master Plan 1996, 1). The advisory committee, made up of cities, agencies, and citizen groups, coordinated public outreach. Public workshops, project proposal demonstrations, and meetings with city staff informed the general public on LARMP goals and expectations. As an effort to counter environmental injustices, community engagement and inclusion efforts of the LARMP seemed to be off to a good start.

The 1996 LARMP focused on maintaining the primary goal of flood control while also creating opportunities for recreation and environmental enhancement, improving resident quality of life, and sustaining the economy of the surrounding areas (Los Angeles River Master Plan 1996, 1). On the surface, the LARMP initiative seemed to support community-involved planning and development for environmental management and urban planning. In practice, however, it was quite limited.

In all of its 642 pages of planning initiatives, directives, maps, environmental evaluations, and plan alternatives, the LARMP lacked jurisdictional power. It was only meant to be used as a template to understand the extent of what environmental management and urban planning *could* accomplish along the Los Angeles River but did not set any expectations for what *should* happen (Browne and Keil 2000, 176). Its narrow scope and lack of power made the LARMP's initial iteration the focus of many critiques. For example, much of the LARMP concentrated on maintaining flood control, but also included initiatives for economic revitalization through urban restoration and development. When applied to communities, LARMP practitioners valued economic benefits more than environmental ones. This resulted in the unequal application of urban restoration and development, where only some communities were recognized for their economic potential and given significant funding.

Proposed alternatives from other stakeholders, including non-profit organizations, environmentalists, social justice advocates, and urban planners, were offered (Browne and Keil 2000, 176). Their alternative proposals emphasized environmentalism and greater community-based plans but lacked the economic boost that decision-makers sought. They were not considered. Without protective measures built into the LARMP, its implementation ultimately privileged economic restoration over social and environmental equity, which reinforced power asymmetries along the river corridor.

In later years, the limitations of the LARMP became more apparent as the challenges relating to environmental degradation and community harm grew. Thus began a new strategy that would center ecological health along with the other LARMP goals, including flood prevention, green spaces, and economic development. This led to the development of the Los Angeles Revitalization Master Plan in 2007, which was meant to work in tandem with the

original LARMP. Its title, and the inclusion of 'revitalization', was a purposeful decision made by the plan's decision-makers who wanted to highlight the LARMP's restorative work, while also engaging in the pursuit of "something new" (Antos 2015, 11). The purpose of the LARRMP was to provide additional guidelines for long-term restoration and revitalization. Through a combined effort of government agencies,[1] public utilities,[2] business organizations,[3] non-profit organizations,[4] environmental groups,[5] and various community groups,[6] the LARRMP slowly came together. It aimed to create a river that was free from pollution, returned to its natural ecosystem, and could provide recreational opportunities for the surrounding communities.

The LARRMP still maintained the economic ideals of the LARMP but also pushed for a greater focus on environmentalism and community needs. It used a transparent community-involved planning and development mechanism, noting that "community input and public support are vital to the success of any Los Angeles River revitalization effort" (Los Angeles River Revitalization Master Plan 2007, 3.22). However, it contained limited mitigation strategies and alternative guidelines to reconcile the issues that came about following implementation, such as displacement and gentrification. Though it was seemingly developed through community integration, it lacked the necessary community support initiatives.

During my preliminary research, one resident questioned these efforts, stating that, "…the criticism is that there are these supposed plans that have been put together by community

[1] Including: the City of Los Angeles, U.S. Army Corps of Engineers, Los Angeles County Flood Control District, California Department of Fish and Wildlife, California Coastal Commission, The Los Angeles Regional Water Quality Control Board, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service
[2] Including: Southern California Edison, Los Angeles Department of Water and Power
[3] Including: Los Angeles Chamber of Commerce, Los Angeles Economic Development Corporation
[4] Including: Friends of the Los Angeles River (FOLAR), Los Angeles River Revitalization Corporation (LARRC), Los Angeles River Collaborative, Los Angeles River Greenway 2020, The River L.A.
[5] Including: Sierra Club, Natural Resources Defense Council
[6] Including: local neighborhood councils and community-based organizations, environmental justice groups, recreational and outdoor groups, community development groups, arts and culture groups, and youth education groups.

members, and outreach [did] happen…but will the decision-makers listen to community members? Or is the local government having this engagement as appeasement, but they are still going to do *x, y, and z* because of potential other interests? … the City is not listening to the people." Questions relating to community involvement continued following LARRMP implementation, and critiques grew as communities quickly began to change.

Rising unaffordability along with targeted economic and environmental revitalizations resulted in environmental injustices, where historically underrepresented EJ communities bore disproportionate burdens caused by the LARMP and LARRMP. For example, in the LARRMP Environmental Impact Report (EIR), socioeconomic pressures were discussed insofar as stating the implementation of the LARRMP "would not result in significant cumulative socioeconomic impacts, nor would the combined projects be anticipated to result in significant cumulative impacts to environmental justice communities" (Los Angeles River Revitalization Master Plan Programmatic EIR/EIS 2007). However, many communities, like Elysian Valley, reported significant displacement pressures directly relating to increased LA River investments and developments taking place (Leung and Lamadrid 2015; Stephens 2015). Elysian Valley is not the only Los Angeles community facing such issues relating to the LARMP and LARRMP.

In a phenomenon known as green gentrification, as revitalizations take place, neighborhoods become greener, more desirable, and more expensive. As a result, community members can no longer afford to live in the same neighborhood (Garcia and Mok 2017). On the surface, economic and environmental revitalizations should be a net positive for communities and generally improve the human-nature relationship. But without mitigation mechanisms that build community strength and lessen the effects of green gentrification, a community's resilience and adaptive capacity falters. Neighborhoods are transformed, affecting a community's history,

culture, and social capital. Communities become more susceptible to economic, environmental, and political shocks, and for underrepresented communities in particular, environmental injustices reduce their resilience and adaptive capacity (Garcia and Mok 2017). Paradoxically, the initiatives intended for environmental and neighborhood improvement and revitalization worsen existing inequalities. The human-nature relationship may improve, but only for a select group of people.

The pursuit of environmental management and urban development without equity considerations risks continuing, and even worsening, structural and systemic injustices. A common thread during initial LARRMP interviews was that there was not a clear mechanism for knowledge sharing during plan development. One interviewee stated that, "I don't think I know enough about the official plan that came out. I think the divide is what actual decisions get made from government officials and what's in the written plan." Another said, "Not everyone has the ability to read criticisms and understand the pros and cons or see huge demographic shifts…For a lot of people, it's not that easy to see these trends with revitalization." Yet another posited that, "citizens…due to factors like immigration and income, confidence, socio-economic factors…may not see the big picture…Has this knowledge gone down to every single person? I don't think so. I don't think there has been a door-to-door effort." When asked how these issues may be overcome, all interviewees had the same response: greater outreach and engagement, particularly among the most affected and most underrepresented communities.

While both the LARMP and LARRMP's development and implementation efforts were heavily criticized for exclusionary practices, future Los Angeles River focused initiatives could implement more inclusive and participatory planning processes that center the voices of the most underrepresented communities. As the LA River benefits from environmental restoration and

greater ecological health, communities in Los Angeles can in turn benefit from green spaces and improved neighborhoods. These outcomes cannot occur in a vacuum separate from each other – they require a collaborative approach that considers the entire system as a whole.

Lessons from the past

While the 1996 LARMP and the 2007 LARRMP have improved access to the Los Angeles River and its ecological features, critiques of these projects highlight insufficient community engagement and widespread environmental injustices. These plans were once beacons of hope for a more environmentally resilient and just city, particularly now in an era of significant climate changes. While the social and economic repercussions from these plans led to injustices for many LA communities, they did uncover equity gaps in the decision-making processes in their planning and development. This recognition can lead to more effective planning, if appropriate mitigation strategies are implemented. Because the 1996 LARMP reached its expiration date in 2020, developments for the new LARMP began a few years prior. Guided by the critiques from the 1996 LARMP and 2007 LARRMP, decision-makers were confident that the new LARMP would create an effective environmental management strategy for the entirety of the LA River's 51 miles.

Decision-makers center the 2020 LARMP around urban resilience, or the advancement of environmental and community resilience within urban areas. Environmental resilience focuses on climate adaptation and environmental mitigation to lessen the effects of climate change. Community resilience prioritizes community health, environmental justice, and green accessibility. These ideals within urban contexts complicate the integration of resilience strategies due to the complex interconnections and interactions within the system as a whole. To appropriately respond to the challenges of urban resilience decision-making, the LARMP integrates a social-ecological framework designed to recognize the interconnections between

social/community systems and ecological/environmental systems, collectively labelled as a social-ecological system (SES). The project prioritizes improvements to flood control infrastructure, transportation corridors, bridges, and public spaces. These measures aim to enhance environmental resilience, support greater accessibility, and create recreational opportunities along the river. To improve ecological health, the plan also emphasizes better water quality, natural habitat restoration, and biodiversity throughout the river's ecosystem. Grounded in principles of environmental justice, the LARMP highlights the importance of supporting environmental justice communities that stand to benefit most from these improvements. Ensuring the effective implementation of the LARMP requires inclusive governance structures that actively engage local communities in the decision-making processes to improve urban resilience.

To better understand the SES, the LARMP recognizes the LA River as a complex system with interwoven human, environmental, and infrastructural dynamics: a "system of systems," where "people, places and the environment are encouraged to coexist, intermingle and thrive" (LA River Master Plan 2022, 6). Through data-driven planning and development approaches that combine ecological, hydrologic, and social analyses, decision-making is meant to be responsive to environmental and community needs within the SES. Compared to previous LA River plan iterations, the 2020 LARMP is more adaptive. It is able to incorporate more effective governance by evolving with social-ecological realities, such as shifts in climatic changes or community demographics. The cornerstone of the LARMP's social-ecological planning framework is its reliance on community engagement and equity. In the Director's Message for the LARMP, the Director of Public Works, Mark Pestrella, explains:

> At every step of this three-year planning process, we pursued opportunities to inform and engage community members in two-way conversations that were both transparent and

> culturally competent. We also explored areas of social, cultural, and ecological disparity, including homelessness, gentrification, public open space, public health, and community and environmental inequities in infrastructure (LA River Master Plan 2022, 6).

The LARMP's planning and development process included thousands of residents through meetings and workshops to represent Angelenos. The participatory model was grounded in public stewardship, where locals could inform LARMP outcomes by voicing their interests and concerns.

The 2022 LARMP employs nine "planning frames" along the river's 51-mile stretch, each representing a unique ecological and community context (LA River Master Plan 2022, 373-408). This approach allows for localized strategies that integrate community needs with environmental restoration priorities. From environmental benefits, such as habitat enhancements and water quality improvements, to social benefits, such as parks and trails, each LARMP planning frame is designed to deliver multiple benefits. Unique planning frames combine environmental and community resilience in ways that are beneficial for the diverse communities around the river.

To further operationalize the social-ecological framework, the LARMP uses a multi-stakeholder governance model. Implementation responsibilities are shared among various county departments, including Public Works, Parks and Recreation, Public Health, and Arts and Culture, reflecting an understanding that resilient planning for the river requires collaboration across environmental, social, and cultural domains (LA River Master Plan 2022, 32-33, 419-450). Finally, the LARMP adopts a long-term, adaptive management perspective, acknowledging that both ecological systems and community needs will continue to change over time (LA River Master Plan 2022, 147-225). By viewing the Los Angeles River as both an environmental and

social asset, the plan reframes restoration as an ongoing, participatory, and collaborative process that connects ecological health with cultural identity, social opportunity, and climate resilience.

When it was released in June 2022, the LARMP was met with immediate backlash. In a letter sent to LARMP decision-makers on June 10th, 2022, multiple environmental, environmental justice, and community-based organizations,[7] many of which served on the LARMP's planning and development committees, withdrew their support and formally asked to remove their organizational names and logos from the plan (Cortez et al. 2022). Their concerns focused on a lack of centering urban resilience initiatives. They cited the absence of environmentally relevant solutions, shortcomings of ecological health efforts for both the river and surrounding lands, and the inadequacies of community stabilization efforts within the plan, such as green community improvements. During the planning and development process, they brought attention to governance challenges that made collaboration within the SES difficult for both the communities and the organizations. In July 2022, environmental nonprofits Los Angeles Waterkeeper and the Center for Biological Diversity filed a writ of mandate against the County of Los Angeles, the Board of Supervisors, the Department of Public Works, and the Flood Control District.[8] In the document, petitioners explained their LARMP concerns, including lack of a cohesive vision, lack of guidance for project proponents, and failure to analyze environmental impacts. Most notable were the concerns surrounding the efficacy of stakeholder involvement:

> Despite best efforts from Petitioners and other non-profit organizations, community based organizations, and members of the public to convince the County to adopt a Master

[7] Including: East Yard Communities for Environmental Justice, Friends of the Los Angeles River, Heal the Bay, Los Angeles Neighborhood Land Trust, Los Angeles Waterkeeper, Sacred Places Institute for Indigenous Peoples, The Nature Conservancy in California, and Trust for Public Land

[8] In California, a Writ of Mandate is filed to challenge decisions made by government agencies, public officials or lower courts, requesting judicial review and intervention, if necessary (California Code of Civil Procedure §1085 and 1094.5).

> Plan that prioritized ecological and community health and resilience, the final Master Plan does not reflect the community's values…Ultimately, the County made almost no substantive changes to the Master Plan in response to comments on the draft…including comments from Petitioners as well as detailed comments from State agencies identifying concerns… (Los Angeles Waterkeeper and Center for Biological Diversity v. County of Los Angeles and Board of Supervisors of the County of Los Angeles and Los Angeles County Department of Public Works and Los Angeles County Flood Control District 2022, 3–4).

While the LARMP's social-ecological framework informed the planning and development process to include community-based and multistakeholder involvement, the critiques of the LARMP tell a contradicting story.

The opposing opinions regarding the LARMP's planning and development processes among decision-makers, communities, and other stakeholders, reveal fundamentally divergent understandings of best practices for urban resilience projects. There is a tension in the perceived effectiveness of the social-ecological framework, which raises critical questions: Is integrating a social-ecological framework effective for urban resilience projects? Why do groups assess the success of the framework so differently? Are some voices privileged over others in agenda setting? Does the planning process allow for ideas outside the status quo? And finally: How can urban resilience initiatives incorporate more equitable and collaborative project planning and development processes?

Where decision-makers may view the LARMP's planning and development process as a model for sustainable social-ecological resilience, others are not so optimistic. The narratives of the former emphasize how this new framework reaches previously overlooked communities, suggesting a new mandate for environmental and community resilience. Conversely, other stakeholders and communities are critical of collaborative gaps in project planning and development, criticizing levels of community inclusion and questioning long-term effectiveness. To evaluate the viability of the social-ecological framework for urban resilience, this study

analyses the LARMP's planning and development process, as well as its initial outcomes, through the vantage point of communities. Communities living in the target zones of the LARMP present a vital lens for the evaluation of the social-ecological framework that is rooted in lived experiences and perspectives. This research is an important addition for social-ecological studies and urban resilience.

In Chapter 2, I identify and discuss remaining gaps and shortfalls in the conceptualization, development, and implementation of environmental management in urban areas. First, I discuss early understandings and approaches to urban environmental management, highlighting the challenges of solutions that, while successful in non-urban contexts, lack effectiveness when applied to cities. Common nature-based solutions that primarily consider the environment, then integrate environmental stewardship, fail to consider the social, and socio-environmental, contexts of urban areas. Exclusionary decision-making during the planning and development of urban environmental management methods exacerbate environmental and social burdens for underrepresented communities. The need to address the social dimensions of urban environments grew, leading to the adoption of resilience thinking for urban environmental management.

Though the integration of resilience into the framework recognizes urban areas as social-ecological systems, with complex socio-environmental and sociopolitical interactions, there remain practical challenges in its implementation. In practice, urban resilience applications fail to meet all the expectations of the systems-based approach. Some scholars critique the way urban resilience is operationalized, highlighting weak definitions of urban resilience, inadequate structures for application, poor community integration, and governing limitations that all contribute to weak effectiveness. These weaknesses may be due to the novelty of urban

resilience initiatives within urban environmental management, though may also point to the limiting factors of the broader political system in which they are applied. Though urban resilience initiatives can result in many benefits for project areas, their shortcomings point to the need to adopt an additional framework that strengthens its adoption and implementation for environmental management.

To reconcile these challenges, in Chapter 3 I discuss the social-ecological framework and its viability for urban resilience initiatives. The social-ecological framework is specifically meant to apply to social-ecological systems, which recognize the inseparability of social and ecological systems and highlight dynamic interactions among politics, economics, society, and the environment (McGinnis and Ostrom 2014). This lens provides a systems-based understanding with which to plan, develop, and implement environmental management projects. This is where the social-ecological framework emerges, informed by social-ecological systems theory and its practical application in environmental management. Its application is particularly useful for urban resilience initiatives, as the complexity of social-ecological systems and interactions can be more pronounced in such spaces.

With the consideration of social and environmental dynamics within the larger urban context, the framework can improve project planning and development through an informed understanding of the project area. Still, some scholars argue that while it may be an effective framework for urban resilience, there are still challenges in its application. The social-ecological framework is under researched, and methods of application vary across projects, resulting in little consensus of what such a framework looks like in practice (Guerrero and Wilson 2016; Partelow 2018; Virapongse et al. 2016). In their systemic review, Maniraho et al. (2023) analyze studies that use social-ecological systems guidelines to organize the social-ecological

framework. Through this, they establish guidelines and requirements for the application of the social-ecological framework for environmental management projects. They identify seven 'drivers' for successful framework implementation, which I streamline by combining thematically. My conceptualization of a social-ecological framework includes three categories: community inclusion and understanding, integration and alignment, and transformative justice. To analyze the effectiveness of the social-ecological framework and identify challenges in its application to urban resilience projects, I use the 2020 Los Angeles River Master Plan as a case study.

My analysis draws on mixed methods research, as outlined in Chapter 4. LARMP decision-makers embarked on a community engagement process during planning and development. The resulting data was compiled and made publicly available in the LARMP Community Engagement Report. Community Engagement consisted of thirteen meetings between July 2018 and October 2019 with 962 registered participants. Another data point, the LARMP Public Draft Comment Log, were also compiled and published by LARMP decision-makers. This document includes every comment that was made on the LARMP draft from residents and organizations. The LARMP draft was posted online in January 2021 and remained open for public comment until May 2021, where 1,161 total comments were received. These two publicly available data points, though essential, still do not provide a holistic overview of the LARMP planning process and the extent of community integration during development.

In Chapter 4, I also outline methodologies used for my own survey that was conducted from March 2024 to June 2025 with over 500 individual participants. Because the data for Community Engagement Meetings and Public Draft comments were collected between 2018 and 2020 prior to LARMP finalization, this survey provides data following LARMP finalization and

during early implementation stages. The survey specifically targets communities living within the LA River corridor and asks questions regarding their views on the LARMP, level of involvement and accessibility, and assessments of decision-making bodies within the County of Los Angeles.

Chapters 5 through 7 apply the above data to Maniraho et al.'s (2023) social-ecological framework. Within these chapters, I discuss and analyze the various sources of data I acquired throughout this research project. Data are organized according to the broad social-ecological themes developed in Chapter 3's theoretical framework. The data suggests that though the social-ecological framework was used for the LARMP's planning and development process, its application was not effective for the circumstances of the project area. A critical pattern emerged: while the requirements of the social-ecological framework were met in the LARMP's planning and development process, the actual outcomes differed from the expected outcomes.

Based on these results, claiming the ineffectiveness of the social-ecological framework would not fall outside the realm of possibility. However, there remain two considerations that must be explained. First, the social-ecological framework has been effective in some cases. In fact, Maniraho et al.'s study includes many successful cases of its implementation within environmental management projects. To disregard the framework entirely because of the results of its application within the LARMP would be a significant overstep. The alternative explanation, that the social-ecological framework lacks effectiveness when applied to certain cases, is far more viable.

Given the complexities of urban social-ecological systems, it is more likely that the social-ecological framework lacks generalizability and requires additional guidelines to better inform urban resilience projects. In the final chapter, I suggest a new urban social-ecological

framework that incorporates and responds to many of the challenges the LARMP faced in implementing the social-ecological framework. The urban social-ecological framework strengthens the methods and guidelines of the social-ecological framework by implementing additional safeguards for the urban context.

It is a clear guide with a prescribed order of operations, greater attention to underrepresented communities, and a clear method for maintaining collective decision-making power within large populations, rather than a select few powerful decision-makers. The second consideration aligns with the theoretical challenges of project planning and development, where decision-makers set up the process with not just preconceived ideas and expectations of project outcomes, but also hold biased notions of the stakeholders who will be involved and communities that will benefit. Though decision-makers will benefit from co-developed and collaborative project planning and development, they also benefit from acts of performative inclusion. Many LA River corridor residents were unaware of the LARMP, and even those who were involved remained unable to have their concerns and comments incorporated into the final LARMP. Decision-makers must realize that project planning and development that recognizes the complexity of SES requires more than surface-level interactions and basic community inclusion. Shifting the planning and development of urban resilience initiatives, and environmental management projects more generally, to a more robust version of the social-ecological framework requires more than simply changing the guidelines of the framework - it requires changing the rules entirely.

The urban resilience social-ecological framework demands that decision-making power shifts from the hierarchical status quo to a shared communal capacity, and that such power dynamics are reinforced continuously overtime throughout the project's implementation and

upkeep. Of course, this shift may initially be more difficult, costly, and time consuming for governance. At the same time, the long-term urban resilience effectiveness will improve substantially, ideally leading to remarkable community and environmental well-being. Urban resilience for the future will only benefit from the implementation of these improvements. The efficacy of this framework can be determined only through its implementation in future urban resilience initiatives. Even so, the LARMP case study offers compelling evidence supporting the study's conclusions and recommendations.

Chapter 2. Towards Community-Centered Approaches

As cities grow overtime, the interdependent relationship between humans and the places around them – both the natural and built environments – becomes more apparent. Populations increase and the strain on the environment for resources and ecosystem services expands to accommodate for growing anthropogenic needs. The demands of urbanization alter ecosystem function, such as by limiting land and water availability, deteriorating soil and nutrient health, and worsening air quality. When left unchecked, rapid industrialization and urbanization threaten to fragment, and even decimate, natural spaces on both macro and micro scales, from declining ecosystem health and the loss of regional biodiversity to worsening community resilience capacities in the face of climate-related events (Cardinale et al. 2012; Pimm and Raven 2000). Strict environmental governance thus becomes a necessary tool to prevent long-term ecological degradation and social vulnerability.

The strength of environmental governance in urban areas, however, is frequently challenged by the many political and economic benefits embedded in systems of unrestricted urban growth. Cities are not just known for their diversity, culture, and community, they are also centers for political strength and economic development. The scale of urbanization generates both positive and negative outcomes that urban environmental governance frameworks struggle to reconcile and regulate effectively. Benefits, such as increased land and economic development, that can help improve cities, may come at the cost of environmental degradation and the deterioration of human health. Often, these costs and benefits are unevenly distributed. The burdens associated with urbanization tend to most affect vulnerable and underrepresented communities, creating a justice issue that worsens without mitigating strategies (Voelkel et al. 2018). This further problematizes the planning, development, and implementation of urban

environmental management. When implemented, urban environmental management initiatives should ideally avoid producing harm. Realistically, striking a balance that maintains the benefits of urbanization while also mitigating the burdens is difficult.

Given the challenges of implementing sustainable and effective urban environmental management initiatives, their development requires a network of cooperation and understanding for the many economic, social, and environmental needs in a project area (DeFries, Foley, and Asner 2004). Decision-makers, such as planning bodies, federal and municipal governments, and regulatory agencies, play pivotal roles in determining how environmental management initiatives are conceived, implemented, and distributed within urban spaces. Achieving a perfect balance is likely impossible, so these decision-makers must determine how to orient a project, what outcomes to prioritize, and the best practices to use. At the same time, decision-making is not politically neutral. It can be influenced by systems of power, social constructions, and historical patterns of exclusion. These complex urban landscapes, and the challenges in establishing and maintaining their balance, underscore a critical gap in urban environmental management: the need to integrate a comprehensive framework that accounts for the interconnectedness of social, environmental, and political systems and outcomes.

Strategies for urban environmental management

Urban environmental management practices have evolved considerably over several decades, shaped by the growing recognition of the complex socio-environmental challenges within cities. Early approaches to urban environmental management were often constrained by urban ecosystems, or the natural environmental boundaries within urban areas, like watersheds or specific habitats. Balancing the management of built infrastructures with natural environmental boundaries requires highly technocratic and sector-specific interventions that can respond to distinct urban environmental issues (Pickett et al. 2008). This led to top-down governance with

little attention to the interconnectedness of ecological systems and social contexts. As a result, while these early approaches were able to mitigate environmental issues in the short-term, they failed to address the compounded vulnerabilities experienced by the communities living in rapidly changing urban environments.

In response to the limited effectiveness of urban environmental management practices, scholars began advocating for more integrated approaches. Urban ecologist Alberti (2008) argues that urban ecosystems differ from natural ecosystems both ecologically and systemically. Human actions, of course, have unique effects within the environments in which they live. Alberti recognizes the dominant role that humans play in the environment, where human actions transform largely natural environments to urban ecosystems. In turn, environmental changes within those urban ecosystems create new ecological conditions both locally and otherwise. For example, a lush and natural landscape may be targeted for settlement because of its location and resource availability.

Over time, the quickly growing population demands urbanization: higher housing density, roads, economic resources, and greater opportunity. The previously natural landscape transforms to an urban ecosystem characterized by densely built infrastructure and a lack of natural spaces. With this comes a number of environmental challenges, such as higher pollution, limited ecosystem health, and fragmented habitats. In this way, human influence within the environment inherently transformed it, which led to poor human and environmental outcomes. With the complex social, economic, and environmental interactions and behaviors, Alberti recognizes the inherent instability of urban ecosystems. She recommends that decision-making strategies and governing institutions should remain flexible to adapt to new insights as they emerge. In another study, McPhearson et al. (2016) bring attention to the complex relationships

within social, ecological, economic, and built infrastructure systems in cities. They argue that decision-making requires a systemic approach to understand the functions of all of these components in urban areas. The emergence of systems thinking methods reframed urban environmental management to a holistic process. Within this reframing, new strategies for adaptive governance in the urban environmental emerged.

Nature-based solutions (NBS), a popular and historically successful environmental management strategy, have been suggested to improve urban environmental management. NBS are defined as "actions to protect, sustainably manage, or restore natural or modified ecosystems to address societal challenges, simultaneously providing benefits for people and the environment" (White House Council on Environmental Quality et al. 2022, 10). NBS approach environmental management by first prioritizing and understanding environmental needs, then planning for strengthening the human-nature relationship by fostering environmental stewardship (Welden, Chausson, and Melanidis 2021). In this way, NBS move past early approaches to environmental management by expanding the approach to include human considerations following environmental analysis.

However, the application of NBS in urban areas can still fall short of the systemic socio-environmental considerations that urban ecologists recommended decision-makers adopt. A study on the use of a nature-based solution for a river restoration project in São Paulo found that river-adjacent areas had become spaces of socioeconomic, political, and spatial conflict for the many different communities living in the area (Diep et al. 2022). In an attempt to alleviate conflicts and exert control, decision-makers implemented NBS as a top-down approach that viewed river restoration processes as an issue separate from the interacting contexts. In failing to recognize the socio-environmental context, the application of NBS led to limited community

participation. Decision-makers overlooked community perceptions, socioeconomic limitations, and cultural beliefs, as well as historical and modern injustices that the various communities had experienced.

As a result, NBS were only partially implemented and did not achieve expected outcomes, while also introducing additional inequalities for the communities living within the project area. Diep et al. conclude that while more holistic NBS approaches can create opportunities for improved socio-environmental outcomes in urban areas, they can only do so by recognizing how socio-environmental contexts within individual communities cause injustice and harm. To engage in holistic environmental management, decision-makers must adopt a system that recognizes and concurrently considers socio-environmental contexts and their potential effects.

NBS applied to the urban environment tend to overemphasize environmental solutions through the lens of economic strength, rather than considering the socio-environmental context together. NBS are limited in framework and scope. They are meant to improve the urban environment through urban greening and economic development with the assumption that achieving both would ultimately lead to positive outcomes for the environment and communities. This framework and scope is limited for environmental management, as it can lead to the uneven distribution of benefits gained through implementation. While NBS are not problematic in themselves, they can become problematic when applied to urban areas because of the ways in which solutions are framed, developed, and implemented.

Without attention to communities, and the causes of conflicts within them, the application of NBS risk reinforcing both social inequalities and environmental degradation. For example, ecosystem restoration in urban environments has been associated with issues of environmental

injustice (Anguelovski 2014). As an example of urban NBS, ecosystem restoration that focuses on urban greening, or the expansion of green spaces and access in urban areas, creates economic and social value for the community through a wide range of benefits (Coley, Sullivan, and Kuko 1997; Maas et al. 2006). However, the transformative effects of urban greening are limited by market and economic interference as land suddenly gains value (Kim 2016). Consider an urban greening initiative for Neighborhood 1 in City A. Decision-makers run an environmental analysis in City A, finding that Neighborhood 1 has dramatically less green space than any other neighborhood in the city. Decision-makers develop a NBS for Neighborhood 1 that would construct a park full of native plants on an undeveloped lot. They assume that the community within Neighborhood 1 would benefit from their plan, and after acquiring funding allocations, move on to quickly implement it.

What they failed to realize, however, was that such a transformation creates value that, without additional protections, completely reorients power (Liverman 2004; Molotch 1976). Because decision-makers did not involve the community in the planning and development process, they missed Neighborhood 1's key concerns. Neighborhood 1 was already suffering from issues of housing affordability, failing infrastructure, and job availability. Because the plan failed to understand this context, Neighborhood 1's NBS did not address any other issues. Suddenly, the neighborhood became desirable for developers who saw its potential economic value. Developers offered sums of money to the residents of Neighborhood 1, who, seeing no potential for job growth and security, accepted the offers and moved away.

Developers constructed new living and commercial amenities centering Neighborhood 1's new park, all aimed at new and higher income residents. Neighborhood 1 flourishes. Meanwhile, the original community of Neighborhood 1 has now dispersed, never having

experienced the benefits of NBS in their neighborhood. Had decision-makers considered social and environmental conditions concurrently, perhaps they would have realized that urban greening alone could not revitalize Neighborhood 1. What the community needed was better infrastructure, job opportunities, housing protection, and yes, urban greening as well.

NBS have proven their effectiveness in some contexts. They can mitigate environmental challenges and can increase environmental stewardship in the process. In urban areas, however, the pursuit of NBS can contribute to displacement, green gentrification, and the marginalization of communities who are already socially, environmentally, and economically vulnerable (Kotsila et al. 2021). In urban ecosystems, environmental management cannot be planned and developed in isolation from the larger systemic context. Without intentional environmental management that considers socio-environmental contexts and outcomes, nature-based solutions risk becoming tools of exclusion rather than resilience.

Social recentering in the urban environment

Parallel to the debates discussing best practices for urban environmental management, a growing body of literature also advocates for greater attention to the social dimensions of urban ecosystems. Though related to previous debates, this environmental justice scholarship adds another consideration for urban environmental management in highlighting the disproportionate environmental and social burdens underrepresented communities face in urban areas. Exclusionary decision-making during urban environmental management exacerbates injustices and spatial inequalities. In cities, environmental justice considerations become central for environmental management. Environmental justice scholars argue that environmental management practices often overlook the needs of communities that are most vulnerable to climate impacts, social upheaval, systemic disinvestment, or otherwise lack access to the decision-making process (Collin 1993; Cutter 1995; Pellow 2002; Walker 2012). Stemming from

the unequal enforcement of environmental initiatives by the government and government agencies, the unbalanced results are most tangible across racial and economic lines (Anderton et al. 1994; Ash and Fetter 2004; Cole and Foster 2001; Pellow 2018). If urban environmental management aims to improve socio-environmental outcomes, then decision-makers must also consider *how* and *for whom* these improvements are implemented to ensure equitable outcomes.

Additional attention must be given to equity considerations because of historical environmental management outcomes. In practice, some communities have greater access to environmental protections and regulations while others do not (Pulido 1994). For example, Bullard (1990) found that landfills were more likely to be built near majority-Black neighborhoods. He names this phenomenon environmental racism, where policies are implemented to benefit white communities while burdening communities of color. For underrepresented communities with less political and economic power, environmental burdens tend to create harm at rates greater than those of their more privileged neighbors. In other cases, environmental racism can manifest in the unequal application of environmental benefits. For example, a number of studies found ecosystem restoration projects within certain areas that underfunded or completely overlooked underrepresented communities (Eden and Tunstall 2006; Moran 2007; Pulido 2000). Though there may be many explanations for the unequal distribution of environmental benefits and burdens, Mennis (2005) argues that environmental initiative enforcement is dependent on the actions of decision-makers (413). This reaffirms the need for an equitable approach for environmental management decision-making.

While the positive effects of environmental management are well documented, there remains a notable gap in understanding how these efforts operate within the urban context. Despite the demonstrated ecological benefits of environmental management, its impacts in urban

socio-environments are less clear. In particular, the effectiveness of outreach mechanisms in capturing community priorities related to environmental burdens, or their ability to mitigate the unequal treatment of vulnerable groups, is not well understood (Díaz-Pascacio, Castillo, and Jelks 2022). For example, Díaz-Pascacio et al. show that while urban environmental management projects often succeed in improving ecological habitats, disparities in access and benefits associated to race, ethnicity, and income remain (2022, 539). Within urban ecosystems, this oversight increases environmental injustices, which can then weaken the overall effectiveness of urban environmental management over time. Díaz-Pascacio et al. argue for the need to incorporate an explicitly equitable and environmental justice based approach. Indeed, the scholars discussed above also find that urban environmental management projects without a holistic approach exacerbate inequalities and limit their effectiveness. Ultimately, scholars advocate for a systems based approach that considers the socio-environmental context while also considering environmental justice within urban areas.

Adopting resilience thinking

Building on these developments, resilience thinking has emerged as a method for urban environmental management. The benefit of implementing resilience thinking into urban environmental management is its holistic approach. Resilience thinking recognizes urban areas as social-ecological systems, or SES. SES theory brings attention to the role of humans within nature, where project outcomes are determined by a vast web of constantly interacting social and ecological systems (McGinnis and Ostrom 2014). Defined by the dynamic perspectives and interactions among politics, economics, society, and the environment, SES are complex and power-laden spaces (Osborne et al. 2021, 2). Power dynamics within SES tend to imbalance access to resources, particularly affecting vulnerable communities. SES are hierarchical, sustained through the flow and use of critical natural, socio-economic, and cultural resources,

governed by both ecological processes and social institutions (Redman, Grove, and Kuby 2004, 163). Power asymmetries do not only affect the access to resources. Often, they result in a struggle for control characterized by vast inequality, significant environmental conflicts, and local resistance (Fisher 2011; Osborne et al. 2021; Vallet et al. 2020). By recognizing the complexities of SES, resilience thinking can counter inequitable conditions.

Ideally, resilience thinking and the application of resilience initiatives can manage the uncertainties and complexities of social-ecological systems while building both environmental and community capacities. Resilience initiatives should consider community perspectives, climate adaptation, sustainability, and long-term effectiveness, which have all become essential aspects of proactive environmental management in urban areas (Malecha, Clavin, and Walpole 2024). More importantly, however, is that resilience thinking is a bottom-up approach to urban environmental management practices.

Top-down interventions, which are common mitigating solutions for SES, tend to ignore the nuances of social-ecological spaces. In some cases, top-down interventions can fail to understand demographic metrics or establish a dialogue between all stakeholders, both of which can cause equity issues in the long-term (Gerlak et al. 2023). For example, without understanding the barriers to participation within a community, such as education levels or poverty rates, decision-makers may not know the best practices for engagement. As a result, they may only be able to contact more privileged stakeholders. In the same vein, environmental management practices may consider environmental issues as purely technical, which can limit interventions to technocrats and experts (Osborne et al. 2021). This both separates environmental issues from their political and economic influences, while also limiting management strategies.

Another top-down approach may be the framing of SES through their economic potential and thus implementing market mechanisms that commodify the environment (Leach et al. 2018). For long-term outcomes, these applications of environmental management practices are inefficient. With their narrow and limited scope, it is unsurprising that SES solutions often disregard local lived experience and result in equity concerns (Cumming 2017; Ingalls 2017). Emerging from the contemporary challenges of urban environmental management, the application of resilience through broader SES understandings offers a way to recognize how cities react and adapt to socio-environmental contexts. Thus, urban resilience initiatives that specifically address SES within environmental management are better positioned for success.

Resilience in practice

The concept of resilience itself has different meanings when applied to separate environmental or social contexts. In the environmental context, resilience refers to ecological function and can encompass variables like recovery rate after an environmental disaster, biodiversity, or ecological stability (Adger 2000, 349–50). In the social context, resilience refers to the ability of groups and individuals to retain stability despite exogenous events, and may use indicators like economic growth, innovation, and development (Adger 2000, 348–55). In a collective social-ecological context, urban resilience refers to the strength of socioeconomic, cultural, and environmental stability of communities within the urban environment. It includes better access to resources, decision-making power, and social cohesion, which all make for stronger communities that are more resilient against new issues within the SES (Cutter et al. 2008).

Though the definition of urban resilience will vary among different environments and the unique communities within them, resilience can be measured by indicators like economic growth, equitable distribution of benefits, level of risk from environmental variability or extreme

environmental events, and mobility and migration (Adger 2000, 354–57). Ultimately, urban resilience seeks stability in a system that is largely unstable. Herein lies its purpose: not to eliminate uncertainty or change, but to foster the adaptive capacity of urban systems without creating or reproducing harm.

Urban resilience is a dynamic process constantly shaped and reshaped by social-ecological conditions. Earlier environmental management approaches are strict, with rigid decision-making processes, governing expectations, and intended outcomes. Though these approaches have a proven track record when applied to other scenarios, they are unsuitable when applied to SES. The urban resilience approach pushes back on these assumptions of predictability – the only expectation is that of nonlinearity. Urban resilience expects the additional challenges of environmental management in cities with large networks of interconnected relationships. There have been many successful iterations of urban resilience around the world.

In Copenhagen, the Karen Minde Axis project aims to protect low-lying urban areas in the city from flooding. During meetings and workshops with local community members, landscape architecture firms, and other stakeholders collaborated together to determine the design, activities, and extent of the project (Karen's Minde Axis climate adaptation unlocks social sustainability 2024). What resulted is a large urban park with functional rainwater catchment areas combined with community amenities like a river path, playground, and dog park (Astbury 2025). Thanks to the holistic urban resilience model used, the project protects biodiversity and ecological systems while also creating social spaces and recreational opportunities for residents, all within Copenhagen's urban backdrop.

In Singapore, developers were tasked with designing a building that could combine multiple public facilities and services (Kampung Admiralty n.d.). The building, Kampung Admiralty, is now Singapore's flagship vertical village. It integrates elderly support, a medical center, a community park, and housing availability with an advanced hydrological system that conserves, stores, and reuses storm water (Karen's Minde Axis climate adaptation unlocks social sustainability 2024). The building has become the epitome of community care and sustainability.

Urban resilience resists surface-level solutions. Ecological health, social well-being, and urban infrastructure cannot be isolated from each other (Alberti 2016). So, urban resilience promotes multifaceted solutions across multiple linkages, such as green infrastructure, nature-based interventions, and ecosystem restoration along with social benefits like public health, community cohesion, and economic opportunity. By working across these linkages, the application of SES informed urban resilience considers the city as a single but intertwined system instead of a mix of separate parts.

Benefits of urban resilience

Cities must respond quickly and effectively to mitigate the challenges caused by environmental, socioeconomic, and political issues (Ribeiro and Gonçalves 2019). To do so, decision-makers identify risks and vulnerabilities of a project area, assess the context, plan potential solutions, select and implement the most viable option, monitor and evaluate outcomes, and revise if necessary (Bierbaum et al. 2014, 681). The benefit of urban resilience is its ability to recognize the need for coordination across various stakeholders. Critically, these decision-making steps are all anchored by stakeholder coordination. Urban environmental management involves many different stakeholders, from decision-making entities, municipal guidelines, urban planners, and institutions, to private developers and interests, to communities and nongovernmental organizations. Multi-stakeholder collaboration and knowledge sharing are key

elements of informed decision-making and implementation. Recognizing collective and connective environmental and social struggles, urban resilience intends to mitigate both by using collaborative and community-based urban environmental management.

With multiple stakeholders present, decision-making power may shift to those with more political and social influence. Widespread collaboration among various stakeholders strengthens knowledge systems that inform the planning, development, and implementation of urban resilience (Virji, Padgham, and Seipt 2012, 121). But communities, especially underrepresented ones, are often overlooked. To counteract this, urban resilience creates opportunities to integrate community knowledge through inclusive decision-making. The goal is to develop bottom-up and community-based environmental management strategies that improve socio-political interactions and create opportunities for empowerment (Mehmood 2016). Inclusivity empowers community participation and SES knowledge.

Community engagement is a central component of resilience, where the inclusion of local knowledge and perspectives brings a new angle for urban environmental management decision-makers to consider (Lebel et al. 2006). With greater knowledge of the SES, urban resilience can center social equity to mitigate community vulnerability. As an added benefit, community integration in the decision-making process also strengthens community capacity, or the ability of a community to solve collective problems and improve/maintain its well-being (Annex II Glossary 2014, 1759; Chaskin 1999, 4). Direct community inclusion serves diverse populations and builds trust among stakeholders within the SES.

Capacity building strategies, such as sharing information, creating tools and guidelines, and strengthening policy and planning systems, coordinate initiatives across a wide sector of stakeholders (Fidelman, Leitch, and Nelson 2013, 806). Multi-stakeholder collaboration fosters a

sense of belonging, cultural identity, and agency across by connecting people to the spaces they inhabit though shared values, histories, and goals for the future of their community.

Urban environmental management must also consider short and long-term strategies for the socio-environment, which requires adaptation. This is particularly beneficial for cities facing complex socio-environmental pressures. Not all environmental management frameworks are able to respond to the multifaceted challenges present within cities. Urban resilience helps decision-makers navigate those challenges with integrated problem solving and collaborative approaches (Meerow and Stults 2016). Adaptive approaches to decision-making can improve coordination across multiple stakeholders, while mitigating shocks to the SES and promoting recovery.

Most significantly, this adaptive capacity is crucial to maintain the effectiveness of urban environmental management and uncertainty within SES. It also gives decision-makers flexibility to test best practices and revise their strategies with updated information and changing conditions (Lebel et al. 2006). The prerogative for adaptation built into urban resilience improves the development of both short and long-term strategies by ensuring responsiveness to shifting SES conditions. With a focus on understanding SES conditions and pursuing collaboration across stakeholders to develop socio-environmental solutions, urban resilience encourages cities to rethink systems that lead to unjust and unsustainable outcomes. However, urban resilience methodologies are in their infancy, so knowledge gaps regarding best methods for implementation are not uncommon.

Practical challenges of urban resilience

A growing body of literature critiques how urban resilience is operationalized in urban environmental management practices. Definitions of urban resilience vary widely across different sites and can range in scope. Some may be limited to maintaining certain conditions while others may call for radical change (Meerow and Stults 2016). Without a clear anchor to

ground them, urban resilience standards vary across projects. While some variation is expected when attending to different regions, a loosely defined overall structure for the application of urban resilience leads to limited conceptions of what resilience ought to look like in practice. For example, the metrics for measuring resilience may vary across stakeholders within a project area. In one community, perhaps resilience equates to community integration, measured by the number of people involved in the decision-making process. A developer also working in the same project area may measure resilience by the number of buildings constructed with LEED certification. Governing agencies may use general disaster preparedness or securing future funding mechanisms as indicators as well. These different metrics of resilience may reflect the needs and concerns of different stakeholders, but the lack of uniformity also complicates collaboration across the network. The issue is that the concept of resilience is itself difficult to define or measure (McEvoy and Bosomworth 2013). This requires careful framing for urban resilience, which can be difficult to operationalize in practice.

Critics have also raised concerns about the limitations of urban resilience in establishing meaningful change. The concept of urban resilience is meant to develop and adapt to changing conditions, so its application within any given project area should not be fixed. Still, systemic limitations like governing procedures, collaborative approaches, or even financial limitations, all can limit adaptative potential (Huck, Monstadt, and Driessen 2020). For example, decision-makers are often limited by governing structures. They must decide on the scope and methods of urban resilience early in the management and development process, which can force them into a niche (Lyles, Berke, and Overstreet 2017). The advantage of adaptability then becomes irrelevant – the path has already been paved and boundaries have been set.

While urban resilience itself may not be the limiting factor, its application within the larger system may lead to ineffective outcomes. There are many different strategies for urban resilience, though a singular ideal for its implementation has not been established. In fact, guidance for the development and implementation of urban resilience is almost nonexistent, resulting in widely different success rates across projects (Woodruff and Stults 2016). As urban resilience transitions from theory to practice, the pressures from on-the-ground conditions alter its implementation. Without a clear operational structure, cities are left to their own devices.

Cities must interpret and attempt to apply urban resilience within a strained system of strict governing structures and uneven institutional capacities with evolving social and political contexts. Urban resilience itself, however, does not include the capacity to recognize or consider complex social, economic, political, and historical contexts (Mikulewicz 2019). Internally and externally, these dynamics affect how resilience is implemented. Consider an environmental management project using urban resilience. The project area's population is made up of both vulnerable and privileged communities. To abide by the expectations of urban resilience, the project's decision-makers cede significant decision-making power to the communities. However, they do not implement strategies that mitigate the variables causing vulnerability within the project area, such as a long history of economic inequality or political instability. When implemented, the project only represents a portion of the population.

For successful urban resilience, a holistic approach is necessary for systemic improvements. Urban resilience is often applied as a short-term solution rather than a comprehensive, transformational one (Sundmeier-Rieux 2014, 68, 75–76). Ignoring the root causes of harm and vulnerability also shifts the context in which solutions develop. This introduces a key challenge for urban resilience: exclusion.

Exclusion can manifest in a number of ways. Attempts at urban resilience can be coopted by economic exclusion, where the prerogative for economic viability and profit outweighs the pursuit of equity and access (MacKinnon and Derickson 2012, 264–66). A project may be developed with promises of economic development for communities, thereby negating the need for community support measures. This weakens the long-term viability of urban resilience as community support is taken over by economic goals. Urban resilience becomes a process that claims equity without mitigating historical harms or inequalities. Technocratic bias, where urban resilience is used as an engineering solution and infrastructure development process, can sideline other social priorities. Resulting solutions may be technically effective, though fail to address the root causes of injustice and inequity when put into practice (Béné et al. 2012). For example, placemaking is an essential, yet often forgotten, aspect of urban resilience. Place-based resilience looks to the community and those who live within a project area to develop best community support methods, rather than relying on the priorities of top-down decision-makers, such as institutions or organizations (Coaffee 2008; Edwards 2009). Place-based approaches to resilience require understanding local priorities. This bottom-up approach meets the multidimensional needs of local spaces and provides positive social and environmental outcomes.

Yet, place-based resilience and environmental resilience tend to occur in isolation, where decision-makers separate social and environmental needs from each other (Chand 2018). Though one of the benefits of urban resilience is its creation of transformative change, top-down priorities largely favor incremental change instead. In an unpredictable system, stable decision-making is the ‘safe’ option. Even with its exclusionary methods, it can still maintain the social order or can provide economic benefit at a scale larger than that of urban resilience.

Another aspect of the practical limitations of urban resilience is how the methods are implemented. Its novelty means that research in the field is still growing, and tends to focus on earlier stages of resilience, such as identifying risks, rather than evaluating and improving the effectiveness of urban resilience initiatives. Much of the scholarly research in the field is limited to methodologies for identifying community vulnerabilities, rather than what capacity-building and collaboration looks like in practice (Stults and Woodruff 2017, 1251–52). This is a significant oversight for researchers and has far-reaching implications for the effectiveness of urban resilience. Though the popularity of resilience initiatives has grown in response to climate threats and community instability, its practical application is still unclear.

Urban resilience must be able to integrate a holistic and systemic understanding of resilience that combines "individual, societal, economic, environmental, political, and infrastructural" variables (Caldarice, Brunetta, and Tollin 2019, 2). With an overemphasis on earlier stages of resilience, actual implementation of these initiatives becomes strained and more likely to fall short of intended goals. The implementation of urban resilience requires significant investment and participation (Malecha, Clavin, and Walpole 2024). The substantial upfront investment and limited research base may discourage its adoption by decision-makers. Even when adopted, weak implementation is a real risk, particularly when its underlying concepts and purposes are not well understood.

Still, some argue that though the cost of transformative change may be prohibitive, the perpetuation of current systems is unsustainable for the SES (Pelling 2011). Truly transformative change challenges mainstream political processes but faces significant political resistance. There is a disconnect between decision-makers, practitioners, academics, and stakeholders for what constitutes effective urban environmental management. Realistically, though urban resilience has

a large array of benefits for the field, there is an uphill battle to overcome before effective implementation.

Recognizing the inefficiencies of urban resilience, some scholars suggest improvements. Stults and Woodruff bring attention to the need for significant research focused on stakeholder engagement, participation, and investment in community efforts towards resiliency (Stults and Woodruff 2017, 1265–71). They suggest that the development, implementation, and evaluation of urban environmental management must be co-developed with practitioners across a wide range of backgrounds: from community members and local stakeholders, to researchers, organizations, and various agencies, among others. It is only through these multi-layered partnerships and multidimensional approaches that the capacity for urban resilience can be fully realized and actualized into tangible results.

Understanding these contexts and improving solutions requires reflecting upon social dynamics, considering agency, power, and other forms of social inequalities and governance that cause vulnerability (Gallopín 2006). The separation of contexts from resilience-thinking lends itself to future vulnerabilities, as the root of the cause tends to be ignored, and a limited surface solution develops instead. Power et al. advocate for a process-based understanding of ecosystems that focuses on climate change and human intervention, arguing that combining scientific understandings with social practitioner and steward based involvement will improve the development of resilience policy tools (2023). Goal-driven and hypothesis informed collaboration among stakeholders, including governmental agencies, academics, consultants, and community members and tribal leaders, will advance the working knowledge of the interconnectedness of urban infrastructure and the environment. This makes for a holistic application of resilience goals within environmental management (Power et al. 2023).

Others suggest the prioritization of people and place first to ensure bottom-up engagement and the primary incorporation of community knowledge (Boston et al. 2024). In contrast to other critiques, Boston et al. also suggest smaller-scale approaches that consider the continuous nature of the SES and urban resilience initiatives. Even if these changes were tested and best practices were developed, there are still other limiting factors that impede the practice of urban resilience.

Theoretical scholarship explains how power circulates within the political system. When applied to urban resilience, this scholarship further informs its challenges. One of the most significant critiques of urban resilience is that it does not include a clear mechanism for equity. Without it, resilience initiatives are likely to fail. For example, urban resilience expects that offering opportunities for greater stakeholder participation will automatically support equity, However, Schattschneider argues that limitations in the political system, including accessibility, power dynamics, political uncertainty, and regime strength, can prevent public participation (1960). He observes a paradox: the political system could be oriented towards popular democracy in some cases, though also enforce underrepresentation in others. For urban resilience, this paradox is particularly tangible, found in urban management initiatives that are ineffective or result in an unequal distribution of benefits. Without mechanisms that can directly counteract embedded systems of exclusion, urban resilience will fail to improve.

Regardless of the intention of adaptation, urban resilience is still created within a political system that reproduces longstanding inequalities. Here, Ingram and Schneider can provide some insight to power dynamics within SES. Using their theories helps explain many of the limitations of urban resilience, and why inequitable or ineffective outcomes are still common. Though their theories of target population and degenerative policymaking were developed within the context

of general public policy, they still provide valuable conceptual tools for understanding how power and social constructions influence the design of resilience strategies.

Ingram and Schneider advocate for a systems-level review of policymaking that examines the interconnected networks through which decisions are made. Much of resilience scholarship critiques narrow environmental management approaches, questioning how purely environmental or infrastructural solutions could create positive outcomes for SES. Many scholars call for integrated, process-based approaches instead. While process-based approaches in resilience research emphasize the dynamic evolution of SES over time, a systems-level approach adds insight to how institutional relationships, governance hierarchies, and political interest shape resilience outcomes. The two approaches can be complementary: systems-level frameworks help identify how governance, infrastructure, and community needs intersect, while process-based frameworks understand the ecological feedback and uncertainties that require adaptive management. For effective and equitable urban resilience, both forms are necessary. Still, existing approaches to identifying and addressing inequalities fall short when applied to within the broader political system. The many lessons learned from political research on power and inequality are essential here. These insights can position urban resilience to better confront social and institutional disparities.

Issues of power and inequality become especially visible at the decision-making level and can shape policy outcomes. Decision-makers may hold pre-conceived notions of stakeholder groups. These assumptions, known as ‘social constructions’ of target populations, can shape the perception of which groups may be deserving, capable, or undeserving within both the decision-making process and the larger political system (Wilkins and Wenger 2014). Social constructions of target populations enact institutional hierarchies that are inherently unbalanced in their policy-

making systems (Ingram and Schneider 1997, 102, 2007). Changing the distribution of political power will ultimately affect policy development.

Decision-makers may develop policies that reflect the interests of select groups or organizations, as opposed to the broader population. This is particularly harmful for community-informed and justice-oriented decision-making. In the case of urban resilience, decision-makers can unintentionally reinforce narratives that privilege certain groups, typically the most powerful and well-resourced or connected. As a result, they underrepresent the least powerful and most under-resourced groups. Strolovitch, Wong, and Proctor (2017) argue that unjust political outcomes stem from intersecting institutional, political, and societal structures of race, power, marginalization, and oppression. These structures determine where power and influence is held within the political system. If the political system is grounded on divisiveness and discrimination, resulting policies will likely reflect the same ideological values.

The policy design process does not take place in a neutral space. It respects the "social constructions of knowledge, target populations, power relationships, and institutions" (Ingram and Schneider 1997, 5). In urban resilience, decision-makers may plan and develop initiatives that result in significant injustices for underrepresented communities. While community participation and inclusion is often celebrated in urban resilience planning and development, social constructions show that such efforts are not always implemented in ways that meaningfully shift power. Social constructions can become deeply ingrained in policy systems, producing recurring inequities that resilience initiatives struggle to overcome. These dynamics are visible in the outcomes of urban environmental management and urban resilience outcomes. For example, Holifield et al. (2010) found that urban river restoration efforts disproportionately benefitted affluent neighborhoods, while low-income and minority communities faced barriers to

accessing these restored environments. This mirrors a broader trend in resilience planning, where projects designed to enhance safety, environmental equality, or recreational access align with the preferences of already advantaged groups with limited or indirect benefits for the historically underrepresented communities.

When social constructions are repeatedly reinforced over time, they entrench institutional biases within the political system. Inequality becomes a recurring and expected outcome of decision-making. This process, known as degenerative policy design, amplifies inequalities across race, gender, ethnicity, and social class by regularly privileging powerful groups while marginalizing vulnerable ones. While advantaged groups consistently receive policy benefits with little political challenge, concurrently occurring burdens become increasingly difficult to contest (Ingram and Schneider 1997). The powerful become more powerful and the vulnerable become more vulnerable. For example, Liang's (2018) case study evaluates the effect of degenerative policies on environmental regulations in Latino communities in the United States. Liang finds that states with moderately strict to the most restrictive immigration policies also have weaker environmental policy implementation and compliance monitoring in Latino neighborhoods. The study does not find the same relationship in states with more relaxed immigration policies. Where there exists greater public concern and resentment towards socially marginalized groups, inequitable policy development and implementation follows.

In urban resilience, degenerative policy designs can manifest as community investment or funding patterns that reinforce existing power relations or protect high-value areas while deprioritizing communities facing cumulative environmental burdens. After Hurricane Sandy, more vulnerable communities outside of Manhattan, like East Harlem and Brooklyn, were hit harder by the storm yet saw far fewer investments (Lieberman-Cribbin et al. 2021; Sellers 2017;

Sellers et al. 2017). Despite facing greater cumulative environmental burdens, these areas continued to face lacking investments. In the aftermath of the hurricane, projects like the East Side Coastal Resiliency Project invested $1.45 billion into building a flood barrier down Manhattan designed to protect valuable financial and real estate assets. Justice centered projects, like The Big U project, were developed with the help of local communities and organizations. The Big U project in particular aimed to protect significant landmarks and valuable community amenities in neighborhoods that were already underserved (Environmental Justice Atlas 2023). Ultimately, The Big U project was abandoned in favor of the East Side Coastal Resiliency Project. Negative perceptions of specific groups can oust them from the decision-making process and weaken their political power. The application of urban resilience may assume that benefits will eventually reach underrepresented communities, though evidence from the implementation of urban resilience projects, like the East Side Coastal Resiliency Project versus The Big U project, show otherwise.

When combined, the theories of social constructions and degenerative policy design uncover a vicious and cyclical political system. Sustaining degenerative policy designs over time result in policy situations where advantaged groups are repeatedly selected to receive policy benefits. These entrenched social constructions spread to other aspects of governance as well. Still, degenerative policy designs face little resistance because they are engrained within the norms of decision-making. Before long, countering these outcomes becomes a colossal task requiring not just an influx of resources, power, and support, but an entire reorganization of the system.

Resilience initiatives can create significant social benefits, including recreation opportunities, community education, and strengthened social capital (Moran 2007; Novotney et

al. 2001). But they can also perpetuate exclusion when they fail to consider political and structural inequalities. As Cross and Chappel (2022) argue, decision-makers must understand the socioeconomic and cultural dynamics of communities rather than relying on technocratic assumptions. These counterproductive assumptions sideline frontline communities and skew the effectiveness of urban resilience. Research repeatedly confirms that resilience investments and urban environmental management projects are more heavily concentrated in higher income, majority white communities, where political influence and institutional capacity are stronger (Stanford, Zavaleta, and Millard-Ball 2018). Without community-centered planning, resilience interventions can worsen displacement, limit access to amenities, and reinforce patterns of underrepresentation. These patterns bring on the (de)volution of environmental and community capacities in vulnerable communities.

Urban resilience scholarship emphasizes that meaningful change requires attention to structural inequalities while also acknowledging the importance of targeted, context-specific efforts that respond to the distinct histories and needs of different communities. Environmental justice scholarship aligns with this view, emphasizing that regardless of observable similarities, communities are highly unique entities. They face unique configurations of risk, identity, and environmental context (Banzhaf 2012; Cutter 1995; Holifield 2001; Pulido 2000). Urban resilience strategies that are successful in one community may be unsuccessful in another, emphasizing the importance of multifaceted stakeholder collaboration and diverse mitigation strategies. Resilience initiatives cannot rely on standardized and generalizable solutions. They must evolve with the communities according to their needs and concerns.

However, creating equitable and justice-oriented urban resilience initiatives for diverse communities is challenging. Many urban resilience plans, including the Los Angeles River

Master Plan, are designed and implemented by scientific and engineering professionals whose training emphasizes technical expertise over sociopolitical and socio-environmental engagement (Eden and Tunstall 2006). This technocratic orientation is not inherently exclusionary, but it becomes problematic when community perspectives and stakeholder engagement are treated as secondary to technical needs.

Smardon, Moran, and Baptise (2018) note that the problem is not technocracy itself, but the limited integration of truly sociological and community-centered approaches in resilience planning and development. For example, many LA River initiatives largely focus on supporting urban infrastructure and river restoration, with little attention to the needs and concerns of the communities living within those areas. Initiatives with narrow focuses risk overlooking how social, political, and economic systems shape vulnerability. Krievins, Plummer, and Baird (2018) find that overly simplified approaches to resilience are more likely to fail in reaching designed outcomes. Just as Ingram and Schneider argued, there are disparities in the treatment of select populations when decision-making is put into practice. Palmer and Hondula (2014) document inequitable access to information and benefits in waterway resilience projects, where white low-income communities were at higher risk of displacement and Black communities were overlooked altogether. These patterns mirror the broader critiques of resilience governance. Stanford et al. (2018) argue that addressing these disparities requires integrating equity and justice analyses into resilience planning and development from the outset, rather than as afterthoughts.

Recognizing both the strengths and shortcoming of resilience, scholars and practitioners increasingly call for frameworks that combine systems-level analysis with process-based, adaptive approaches. These frameworks must account for political histories, structural inequities,

and the dynamics of the political system within urban governance. They must also center community knowledge and support multi-stakeholder engagement to avoid reinforcing the very vulnerabilities resilience initiatives are meant to address. Only through a holistic and equity-oriented approach can urban resilience move beyond its current limitations and contribute to more just and sustainable environmental outcomes.

Chapter 3. Developing a social-ecological framework

Implementing a social-ecological framework may be a solution to the challenges of urban resilience. The social-ecological framework specifically addresses the need for both systems and process-based holistic analyses that recognize scientific knowledge with social processes (Krievins, Plummer, and Baird 2018). The implementation of this framework leads to an adaptive governance system that allow for more effective balance and management of socio-environments (Folke 2006). For SES that are defined by these intricate relationships and are susceptible to instability from exogenous changes, using adaptive frameworks that can both foster stability and manage complex SES are essential. The utility of the social-ecological framework becomes especially clear when applied to urban environmental management.

Urban areas are big. They consist of both the natural and built environments that are complicated by an array of urban, ecological, economic, and social contexts. What results is a hugely multidimensional SES with an incomprehensible assortment of needs and requirements. How then, can decision-makers reconcile these imperatives within urban environmental management? It requires a recognition of the significance of social dimensions within ecological systems. In fact, environmental management efforts that focus on procedural, recognitional, and distributional equity improve the *overall* equity of projects while also advancing ecological outcomes (Löfqvist et al. 2023). Ensuring representation in the decision making process (procedural equity), the recognition and integration of community and social identities, values, and needs (recognitional equity), and the equitable distribution of costs and benefits (distributional equity), are all essential for the overall sustainability of environmental management solutions (Fox and Cundill 2018; Löfqvist et al. 2023, 135; Maniraho et al. 2023).

By centering equity, the rights and perspectives of the most vulnerable and most affected people can come to the forefront of urban resilience planning and development.

Most stakeholders stand to benefit from increased representation as well. Better representation builds social capital. Referring to the networks, norms, and trust that participants in a community have with each other, social capital allows for the pursuit of shared and collective objectives within a community (Putnam 1994, 2). In this way, social capital bridges social cleavages to facilitate the coordination and cooperation among groups for mutual benefits. This leads directly into collective action, or the collaboration across communities, groups, and institutions. Collective action has been recognized for its integral role in effective environmental management (Ostrom 1990; Pretty and Smith 2004). Through representation, stakeholders can hold significant decision-making authority, promote social and cultural advancement, and work with their communities and other stakeholders to develop best-fit solutions.

Because representation builds social capital, and social capital creates an imperative for collective environmental management solutions, a stronger urge for community resilience results. Of course, powerful stakeholders and decision-making authorities may be unwilling to cede their authority. Though representation improves the effectiveness of environmental management efforts, authorities find themselves at a paradox: they both need and fear participation (Pretty and Smith 2004). Increased representation may ultimately benefit environmental management solutions, but it can also be more difficult to control. This leads to more division, complicating and alienating stakeholders among themselves. Nevertheless, the urgency of implementing effective environmental management solutions within SES grows each year. Worsening environmental degradation and climate challenges continue to threaten both environmental and human health and wellbeing. Urban areas, which are increasingly vulnerable

because of their large populations, lacking resilience structures, and infrastructural demands, stand to benefit from the implementation of a social-ecological framework within environmental management projects, especially within urban resilience initiatives.

Social-ecological frameworks emphasize the social dimensions that contribute both to the complexity of SES and the effectiveness of environmental management efforts. By doing so, these frameworks reaffirm the centrality of social and ecological systems as key drivers within SES, as opposed to economic or other influencing systems. With the dynamic and unique nature of each SES, social-ecological frameworks must be adapted to fit the specific characteristics of the systems in which they are applied. However, this flexibility also introduces challenges, making it more difficult to define the requirements of social-ecological frameworks and how best to apply them across varying contexts.

In their systematic review, Maniraho et al. (2023) perform a meta-analysis of peer-reviewed articles and conference proceedings with significant scholarly impact. Though their purpose is to identify the factors that foster resilient social-ecological restoration in forest landscapes, their findings establish a general social-ecological framework that can inform the adoption of resilient social-ecological environmental management solutions. Maniraho et al. identify seven "drivers" that influence the successful implementation of social-ecological environmental management solutions. For ease of understanding, I have thematically combined the seven drivers into three categories based on overlapping goals, principles, and types of interventions.

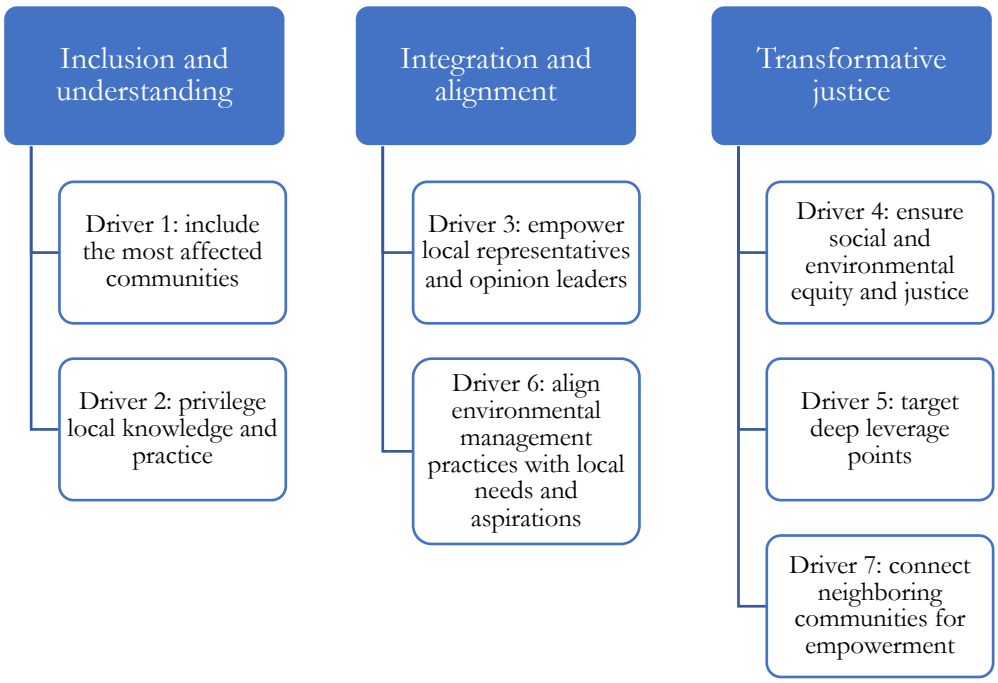


Figure 1. Reorganization of Maniraho et al.'s social-ecological framework

In the first category, Drivers 1 and 2 focus on understanding communities within the project area. They emphasize the agency of local actors, with a particular focus on those most directly affected, establishing the need for collaborative, community-driven processes. Drivers 3 and 6 in the second category focus on the need to recognize and incorporate local knowledge as a valid (and often more successful) method of environmental governance. They also focus on improving the human-nature relationship by aligning environmental interventions with community-defined goals and practices. In the third category, Drivers 4, 5 and 7 focus on long-term outcomes and systems-level change for transformative justice. They guide interventions to address the root causes of systemic issues and work towards long-term transformations through sustainable community systems. A social-ecological approach counteracts the problems associated with environmental initiatives that lack consideration for social dimensions, as

discussed in the previous chapter. The following pages explain these drivers in detail to establish the parameters of a social-ecological framework.[9]

Inclusion and understanding

While environmental plans and policies have traditionally been guided by economic imperatives and scientific evaluations, community inclusion and understanding often brings in a more human element, constructing environmental values through "personal experiences, relationships and events" (Davies 2001, 91, 97). These socio-environmental linkages reflect how communities relate to both the natural and built environments, as well as their values and concerns. Without these understandings, the holistic meanings embedded in these environments may be buried by economic and scientific priorities. This is not to say that those priorities are not valuable for environmental management, but rather that an overreliance on economic and scientific values overshadow community needs and concerns and can limit the scale of outcomes.

In environmental management practices, it has become more common to see greater focus on including and understanding nuances and contexts of communities. This is due, in part, to a growing research field that highlights the diversity of environmental values held by various stakeholders within a given project area. It would also be a mistake to overlook the important advocacy that activists, organizations, and community members around the world have done (and are still doing) to further this work. Different stakeholders, like politicians, academics, communities, developers, planners, etc., may all hold different belief systems for environmental management best practices. In many cases, these ideals muddy the waters. Developers may be focused on cost-effectiveness. Politicians may be concerned about their constituents and re-electability. Businesses may seek out economic opportunities. Moreover, the particular nuances

[9] *See* Maniraho et al. 2023 Table 2 for the key drivers, features, strategies, and specific references used in their systematic review (8-9).

and unique contexts of different SES can affect how environmental management should be carried out. This first category of the social-ecological framework acts as a counterbalance to the noise coming from all the different stakeholders in a project area. Inclusion and understanding is, at its core, meant to recenter the primary focus of project development to communities.

Driver 1: include the most affected communities

Not all communities are created equal. As discussed in Chapter 2, issues resulting from unbalanced power dynamics, such as social constructions and target population theories play a significant role in unjust political developments and outcomes for vulnerable communities. Frontline communities bear the brunt of environmental burdens and are often marginalized in the participatory process. They consist of disadvantaged, invisible, and historically marginalized groups including women, youth, poor, Afro-descendant, and Indigenous groups (Anderton et al. 1994; Ash and Fetter 2004; Brugnach, Craps, and Dewulf 2017; Cole and Foster 2001; Maniraho et al. 2023, 8; Osborne et al. 2021, 3). Their access to the political process is marred by historical exclusion and the inadequate distribution of power. Driver 1 centers these most vulnerable communities to ensure they have a voice.

In practice, the implementation of mechanisms for inclusion and understanding of the most affected communities has been historically problematic. Increasing access to participation opportunities, for example, is widely accepted as being vital to environmental management, though its purpose and measurement remains ambiguous (Glucker et al. 2013, 105–9). It should come as no surprise, then, that participatory mechanisms vary across projects. When initiatives are implemented that do not adequately understand communities, they can reproduce inequity instead of improving outcomes (Díaz-Pascacio, Castillo, and Jelks 2022). Successful projects may employ in-depth inclusion and understanding mechanisms, while others opt for surface-level mechanisms that can check a box. Unfortunately, best fit practices are rarely simple.

Projects thrive when community needs are understood. In Nepal, the Community Forest program began following widespread deforestation in the country during the 1970s and 80s (RISE: Our World Heritage n.d., 7). The 1993 Forest Act allowed the Nepalese government to transfer degraded forest land to local user groups, where each contingent was granted the authority to determine best management practices. Each user group developed their own locally adapted methods for inclusive governance and equitable participation according to their community (RISE: Our World Heritage n.d., 6). The Nepalese government also recognized the needs of local communities. As a method of maintaining community involvement and care, local user groups were allowed to sell timber and non-timber products from their land area. This not only helped reduce poverty in community and bolster support for the program, but it also helped forest regeneration (Smith et al. 2023). As a result, Nepal was able to counter deforestation and implement a community-based system that still functions today.

Similar community-based programs have been implemented for natural resource management in Machakos County, Kenya. Like the Nepal case, local user groups in Machakos were given local land authority and ownership rights to combat environmental degradation and food insecurity. Though many local user groups thrived, some did not. It was found that some local user groups lacked the comprehensive knowledge necessary for environmental project management and goal development (Ngundo 2018, 69). In other cases, monitoring and evaluation systems broke down. Though monitoring and evaluation was required by the Kenyan government, some local user groups were not given the necessary tools and resources to do so, which limited their ability to track project performance and develop alternative solutions (Musau and Kirui 2018; Ngundo 2018, 70). Because the needs of local communities, like knowledge gaps and lacking resources, were unmet, long-term project effectiveness failed.

These two cases highlight a critical issue in environmental management projects. When decision-makers make little effort in understanding communities, or are otherwise misguided in community capacities, project development cannot be comprehensive. As a result, projects struggle to succeed when implemented. Applying blanket solutions to project areas that share surface-level similarities may not adequately consider the distinct elements of different communities. In the Machakos cases, had decision-makers adopted more effective mechanisms for inclusion and understanding, they may have been able to identify the variables unique to certain communities that would later disrupt project implementation. Because they did not, communities that already had greater capacities and access to resources were successful, while those that did not have the same resources suffered. In the Nepal case, engagement with locals resulted in the early identification of capacity gaps, such as poverty, that were quickly mitigated. Here, the prerequisite of targeted inclusion and understanding of the most affected communities for socio-environmental outcomes becomes clear.

What does inclusion of the most affected communities look like in practice? There is a need to understand power dynamics and capacities, create problem-solving solutions, maintain active engagement among stakeholders, and encourage local governance to develop projects that are relevant to communities (Maniraho et al. 2023, 8; Osborne et al. 2021, 3). To do this effectively, Maniraho et al. argue for early, genuine, and active engagement in the form of capacity building and participation. This engagement should be tuned to each community, as there are certain variables to take into consideration and accurately measure. In general, mechanisms for inclusion should account for potential inequalities in how different communities experience participation. Narrow perceptions of communities, such as their levels of trust in decision-makers or the political system, their capacities for participation, and cultural attributes,

are all barriers to active engagement. Mechanisms that are developed in response to community needs can work to address those barriers (Davies 2001, 98).

The process for capacity-building and participation mechanisms in the social-ecological framework is intentionally vague because of the 'participation paradox'. In their study on a participatory water management project, Quaghebeur et al., find that opportunities for capacity-building and participation can be contradictory: people may be given the freedom to participate but are often constrained by the participatory structure put in place by decision-makers (2004, 162). The importance of intentional and flexible capacity-building and participation mechanisms is clear here. With pre-prescribed methods, participants may be limited in how freely they can make their needs and concerns clear. Decision-makers may also be limited in the methods they use. To protect the freedom of both parties, these mechanisms should not be constrained by set expectations and markers of progress. Sometimes, progress is not quantifiable. Sometimes, progress includes disagreements, discussions, and redefining the boundaries of projects (Brugnach, Craps, and Dewulf 2017, 28). Perhaps this will delay timelines for project implementation, but would ultimately lead to improved outcomes (Quaghebeur, Masschelein, and Nguyen 2004, 163). This pivot to more undefined capacity-building and participatory mechanisms transforms the landscape towards greater collaboration and collectivism.

Mechanisms for inclusion and understanding will change based on each community. For example, capacity-building in a community with low education attainment may include community seminars and activities. If the community has a high percentage of multi-generational homes, those seminars and activities may include free childcare. If the community has very low access to internet, then printed materials may be sent out instead. Whatever the method of capacity-building and participation looks like, it is important that decision-makers take

community needs into consideration. Vulnerabilities will continue to exist in spite of their recognition. The goal of capacity-building and participation mechanisms are that they ease the burdens of vulnerabilities while also improving political power. Effective mechanisms rely on addressing significant social, economic, and political cleavages that improve autonomy and empowerment within communities (Barker 2005, 15–17). By looking to the most affected communities first, decision-makers can ensure that capacity-building and participation mechanisms are built upon a foundation that seeks to lift up the most underserved and historically underrepresented.

Ultimately, the goal of implementing these mechanisms is to increase the number of people involved in the planning process using best-fit practices. For example, vulnerabilities such as language accessibility and citizenship decrease levels of political participation. Increasing political information can help counteract this barrier. In their study on political participation among Latino citizens and non-citizens, Leal finds that Latino citizens are more likely to engage in non-electoral political participation compared to non-citizens (2002, 361). However, Leal also finds that political participation is significantly affected by political information for both citizens and non-citizens. Contrary to stereotype, non-citizens have a stake in their communities and participate in political activities when given the opportunity (2002, 368). Capacity building activities like Spanish-language media can spread political information. When combined with the efforts of political actors to engage with those media outlets, it can build political information among both citizens and non-citizens, thus improving political participation (2002, 368-370). Though Latino non-citizens still had lower rates of political participation compared to Latino citizens, access to political information was essential in building individual capacities and encouraging political participation.

Other studies further reinforce the finding that building capacity increases participation and engagement. Khatibi et al. confirms the connection between public knowledge and engagement. In their quantitative systematic review of climate adaptation studies, they found that that though environmental governance is essential in the efficacy of resilience plans and policies, capacity building through knowledge sharing is essential (Khatibi et al. 2021, 8–11). Knowledge sharing improves environmental and climate change awareness, empowerment, and public engagement, leading to more effective resilience plan and policy results. In sum, community capacity promotes a network of collaboration, which can lead to greater participation, thus improving the development of initiatives that appropriately reflect the concerns of vulnerable groups.

The scale of urban resilience often means that there is a diverse array of variables that must be considered. Different stakeholders have different prerogatives, knowledge systems, power dynamics, and lived experiences. These differences equate to many different potentialities and expected outcomes. There will rarely, if ever, be one perfect solution that ensures the best outcome for every stakeholder. But pivoting towards collaborative and collective structures can lead to *better* justice, *better* inclusion, *better* engagement, *better* benefits, and *better* outcomes compared to the alternatives. We must view the planning and development mechanisms of such endeavors as inherently co-productive (Brugnach, Craps, and Dewulf 2017, 25–28). Here, the application of collaboration and collectivism goes beyond notions of participatory processes and instead becomes synonymous with a responsibility for justice and inclusion, conflict resolution, co-dependence, capacity building, and shared knowledge and power mechanisms that lead to collaborative decision-making.

Driver 2: Privilege local knowledge and practice

A social-ecological framework that supports meaningful collaboration and leads to sustainable resilience must therefore promote collaborative expertise within broader institutional goals. Driver 2, which emphasizes privileging local knowledge and practice, does not simply mean inviting communities into decision-making. It requires embedding cultural values, local practices, and collective experience into the structure of environmental management itself. At its core, this is a call for co-designed strategies that amplify both traditional and experiential knowledge for immediate and long-term benefits.

Understanding what it means to prioritize local knowledge and practice begins with recognizing why local governance is often more effective in environmental management. Hardin's theory of the "tragedy of the commons" claims that unregulated access leads to overuse and collapse, which requires intervention and privatization is the only viable solution to protecting the commons (Hardin 1968). Ostrom and her colleagues counter with the argument that communities, when given space to collaborate and self-organize, frequently develop management systems that result in "close to optimal results" (Ostrom, Gardner, and Walker 1994, 193). Communities have specialized knowledge of their local environments and a deep vested interest in maintaining sustainable systems, they simply need to be given the opportunity to be involved with the governing process. Their findings demonstrate that sustainable governance depends not on external control, but on empowering local systems, where community values and knowledge systems can guide outcomes.

In recent years, environmental governance has shifted from top-down institutional mandates toward community-centered approaches. Rather than relying solely on the authority of national institutions, environmental management is beginning to recognize the need to privilege local knowledge and practice. This reorientation reflects the reality that external decision-makers

often lack the situated knowledge necessary to respond effectively to the specific ecological, cultural, and social needs of communities. For Indigenous Peoples and local communities (IPLC), who are among the most vulnerable to climate change, this shift is especially critical. IPLC groups often possess deep ecological knowledge and nuanced understandings of local dynamics, positioning them as essential actors in the co-production of resilient and sustainable solutions (Reyes-García et al. 2019, 3–5).

However, integrating local knowledge and practice into environmental management remains complex. Various communities hold different types of knowledge that can range from traditional indigenous knowledge to locally developed ecological or personal experiential systems (Raymond et al. 2010, 1768–69). Aligning environmental management with these diverse forms of knowledge requires intentional and context-sensitive methodologies. Raymond et al. argue that this entails identifying the scope of knowledge held by stakeholders, evaluating its relevance, and applying it meaningfully throughout the project life cycle (2010, 1771). These steps underscore that integration must be adaptive and tailored to each situation. Together, these drivers for the inclusion and understanding category reveal that robust environmental management is inseparable from bringing in communities and giving them not just the space to participate, but the power to collaborate and co-design plans.

Integration and alignment

At the heart of the social-ecological framework lies a dual imperative: to address both environmental degradation and the social injustices that often accompany it. The pursuit of equity and justice becomes not just a moral goal, but one that reflects the success of environmental management. Driver 3 shifts authority from central institutions to community-based actors. Driver 6 then looks to the current needs of both the community and the environment, as well as future aspirations.

Driver 3: Empower local representatives and opinion leaders

Effective governance in the face of exogenous climatic changes depends on a number of variables including information sharing, conflict resolution, rule compliance, infrastructure, and adaptability (Dietz, Ostrom, and Stern 2003, 1908–9). Dietz et al. find that acknowledging these variables within environmental management requires a dialogue between "scientists, resource users, and interested publics" all informed by "analysis of key information about environmental and human environment systems" (2003, 1910). When a single institution governs a commons for the people, it is more likely to fail because of limited holistic understandings. Spreading out knowledge sources by privileging the knowledge of various experts thus ensures the development of stable solutions based on holistic information. However, when project development involves multiple sources of knowledge, it is also likely that some stakeholders are lost among other, more powerful actors. In a study on multi-stakeholder collaboration, Ayala-Orozco et al. found that the effect of power dynamics are particularly strong on vulnerable and marginalized groups, which can lead to lower participation, distrust, and low innovation potential (Ayala-Orozco et al. 2018, 13–14). Other studies further warn against the overpowering potential of powerful actors (*see* Angst et al. 2021; Baldwin et al. 2023). Driver 3 counters this by requiring the empowerment of local representation and opinion leaders.

The fair integration of local knowledge supports the process of effective project development. This "democratic decentralization" is necessary to counter institutional inertia and elite resistance to change (Osborne et al. 2021, 4–5), creating an opportunity for locals to play a role in governing (Harris 2016, 139–43; Larson and Ribot 2004, 4–5). Centralized governance has proven inadequate for environmental resilience. Polycentric governance, by contrast, supports multiple, overlapping sources of authority that increase flexibility, adaptability, and innovation (Andersson and Ostrom 2008, 77). It highlights the importance of public

participation, assuming that governing arrangements are more effective with the organizational influence and knowledge integration of locals (Andersson and Ostrom 2008, 78). According to Andersson and Ostrom, stakeholders, or users, with similar ideologies become units, or local user groups (2008, 78). These local user groups then interact with each other and with various groups and government officials, leading to knowledge sharing and learning among all the groups. Ultimately, this leads to adaptive governing methods and solutions informed by an array of experts and knowledge bearers. Local user groups become centers of co-production, where stakeholders share knowledge, hold leaders accountable through downward accountability, and integrate both scientific and traditional knowledges.

Still, the redistribution of power is often resisted by entrenched actors, and participatory mechanisms may be co-opted or reduced to symbolic gestures (Agrawal and Gupta 2005; Poland et al. 2021). Avoiding such outcomes requires not only decentralization, but also capacity building for local leaders. Casarrubias et al. (2025) demonstrate how identifying and training local environmental leaders results in stronger community engagement and knowledge co-construction in Chautengo Lagoon, Guerrero, Mexico. Empowered local leadership ensures that participation is meaningful, not superficial, through integrating local knowledge and ensuring trust, innovation, and long-term effectiveness in decision making (Casarrubias et al. 2025, 11–15). Such capacity building allowed direct participation to take place through the authority of local leaders, which led to general community empowerment and positive environmental change, thus supporting polycentric governing. With a more networked and adaptive approach, multiple actors contribute to the decision-making process with specialized knowledge. This enables communities to co-produce knowledge, innovate context specific solutions, and build trust

through inclusive and accountable governance, which are all essential in the pursuit of SES resilience.

Driver 6: Align environmental management practices with local needs and aspirations

Driver 6 builds on Drivers 3 and 4 by emphasizing that environmental management solutions must be aligned with the specific needs and aspirations of local communities. As with privileging local knowledge, this requires inclusion and the strengthening of community capacity. Building collaborative capacity ensures that local actors have the agency and autonomy to influence decisions that directly affect them. When communities are empowered to contribute to the development of restoration goals, priorities, and implementation methods, environmental outcomes are more likely to be socially responsive and ecologically sound (Gann et al. 2019, S8-9). Effective environmental management solutions depend on meaningful collaboration across all stakeholders groups.

This alignment also improves long-term investment in, and trust toward, environmental projects. Including various stakeholder groups, such as local communities, Indigenous groups, scientists, and non-governmental organizations, can ensure not just collaboration, but also stakeholder investment in projects. This improves long-term trust among decision-makers and local communities, which will improve outcomes and ensure resilient and equitable solutions (Gann et al. 2019, S10). With outreach and collaboration among multiple stakeholders groups, social and ecological goals will be realized early on, which will inform further planning and development. The diversity of stakeholder groups is essential. Solutions for environmental management are most effective when they are informed by multiple sources of knowledge, including practitioner experience, local and traditional ecological knowledge, and scientific knowledge (Gann et al. 2019, S10). These relationships contribute to greater resilience by combining practitioner knowledge, local and traditional ecological knowledge, and scientific

insight. Practitioner knowledge provides practical context for the implementation of environmental management. Communities with local and historical relationships to the land may hold specialized knowledge. Scientific knowledge provides an analytical and data-driven background to environmental challenges. When combined, the integration of these knowledge systems can provide insights on the knowledge gaps that these systems may hold separately, leading to comprehensive, resilient, and adaptive solutions that are culturally, socially, technically, and ecologically sound. When integrated effectively, these knowledge systems help identify gaps that may exist within each individual framework, producing more comprehensive, adaptive, and equitable solutions.

Privileging local knowledge and aligning management with community needs requires confronting institutional barriers. Political, socio-economic, and historical forces obstruct the full realization of local agency (Armitage 2002, 215). Structural change is necessary to recenter the legitimacy of local governance units and reestablish informal and formal local institutions (Armitage 2002, 216). This process represents a bottom-up evolution in governance that challenges entrenched institutional norms and empowers communities to shape both environmental futures and the political structures that guide them.

Resilient and just environmental governance hinges on the intentional integration of diverse knowledge and the alignment of environmental management strategies with the lived realities, needs, and aspirations of local communities. This alignment improves outcomes by transforming governance into a process of shared responsibility and mutual learning rooted in trust, equity, and collective adaptation.

Transformative justice

Social-ecological systems are shaped by established institutional structures, human-environmental relationships, and social systems. These path-dependent dynamic interactions

evolve into deeply embedded systematic patterns that shape governance, influence adaptive capacity, and determine the resilience of communities and ecosystems (Fischer et al. 2021). In systems that have historically privileged certain actors while marginalizing others, these entrenched patterns often reproduce inequalities, limit meaningful participation, and constrain the potential of environmental management. Leveraging change at the surface rarely disrupts these patterns. The limits of shallow reforms underscore the need for deeper systemic change. This is where transformative justice becomes essential.

Driver 4: Ensure social and environmental equity and justice

Driver 4 requires both social and environmental conditions be considered in tandem. An overreliance on technical and ecological metrics, such as biodiversity or restoration acreage, risks overlooking the social and cultural needs of affected communities. For example, focusing on the global tree planting campaigns for ecosystem recovery and climate resilience, Fleischman et al. (2020) argue that such efforts often fail because they apply a generalized solution to ecologically and socially diverse contexts. These campaigns can disrupt natural forest regeneration, threaten biodiversity, reduce water availability, undermine local land tenure, and harm agricultural systems (Fleischman et al. 2020, 948–49). This is not to say that social goals are more important than environmental ones, but rather that the implementation of a social-ecological framework benefits from the inclusion of both.

Long-term and equitable ecosystem recovery and climate resiliency requires tailored approaches grounded in an understanding of local ecological conditions and community needs. This requires more than just inclusive development with equitable goals at the outset of environmental management projects. Continued ecological and social success is dependent on long-term engagement among stakeholders and decision-makers, leading to the coproduction of knowledge (Reed et al. 2014). As a result, long-term engagement allows for the ongoing

reflection and adaptation of environmental management projects to ensure timely responses to evolving power dynamics, shifting community needs, and emerging environmental challenges (Fraser et al. 2006, 122; Reed et al. 2014). Long-term engagement also allows for the monitoring and evaluation of outcomes to ensure fairness, transparency, and social equity during planning, development, and implementation (Kusters et al. 2018, 177; Lim et al. 2022). This monitoring is essential to ensure equitable outcomes upon the implementation of environmental management projects.

Equally crucial is the human relationship with the environment. The goals of environmental governance are often informed by the perceptions, values, and interactions that people have with the places around them. Humans rely on the environment and natural spaces for a range of physical, psychological, and economic needs (Anguelovski 2014; Coley, Sullivan, and Kuko 1997; Maas et al. 2006). In many contexts, however, nature has become increasingly abstract as something to manage, exploit, or preserve from a distance.

Growing societal and individual disconnections from nature weakens the human-environment relationship, diminishing the capacity to value and protect the environment (Nisbet, Zelenski, and Murphy 2008). In some cases, this disconnection may stem from the prioritization of profits and economic growth over ecological wellbeing. In other cases, perhaps individuals are more concerned with survival than maintaining a positive relationship with the natural environment. Still in others, particularly within urban spaces, the dominance of the built environment obscures natural landscapes, making everyday interactions with nature increasingly rare. Reconnecting people to place through education, behavioral tools, or participatory environmental planning, can reinvigorate care for the natural world and reorient policy goals towards sustainability and justice (Ercantan and Eyupoglu 2022; Uralovich et al. 2023). Lastly,

knowledge production plays a critical role in either reproducing or dismantling unjust systems. When science is siloed from local realities, or when traditional and Indigenous knowledge is devalued, environmental governance loses its ability to respond to complexity. By integrating diverse knowledge systems, projects become more resilient, inclusive, and just.

Driver 5: Target deep leverage points

By targeting deep leverage points within environmental systems that can challenge entrenched values, institutions, and knowledge systems, Driver 5 aims to disrupt the cycle of inequity. Fischer et al. delineates between a leverage point and a deep leverage point, explaining that while the former makes use of easier, yet less effective, surface level interventions, the latter targets deeper, systemic leverage points (2021, 24-5). To explain, they use the example of tree planting for ecological restoration. While the goal of planting trees may temporarily alleviate the problem of deforestation, it does not target overall system behavior, or the actual cause of deforestation. Surface level leverage points focus on mitigation without challenging the underlying structures or goals that perpetuate inequality or unsustainability. Deep leverage points, by contrast, are places of intervention within a system that have the potential to create significant changes (Meadows 1999). Interventions that recognize deeply embedded system characteristics, such as social structures and institutions, as well as the values and goals that inform them, are better equipped to shift the underlying dynamics of a system (Abson et al. 2017, 32). Abson et al. bring attention to three areas where deep leverage points can bring transformational change within environmental governance: in the systemic role of institutions, in the relationships between people and nature, and in the process of knowledge production and application (2017, 33-6). Targeting these areas moves beyond superficial band-aid solutions and instead address the dynamic, normative, historical, and causal dimensions of environmental governance challenges.

Institutions, whether formal or informal, organize societies and structure environmental governance.[10] Because of the influential role institutions play, and the ways in which they inform societal dynamics, they can be potential leverage points. However, due to the path dependent, reinforcing nature of institutions, targeting them as a deep leverage point can be difficult. (Abson et al. 2017, 34). Shocks to the system, such as external or internal pressures, may create opportunities for transformational change.

Caused by a crisis or change within environmental or societal conditions, the resulting uncertainty may call for reorganization and adaptation (Abson et al. 2017; Eburn and Dovers 2015). Other destabilizing factors, such as purposeful destabilization or tensions in an institution may create a window of opportunity for change (Geels 2011, 29, 32). Systemic shocks are highly volatile and should be approached carefully and with clear purpose. Other transformations, such as learning through the contextualization of government mechanisms, provide alternative leverage points through functional and systemic understandings that may be more stable and incremental, while still targeting institutional function at its core (Newig et al. 2016). Taking advantage of institutional shifts offers opportunities for equity-centered frameworks to take root.

Driver 7: Connect neighboring communities for empowerment

Driver 7 extends the reach of targeting deep leverage points by emphasizing the importance of connecting communities for broader socioeconomic empowerment. Social fragmentation and weakened collective ties, which are exacerbated by individualism and systemic inequities, limit the effectiveness of environmental engagement (Hopper 2003; Wilson 1996). Rebuilding this social cohesion is critical. Networks of communities build resilience by expanding access to resources, increasing trust, and reinforcing social responsibility (Newman

[10] Formal, referring to established and binding rules such as laws or agreements of a place. Informal, referring to social norms like customs or expectations

and Dale 2005). Such networks also facilitate cooperation, adaptation, and shared decision-making, leading to more inclusive, community-aligned, and sustainable environmental solutions (Lauber, Decker, and Knuth 2008, 686). As social organization improves, capacities also improve. Networks of communities are poised to take charge of environmental management and the decision-making process through collective action and adaptation. Durable social organization fosters a more inclusive and lasting system that can address both current and future environmental challenges.

Ultimately, Drivers 5 and 7 call for not just equity as an outcome, but for transformative justice as a process. Ensuring long-term, inclusive engagement across the planning, implementation, and evaluation phases of a project allow for transparency, adaptability, and accountability. Targeting deep leverage points that confront systemic organization offers the greatest potential for reimagining environmental governance in ways that empower communities, rebalance systems of power, and generate sustainable and equitable future. In a dynamic social-ecological system, there is a great need for a framework that recognizes the complexities of SES and aims to change embedded limitations. This expands the scope – suddenly, different actors are involved, different goals, and different dynamics. Influencing the design and intent of a project, targeting the rules, values, and knowledge systems that uphold existing power structures can catalyze long-term systemic transformations that enhance equity, social and ecological resilience, and sustainability.

In the Los Angeles urban setting

Urban environmental management efforts are constrained by social and political challenges within social-ecological systems. From the large-scale and unpredictable challenges of climate change effects to the location specific conflicts within stakeholder interactions to institutional limitations and power dynamics, a broad and ill-defined landscape emerges – one

which does not immediately have a single plausible solution (Virapongse et al. 2016). A social-ecological approach emerges as a response to these challenges, guiding social and environmental resilience efforts towards more effective environmental management. The table below summarizes the process of this framework.

Table 1. Summary table of social-ecological framework categories

	Requirements	Methods	Outcomes
Inclusion and Understanding	Understand power dynamics, create problem-solving solutions, maintain active engagement among stakeholders, and encourage decision-makers to develop projects relevant to community	Intentional and flexible capacity building and participation mechanisms according to community needs	Increasing community participation and decision-making power. Leads to greater collaboration and knowledge sharing for co-designed project development
Integration and Alignment	Adopt adaptive governing methods that are flexible to both scientific and traditional/local knowledge	Avoid the co-optation of project development by identifying local leaders and building collaborative capacities towards empowerment	Recognizing local and human-nature needs of project area to improve long-term engagement, investment, and trust towards project
Transformative Justice	Reimagine the methods of project development and implementation	Support equitable and de-centralized governing systems with wide networks	Creating or capitalizing on opportunities to disrupt systems towards equity for sustainable transformations

Resilient and just environmental governance hinges on the intentional integration of diverse knowledge and the alignment of environmental management strategies with the lived realities, needs, and aspirations of local communities. This alignment improves outcomes by

transforming governance into a process of shared responsibility and mutual learning rooted in trust, equity, and collective adaptation.

Key elements of a SES approach, such as multi-level stakeholder engagement and collaboration, the co-development of knowledge from multiple sources, adaptive governance, social and ecological monitoring, and capacity building, can meet the challenges of environmental management (Virapongse et al. 2016). These are reflected in the seven drivers of the social-ecological framework. It is important to note that changing environmental systems, evolving political and institutional systems, and a diverse array of stakeholder groups, both powerful and not, can all change the ways in which urban environmental management solutions should be implemented. Social-ecological systems are dynamic and changing forces, influenced by both internal and external factors. The social-ecological framework acknowledges these dynamic requirements, streamlining the planning and development for urban resilience. It establishes a basic framework while allowing for adjustments based on the needs of a project area. Though a social-ecological framework centers social consideration, participation, engagement, and outreach, the specifics of implementation hinge on case-specific SES.

Across Los Angeles, different components of the social-ecological framework have been used in urban resilience initiatives. For better inclusion and understanding, the Bradley Plaza and Green Alley project in Pacoima stand out. Pacoima is a historically underrepresented and underinvested community located in northeastern San Fernando Valley, a far corner of Los Angeles County. The Pacoima Beautiful organization, the only environmental justice focused group in the surrounding area, took charge of this project. Their planning team uses a community informed process for various projects in the neighborhood, which entails regular site visits,

community meetings, and transparency. Regular contact with community members has made them a trusted organization within Pacoima.

The Bradley Plaza and Green Alley project was a direct result of this community work. Residents of the San Fernando Gardens housing complex brought attention to concerns related to their lack of green space, the urban heat island effect, and lack of walkability. Pacoima Beautiful targeted a two-block, .67 acre parcel of Bradley Alley. The goal was to create the first planned shared street in Los Angeles that would improve mobility and access to green spaces (Tuser 2021). To ensure inclusion and understanding, the project was co-designed with community members, including the Fernandeño Tataviam tribe. This inclusion and understanding ultimately led to the addition of native plants, shaded spots and seating along the street, and the incorporation of indigenous art and language throughout the project space (Tuser 2021). Along with a slew of other social benefits, the project also improves water quality, implements water-wise landscaping and catchment mechanisms, reduces local flooding, and improves the general environment in the area (Bradley Plaza and Green Alley Story Map n.d.). These improvements have become a symbol for what community-based engagement and co-designs can become.

Pacoima Beautiful recognized the requirements of inclusion and understanding for this resilience project. As a justice-based organization, they work to understand and counteract the various power-dynamics at play within Pacoima. Pacoima Beautiful is able to maintain robust relationships with community members through intentional and long-term engagement. By providing dedicated opportunities for participation, they are able to build the capacities of community members in advocating for their needs (Pacoima Beautiful: Transforming the Environment 2024). To create problem-solving solutions, they participate together with community members to create a shared vision (Russell and Thompson 2021). For active

engagement among stakeholders, they remain integrated within communities and maintain strong relationships among partner organizations. As the primary decision-maker, they work with partner organizations and communities to develop plans that are fit for community needs. What resulted from inclusion and understanding was a co-designed plan that fit the needs of the project area.

For integration and alignment, the Daniel Webster Middle School project is a strong example. Located 12 miles east of Downtown Los Angeles, the school was targeted by Drought Response Outreach Program for Schools (DROPS). DROPS is a program that implements environmentally-sound development and infrastructure updates to school campuses across Los Angeles. There was a concerted effort by decision-makers, including the Council for Watershed Health, TreePeople, and the Los Angeles Audubon Society, to conduct education and outreach efforts for Daniel Webster Middle School. Interestingly, students played an active role throughout project design and construction (Webster Middle School 2018). Engagement was not only limited to students. Staff trainings and curricula development informed how classrooms could take advantage of the school's new outdoor classrooms and learning laboratories (Daniel Webster Middle School: A DROPS Campus Tour Story Map 2022). Broader community sustainability workshops sought to understand the needs of public walkways outside of the school, which led to shade trees and drought-tolerant gardens (Webster Middle School 2018). This helped identify long-term sustainability leaders within the community, while also improving the capacities of the community more generally. In doing so, decision-makers were able to implement an adaptive governing system dependent on community involvement and stewardship. Throughout the years, scientific knowledge can be bolstered by local observations

through this shift. Integration and alignment makes for more engaged and invested communities, which will ultimately lead to sustainable projects.

The final category of the social-ecological framework, transformative justice, is more abstract in concept. The ReDesign LA initiative, however, offers some examples of what this could look like. Organized by the Council for Watershed Health, ReDesign LA is a collective of organizations that seek to help communities develop and implement multi-benefit water projects (About this effort n.d.). The initiative uses a mentor-mentee model to create networks of informed organizations and communities (Casanova et al. 2026). Local water leaders within community-based organizations are identified. Mentors from skilled mentor organizations support the mentees through water education and collaborative opportunities. Later, mentees learn engagement strategies and the process of project concept development. They also learn skills for future partnerships, grant writing, data, and toolkits. ReDesign LA expects this process takes 18 months. Upon completion, mentees can become mentors within their own communities and be a part of a large network of mentorship in Los Angeles. Through this process, the ReDesign LA offers one conceptualization of what transformative justice through de-centralization and network creation may entail. Even if limited to particular project focuses, this initiative has begun the process of disrupting systemic barriers and securing greater equity for communities across the region.

All of these projects were able to consider the requirements of the social-ecological framework, develop the best-fit methods for each project area, and ultimately achieve expected outcomes. Throughout the planning, development, and implementation process, these projects demonstrated the value of adopting social-ecological frameworks to navigate the complexities of urban resilience projects.

Los Angeles River Master Plan

Described as a "watershed and community approach", the LARMP's social-ecological framework differs from previous LA River plans by recognizing the interconnected systemic and natural factors that shape environmental management as well as social and ecological resilience. In part, the failures of previous Los Angeles River plans were due to their inability to consolidate the many conditions and interactions within the LA River SES. As outlined by the drivers of a social-ecological framework in the previous chapters, a comprehensive understanding of the dynamic and context-specific social and environmental conditions of an SES is essential for its successful adoption.

McGinnis and Ostrom develop an updated guide on the attributes emphasizing of an SES framework to ensure researchers from diverse disciplinary backgrounds have access to diagnostic tools and a general structure that can be widely applicable to various policy contexts (McGinnis and Ostrom 2014). In developing this generalizable list of SES interactions and vocabulary, they facilitate the communication of results across research communities and ease the spread of information.[11] To simplify their SES framework, there are four dynamic components – resource systems, resource units, governance systems, and actors – that interact. Each of these components includes additional variables that further define their scope. These components and their interactions set conditions for the focal action situation, where interactions lead to outcomes. These are set within social, economic, political sets and related ecosystems considerations that can also influence any component of the SES and resulting outcomes. The outcomes can influence SES components as well.[12]

[11] Though the SES framework was first developed for common-pool resource extraction and management, this updated SES framework is meant to be broader in scope (*See* McGinnis and Ostrom 2014, 11–12).
[12] *See* McGinnis and Ostrom 2014, Figure 3, Table 1

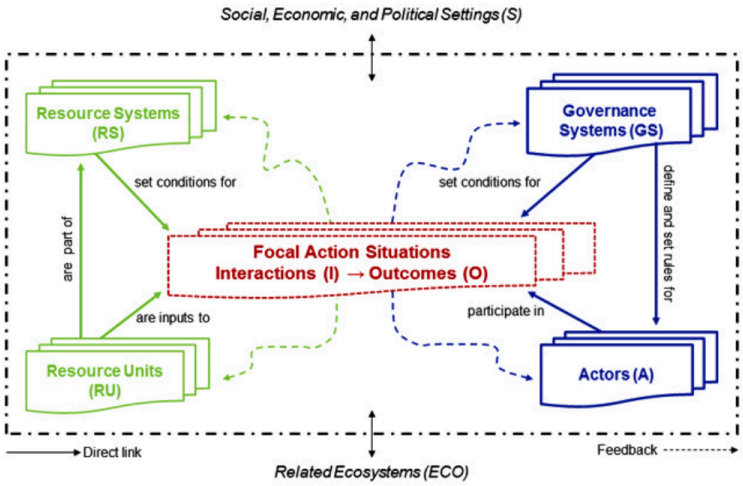


Figure 2. McGinnis and Ostrom's SES framework (2014, 5)

Applied to the 2020 LARMP, McGinnis and Ostrom's SES framework can be conceptualized as follows:

1. Resource systems: refers to the Los Angeles River and its watershed, including the riparian corridor, floodplains, and ecological habitats
2. Resource units: refers to water resources, plant and animal life, recreational spaces, biodiversity, and flood mitigation
3. Governance systems: refers to the multiple decision-making groups involved in the development of the LARMP that collectively make decisions about land use, flood control, water quality, and habitat restoration, such as the County of Los Angeles, City of Los Angeles, and U.S. Army Corps of Engineers. This component also refers to the expansion of decision-making power through community engagement and multi-stakeholder collaboration.
4. Actors: refers to a diverse array of stakeholders including residents, environmental and justice based organizations, advocacy groups, and developers.
5. Social, economic, and political settings: characterized by the Los Angeles River's location within Los Angeles County
6. Related ecosystems: refers to exogenous environmental considerations that influence river management, such as climate change impacts, ecosystem effects, and water availability
7. Interactions and outcomes: refers to the interactions of the SES components in The LARMP's planning and development and their influence on intended outcomes of implementation.

As if the setting of the LA River, with its web of built and natural environments and a population of multiple millions of people, did not pose enough challenge, the application of the SES framework uncovers an even more complex setting for the project. An area's environmental

resources establish the scope of resource systems and resource units. Resource system refers to the general environmental sector of the SES, which sets the conditions for the scope of the situation. For clarity, I will refer to 'situation' as the LARMP's planning and development. For the LA River SES, the LA River and its watershed make up the resource system. The components within the resource system, such as water resources and plant and animal life, define the resource units. While resource units feed into the resource system, they can also be unique inputs to the LARMP's planning and development as well. Changes in environmental conditions and resource availability can influence the conditions for The LARMP's planning and development. Along the LA River's 51 mile length, there are 2,300 acres of publicly owned land that planners must consider (LA River Master Plan 2022, 20). With such a large natural area with the potential for environmental changes, the LARMP's planning and development must be able to reckon with and include mechanisms for adaptation within its environmental management efforts.

The management of resource systems and units are dependent upon governance systems. Decision-making entities that make up the governance systems in the LA River SES, such as the County and City of Los Angeles, USACE, and other city, state, and federal agencies, set the conditions for The LARMP's planning and development. Historically, these governing agencies are the most powerful decision-makers in LA River plan development, often holding sole, or significant, decision-making power. This governance system then defines and sets the rules for actors, who participate in The LARMP's planning and development. While this general component covers a wide range of actors, variations in power dynamics within this group influence the level of participation. A wealthy developing agency may have greater participation (and thus, influence) than an advocacy group, which may have more power than a single

resident, within The LARMP's planning and development. With the implementation of a social-ecological framework, however, the level of influence for these components has the potential to expand and include additional stakeholders with significant decision-making power and participatory influence.

SES systems are not static, but rather full of exogenous and endogenous influences and feedback loops that can fundamentally change the components of an SES, and thus the situation as well (McGinnis and Ostrom 2014, 5–6). The social, economic, and political settings of Los Angeles influence the way that the LARMP's planning and development may take place. For example, funding mechanisms may limit or expand the realm of possibility for what could be reasonably accomplished, while certain priorities, such as housing need, may redirect efforts towards development over environmental concern.

Other influences outside of Los Angeles, such as climate change, may further change priorities as well. Furthermore, interactions and outcomes that result during the LARMP's planning and development can change the function of SES components. For example, introducing a social-ecological framework that centers frontline communities through expanded participatory measures may influence how the LARMP's planning and development takes place. That development may, in turn, limit the power of historical governance systems and instead expand the autonomy of various communities. In the environmental components, the LARMP's planning and development can establish varying levels of environmental resource importance and thus influence resource systems and units. As a dramatic example, a limited environmental scope within the LARMP's planning and development could result in the rejection of all other environmental conditions and determine that flood control is the only influence on environmental health. This new LARMP priority changes the resource systems and units towards the floodplain

and flood mitigation. As a result, perhaps the LARMP would only focus on diverting water as quickly as possible out of Los Angeles, increasing the height of LA River retaining walls, and making the entirety of the river inaccessible.

The LARMP SES

To ensure that the LARMP was developed with a social-ecological approach, LARMP planners conducted a systemic analysis of natural and social elements across the entire watershed (LA River Master Plan 2022, 85). Though a portion of this analysis covered technical data that are beyond the scope of this study, much of it also highlighted disparities in the SES. LARMP planners evaluated existing ecological, hydrological, physical, and social conditions to identify the context within which it would be developed and implemented. Through their analysis, they found that given the many intersecting outcomes, existing conditions could not be evaluated solely in isolation because they varied so dramatically across social contexts.

Where some areas benefitted from desirable outcomes, others experienced unique vulnerabilities (LA River Master Plan 2022, 66). These disparities often aligned with social resilience and community capacity. With these findings, the LARMP decision-makers note that "[i]mplementation of this plan must be context-sensitive and respectful of local conditions" (LA River Master Plan 2022, 112). The different conditions, variables, and disparities reaffirm the need for a social-ecological framework for the LARMP's planning and development that addresses the uneven distribution of environmental harms and benefits while creating resilient outcomes for the different communities living along the river.

Environmental disparities in resource systems and resource units, such as varied levels of flood risk, water quality, water supply, and ecosystem and habitat health, threaten the infrastructure located within the floodplain, public safety, and human and ecological health (LA River Master Plan 2022, 88–102). Some communities suffer under the burdens of poor

environmental conditions, while others benefit from healthier, more resilient ecosystems. The uneven distribution of environmental conditions extends to green space access as well. Open space, recreational opportunities, and trails are critical to public health and social equity. However, given that 48 of the 51 miles of the river are located within heavily urbanized areas, green spaces along the corridor lack both connectivity and accessibility (LA River Master Plan 2022, 106–7). As a result, a majority of the communities located within the corridor cannot access green spaces. Even in areas where green spaces like parks or trails are nearby, communities may face additional barriers related to safety, security, and access (LA River Master Plan 2022, 110–11). For example, limited bikeways, unsafe trails, or lack of access points also restrict green space access. These environmental conditions and disparities directly influence the existing sustainability and resiliency of the LA River SES.

Environmental improvements must be balanced with the complex regulations and procedures of flood management, existing operations, and maintenance (LA River Master Plan 2022, 122–23). However, the intricate management framework across multiple governance systems complicates the operations and management of the LA River. The Los Angeles County Flood Control District (LACFCD) and the United States Army Corps of Engineers (USACE) each maintain approximately half of the LA River (LA River Master Plan 2022, 52). While the two agencies maintain the LA River, ownership of adjacent land varies across agencies, municipalities, and private owners.

The LA River is federally recognized as one of the "Waters of the United States" and is protected through the State Water Resources Control Board and the LA Regional Water Quality Control Board (Region 4) (LA River Master Plan 2022, 52). The Santa Monica Mountains Conservancy and the San Gabriel and Lower LA Rivers and Mountains Conservancy, which are

State of California conservancies, maintain leadership roles in LA River management as well (LA River Master Plan 2022, 52). Land-use policies for the LA River are administered by 17 municipalities within the LA River corridor and 45 municipalities within the LA River watershed (LA River Master Plan 2022, 52).

California water law covers water rights within the LA River, including both surface and groundwater use. Pueblo water rights, which recognize the water rights granted to the original Pueblos by the Spanish and Mexican governments, surpass other water rights in a specific area of the LA River watershed (LA River Master Plan 2022, 52). The California State Water Resources Control Board grants appropriative water rights in special cases (LA River Master Plan 2022, 53). Riparian water rights establish water use rights for landowners, while adjudicated groundwater rights control the amount of groundwater extraction from groundwater basins in privately held land (LA River Master Plan 2022, 53). This network of governing bodies, laws, rules, and sanctions, shapes a complex and often fragmented system of governance in the LA River Watershed with a myriad of competing interests, historical claims, and other demands. This has resulted in the underutilization of the LA River and river corridor with fragmented ecosystems, vacant spaces, and unrealized opportunities (LA River Master Plan 2022, 118–19). Because the governance system for the LA River is so strained, environmental management efforts are fraught with complicated governing mechanisms and overlapping boundaries.

Though this governance system regulates so many factors within the SES, and thus the LARMP's planning and development, there is a great deal of public stewardship and involvement from actors. Groups and organizations, along with their large membership, engage in river based work and management to provide resources for communities and improve environmental conditions along the river (LA River Master Plan 2022, 32). From arts and culture

to community and education to environmental improvements, they play a key role in on-the-ground empowerment and capacity building (LA River Master Plan 2022, 413–17). An array of other stakeholders, both public and private actors, are also involved in the landscape of the LA River in varying capacities such as housing and economic developments.

Residents also play a significant role within the LA River SES and vice versa. The river serves as a backdrop for many pursuits, be it creative, cultural, economic humanitarian, etc. It has been a movie set, concert hall, and artistic canvas. Families picnic, food vendors sell eloté and ice cream, and small businesses thrive. People from various backgrounds seek out the moving waters for cultural ceremonies and celebrations. Community groups and organizations have meetings on its banks. It is truly a space for community, art, and culture (LA River Master Plan 2022, 108–9). The many social assets of the LA River reflect the diverse communities of Los Angeles.

Still, there are social disparities within the river corridor as well. The socioeconomic characteristics of communities along the river corridor vary in race and ethnicity, income, health, and education, making them particularly vulnerable (LA River Master Plan 2022, 112). On average, these communities have larger households, lower household incomes, and greater rent burden (LA River Master Plan 2022, 112–14). These overlapping vulnerabilities make them particularly susceptible to displacement and homelessness. Though the LA River holds a deep significance for many of these communities, they remain at constant risk. Without intentional protections, these communities that are connected to the river may be pushed out.

SES analysis demonstrates the evolving nature of the LA River, confirming the need for a dynamic LARMP that can adapt with malleable SES components. Three LARMP themes – water, people, and environment – recognize that “infrastructure planning cannot be isolated from

social and environmental needs" (LA River Master Plan 2022, 20). To do so, LARMP planners implemented a watershed and community approach, or a social-ecological framework, to research, analyze, and develop a plan for the LA River's 51 miles. Because river management strategies should, "reflect the needs and opportunities of specific reaches and provide multiple benefits," successful development of the LARMP requires, "an understanding of, and coordination with, communities, the watershed, and parallel [plans and agencies]" (LA River Master Plan 2022, 19). Thus, the ultimate success of the LARMP is dependent on the efficacy in integrating a social-ecological framework during its development.

Chapter 4. Research Design

While an SES has multiple components and moving parts, it is imperative to evaluate how resource and governance systems set conditions within the project area. Governance systems set the conditions for actors, who participate in (and can inform) outcomes. Resource systems also set the conditions and boundaries that define the scope of a project area. At the same time, the setting of the project area itself and its feedback loops can substantially alter the SES. These variables are relevant components in understanding the SES – and by extension, how a successful social-ecological framework may be implemented. While the relationship between governance systems and actors seems to be one of dominion based on McGinnis and Ostrom's SES framework (Figure 1), the scholars note the moveable and circular relationship of SES components. Additionally, the social, economic, political, and environmental settings change the landscape of an SES. As discussed in the previous chapter, this results in a multidimensional SES. In Los Angeles, this creates a complicated array of urban, ecological, economic, and social needs that decision-makers must navigate in the pursuit of successful outcomes.

There is no perfect mechanism for understanding an SES and implementing a framework for sustainable, best-fit outcomes. Changing settings, components, and imperfect systems ensure this. As discussed in Chapters 2 and 3, scholars have developed potential solutions to center equity within SES. Improving collectivism and collaboration expands the scope of actors involved in decision-making, which then promotes greater and more effective environmental management efforts. Tools like multi-level stakeholder engagement and collaboration, the co-development of knowledge, adaptive governance, social and ecological monitoring, and capacity building all guide social and environmental resilience efforts towards more effective environmental management. A seemingly practical mechanism to center equity within SES is

through the social-ecological framework. Emphasizing the centrality of social dimensions in the SES and their effect on environmental management, the social-ecological framework requires social consideration, participation, engagement, and outreach among actors within systems.

Evaluating the effectiveness of social-ecological framework integration relies on a robust understanding of the methods, scope, level of involvement, and results of actor engagement within a project area. The adoption of social-ecological frameworks, from development to implementation to evaluation, remains under researched (Guerrero and Wilson 2016; Partelow 2018; Virapongse et al. 2016). Similarly, while resilience literature acknowledges the benefits of these initiatives, many studies also identify persistent knowledge and practice gaps related to best practices, implementation, and outcomes (Angheloiu and Tennant 2024; Duggan, Cvitanovic, and van Putten 2023; Hurlimann, Beilin, and March 2022; Mikulewicz 2019; Moran 2007). This study analyzes these gaps by evaluating the effectiveness of applying the social-ecological framework within urban resilience practice.

With its urban setting, diverse communities, and numerous stakeholders, the 2020 LARMP's complex SES landscape becomes a crucial case for assessing the social-ecological framework in-action. Past iterations of LA River-based plans were unsuccessfully implemented, leading to social and economic issues, like gentrification. This raised questions regarding their lack of community and justice considerations. The 2020 LARMP is a direct response to these critiques. It represents a shift in environmental management practices towards equity-based values. Future urban resilience projects may look to the LARMP for inspiration, where their willingness make the same shift depends on the perception of LARMP success or failure. In a convoluted environmental management landscape, where the best practices for urban resilience are unclear, this study can close many of the existing knowledge and practice gaps.

Framework

This research is grounded in an EJ-based SES framework that conceptualizes human and environmental systems as interdependent and co-evolving. In doing so, this research reflects an understanding that sustainable and equitable urban resilience depends on both the ecological health of environments and the well-being of the of the communities that inhabit them. Rooted in resilience theory and ecological systems thinking, this approach emphasizes the dynamics of the human-nature relationship and institutional decision-making (Folke 2006; McGinnis and Ostrom 2014). Within the SES framework, environmental management is understood as a social process shaped by governance structures, community values, and power relations (Folke 2006; Krievins, Plummer, and Baird 2018; Löfqvist et al. 2023; McGinnis and Ostrom 2014). By applying this social-ecological lens, this research considers how the LARMP attempts to balance environmental resilience with community resilience, and how that balance is implemented and perceived by communities.

Central to this approach is the recognition that urban resilience planning and development occurs within a complex system of governance with competing priorities, institutional structures, and uneven resources that limit adaptivity (Fleischman et al. 2020; Gallopín 2006; Krievins, Plummer, and Baird 2018). Using the SES framework provides a way to interrogate these dynamics by examining how resilience is defined, the values it reflects, and which communities benefit or are burdened through implementation. This approach aids in identifying whether the planning and development processes reinforce existing hierarchies and power-dynamics, or foster more inclusive, adaptive, and resilient forms of environmental governance.

The SES foundation of this research also informs its multi-method design. Because social-ecological systems are characterized by the dynamic interactions across and within politics, economics, society, and the environment (Osborne et al. 2021), this research integrates

both quantitative and qualitative methods to capture the complexity of resilience planning. The multi-method design combines an analysis of publicly available community engagement data with an original survey of residents, community stakeholders, and practitioners. Together, these data sources link empirical patterns with lived experiences to understand the LARMP's social-ecological framework implications. Given the multifaceted nature of SES, no single research method would provide the appropriate breadth and depth. Quantitative data shows larger patterns and structural disparities, while qualitative insights contextualize these patterns and disparities within community perceptions and realities. Integrating both strengthens the understanding of why these outcomes exist, who they affect, and how they matter in the larger environmental management context.

Data sources and analysis

Data pertaining to the LARMP is limited. Most data is collected through private firms that then inform their findings to decision-makers in the County of Los Angeles and other entities. There are three data sources for this research. The first two data sources come from the LARMP Community Engagement Data and the LARMP Public Draft Comment Log. These sources are both publicly available on the LA River Master Plan website (larivermasterplan.org). The third data source comes from responses to an original survey designed and administered to capture community perspectives on the LARMP.

LARMP Community Engagement Meetings

In applying the social-ecological framework, planning and development for the LARMP first underwent a public engagement community strategy. It was meant to "ensure that resident concerns and aspirations across geographic, language, and accessibility spectra were recognized and reflected in the plan" (LA River Master Plan 2022, 125). The process, which took place between early 2018 and 2020, consisted of multiple steering committee meetings, community

meetings, and other forms of outreach and public engagement events. These efforts were designed to include a wide range of stakeholders in the LARMP's planning and development process, from local residents and community-based organizations to city agencies and environmental advocates.

The LARMP Community Engagement Data document compiles information on when and where community engagement meetings took place, how many participants attended, their ZIP codes, and meeting content. In the final LARMP these meetings are deemed essential in shaping the development of the LARMP. As investigative meetings, they could identify community concerns and establish best practices for both the LARMP and communities (LA River Master Plan 2022, 32–33). Analysis of this data includes an investigation into the process and outcome of the meetings: how they were organized, when and where they occurred, and who attended.

Meeting participants self-reported ZIP Code information, though not all participants registered. Of the LARMP Community Engagement meetings, 962 participants registered and provided ZIP code information. Seventeen participants with ZIP codes outside of Los Angeles County were omitted, resulting in 945 data points. Data was compiled and aggregated into ArcGIS Online for geospatial analysis. Accompanying population data was captured from the U.S. Census Bureau's 2020 Census. CalEnviroScreen 3.0 (CES) data is also used. CES is a screening tool developed by the California Environmental Protection Agency and the California Office of Environmental Health Hazard Assessment to identify communities disproportionately impacted by pollution and socioeconomic stressors (CalEnviroScreen 3.0 2017).

LARMP Public Draft Comment Log

Following Community Engagement Meetings and other development processes, decision-makers and planners collaborated with the County of Los Angeles and other

stakeholders to draft the LARMP. The LARMP Public Draft was posted online in both English and Spanish on January 14th, 2021, and was open for public comment until May 13th, 2021. Multiple outreach methods were used to raise awareness for the LARMP draft, including virtual and in-person meetings (LA River Master Plan: Public Draft Comment Log 2021, 2). During the approximate 120 days of comment period, 1,161 total comments were received. These comments were made publicly available in the LARMP Public Draft Comment Log.

There were 154 comments included in the LARMP Public Draft Comment Log document that pertained to the LARMP appendices. Appendix Volume I: Design Guidelines is a document created for designers and engineers to use for LARMP implementation (LA River Master Plan Appendix Volume I: Design Guidelines 2022). Appendix Volume II: Technical Backup Document includes the technical aspects of the LA River, such as hydrological summaries, flood risk areas, and site indexes (LA River Master Plan Appendix Volume II: Technical Backup Document 2022). Given the focus of this study on the main LARMP document, these comments were omitted. It should be noted that even if the appendices were included in this research, a majority of these comments would have been omitted because of their largely technical and stylistic concerns. For example, comments about types of fencing, the color of the water shown in design blueprints, or spelling errors, do not contain notable data for the scope of this research.

When appendices comments were omitted, 1,007 main volume comments remained. Of these comments, 934 comments were written in English, and 73 comments were written in Spanish. For this analysis, comments in Spanish were translated to English. Comments focused on verbiage, spelling, clarity on certain graphs, images, and charts, as well as comments that did not pertain to the LARMP, were omitted from this analysis, which accounted for 284 comments.

The remaining 723 comments were compiled. Preliminary text analysis of these comments identified common words and phrases used by respondents. An initial categorization list of most common themes and topics was developed based on this subjective text analysis. Collaboration with a local nonprofit organization, Los Angeles Waterkeeper, informed the finalization of themes and topics used for this analysis. The organization has practiced in community-based advocacy field for over 30 years. With a vested interest in understanding and improving the LARMP for Angelenos and for the future of water systems in the city, Los Angeles Waterkeeper was a knowledgeable collaborator.

Table 2. Theme categories with explanations of associated topics used for comment categorization and text analysis

Themes	**Topics and Explanations**
LARMP [1]	LARMP accessibility ● Includes: ○ LARMP planning process accessibility, such as knowledge/access to meetings ○ LARMP document accessibility, such as difficulties downloading document, lack of hard copies available, lack of translations in languages other than English and Spanish, lack of computer/internet access Park space concerns (platform and covered parks) Evaluation of restoration plans ● Includes: ○ Evaluation of previous LA River plans and other successful river and/or restoration plans Collaborate with river experts ● Includes: ○ Academic institutions/researchers, governmental agencies, NGO's and practitioners, scientists, and local river experts. Coordinate policies, plans, and funding ● Includes: ○ Need for specific LA River teams with jurisdictional power to ensure plans are implemented and carried out ○ Plan maintenance over time ○ Developing more in-depth plans and guidelines for specific areas
Community	Increase community outreach

engagement [2]	● Includes: ○ Multilingual outreach ○ Consulting with local communities ○ Implementation of community concerns in LARMP ○ Incorporation of community engagement and outreach in LARMP ○ Public participation Engage with BIPOC communities Consult and collaborate with Indigenous communities ● Includes: ○ Implementing traditional ecological practices of Indigenous communities Support for homeless communities ● Includes: ○ Outreach within these communities Prioritize current residents
Social [3]	Expand Arts and Culture considerations Affordable housing Displacement and Gentrification Pedestrian access ● Includes: ○ Bike pathways, walking paths, access to parks and public spaces Equity ● Includes: ○ Discussing and alleviating disproportionately harmful effects on underserved communities ○ Economic equity ○ Building resiliency ○ Accessibility ○ Community health Parks and green space access ● Includes: ○ Expansion of walkable and accessible parks and accessible green spaces within corridor communities Environmental justice Public safety Recreation
Watershed [4]	Concrete management (removal and reduction) Flood prevention Water capture ● Includes: ○ Flow attenuation ○ Stormwater flow reduction using rain gardens, water retention

	methods, infiltration basins, urban acupuncture, etc. Watershed management ● Includes: ○ Water conservation, water quality and water supply ○ Nature and Watershed-based solutions for water and riparian management ○ Includes hydrology
Environment [5]	Ecosystem and habitat management ● Includes: ○ Habitat connectivity ○ Prioritizing Native habitats, ecological health, rewilding, and 'greening'/naturalizing the river ○ Prioritizing endangered species, wildlife and general flora and fauna. Climate change ● Includes: ○ Urban canopy, mitigating urban warming, etc. Natural history Rights of Nature Sustainability

Public comment themes include those that referred to the specifics of the LARMP, community engagement, social issues, watershed management, and the environment. Each of these themes has been expanded to include specific topics that comments referenced. A majority of comments discuss more than one issues, so they are categorized into multiple topics. The total number of topic occurrences is 1,786. No single comment has been categorized into the same topic more than once. Text analysis was performed using R Studio.

Survey design and data

Survey questions were developed based on informal research gathered during participant observation and volunteer activities since 2015.[13] Surveys were uniform throughout all respondents, consisting of eight demographic questions, seven community-based questions, six LARMP-focused questions, and five questions focused on recommendations, for a total of 26

[13] See Appendix A for survey questions

survey questions. Some questions had opportunities for open-ended responses if respondents chose to provide more in-depth information. Respondents were not required to answer every question. Surveys took approximately 10-25 minutes to complete and were available online through Qualtrics from March 1st, 2024, until June 15th, 2025.

Surveys were made available in multiple languages including Spanish, Vietnamese, Korean, Mandarin, Cantonese, and Russian. These languages were chosen based on the 2023 "Language Access Plan", the Los Angeles County Development Authority (LACDA). The LACDA explains that many languages are spoken among the diverse population of Los Angeles, where a significant portion of that population do not speak English or have limited English proficiency (LEP) (Los Angeles County Development Authority 2023, 3). To determine appropriate language translations, the LACDA collects language accommodation requests from individuals with LEP to find populations with the greatest need for translation services. In their 2023 report, LACDA found that most language requests were for translations from English to Spanish,[14] Vietnamese,[15] Russian,[16] Chinese (Mandarin),[17] and Cantonese.[18] However, this report was only based on the frequency of translation requests from LEP individuals who came in contact with LACDA programs. To understand language needs in Los Angeles County on a larger scale, additional data was included.

In "L.A. Speaks: Language Diversity and English Proficiency", a 2008 report gauging language use in Los Angeles County, the Los Angeles County Service Planning Area found a number of racial subgroups with limited English proficiency. It was found that over 2.5 million

[14] 9.27% of total translation requests (Los Angeles County Development Authority 2023, 5)
[15] 2.02% of total translation requests (Los Angeles County Development Authority 2023, 5)
[16] 1.67% of total translation requests (Los Angeles County Development Authority 2023, 5)
[17] 1.26% of total translation requests (Los Angeles County Development Authority 2023, 5)
[18] .89% of total translation requests (Los Angeles County Development Authority 2023, 5)

L.A. County residents are LEP, with Latino and Asian American communities having the lowest rates of English proficiency. Using findings from L.A. Speaks, the survey was translated to the languages with greater than 50% limited English proficiency and more than 50,000 individual speakers. This is to ensure that the racial subgroups with majority LEP populations and significant populations overall could be captured within the survey. Racial subgroups with majority LEP populations include Guatemalan,[19] Vietnamese,[20] Salvadoran,[21] Korean,[22] and Chinese.[23] Based on this data, the survey should also offer translations in Spanish, Vietnamese, Korean, and Chinese (Mandarin).

However, L.A. Speaks data does not include most recent Census estimates and most notably, excludes the need for translations from English to Russian as noted in the LACDA report. The Los Angeles Almanac uses data from the 2022 Census estimates to determine languages spoken in Los Angeles County other than English. The Los Angeles Almanac reports that there are 51,681 total Russian speakers in Los Angeles County and 25,658 LEP individuals, meaning that 49.65% of Russian speakers are LEP individuals. Because of this, the survey was also translated into Russian. Neither the L.A. Speaks report nor the L.A. Almanac report distinguish language need between Mandarin and Cantonese, rather putting them both under the Chinese language category. However, the LACDA report did distinguish the two languages, identifying a separate need for both Mandarin and Cantonese. Both Mandarin and Cantonese are included in the survey translation.

[19] 68,208 individuals with 65% majority LEP (Los Angeles County Service Planning Area 2008, 6)
[20] 52,652 individuals with 63% majority LEP (Los Angeles County Service Planning Area 2008, 6)
[21] 114,795 individuals with 61% majority LEP (Los Angeles County Service Planning Area 2008, 6)
[22] 108,049 individuals with 59% majority LEP (Los Angeles County Service Planning Area 2008, 6)
[23] 187,218 individuals with 54% majority LEP (Los Angeles County Service Planning Area 2008, 6)

Both the survey and informed consent forms were translated from English to Spanish, Vietnamese, Korean, Mandarin, Cantonese, and Russian, based on translation need and LEP populations in Los Angeles County. Survey translators were volunteers found among colleagues and online outreach with native and/or professional proficiency in the languages needed. The survey was made available to all individuals above the age of 18 and residing within the greater Los Angeles area. Anyone younger than 18 was not able to continue the survey.

The surveys were distributed to target residents living in proximity to the LA River corridor. Participants were recruited through both purposive and snowball sampling, as well as leveraging existing community networks and professional partnerships. The survey included both closed and open-ended questions to capture both quantitative and qualitative data. Closed-ended questions focused on perceptions of inclusion, participation, and knowledge of the LARMP. Open-ended questions asked participants to elaborate on experiences, concerns, and visions for the future of the river. The responses provide critical insights into how the LARMP's social-ecological principles are experienced by those directly affected by urban resilience planning and development. It complements and extends the other two datasets by looking to community perceptions post-LARMP finalization and implementation.

Respondents were recruited through purposive and snowball sampling, as well as leveraging existing community networks and professional partnerships. These include listservs, on-the-ground outreach, and social media posts. NGOs in the Los Angeles area, Friends of the Los Angeles River and L.A. Waterkeeper, shared survey links to their outreach listservs and social media. These two NGOs focus on community building and resilience, outreach, and river restoration. Through this, surveys were distributed to 20,000+ individuals. Other community groups throughout Los Angeles, including those based on demographic identity and location,

were also contacted for outreach opportunities. On-the-ground outreach consisted of in-person conversations with Los Angeles residents and flyers to share information at various community and volunteer events throughout the county. 87 flyers with a QR code linking to the survey were also posted along the Los Angeles River corridor, along river paths and within community centers. Additional online outreach was also conducted through social media posts on Los Angeles based forums, reaching an audience of approximately 500,000 individuals. Altogether, the survey received 522 usable responses from individuals.



Figure 3. Image of flyer used for on-the-ground outreach



Figure 4. Survey poster at a Los Angeles Waterkeeper Earth Day river clean-up event, April 20th, 2024



Figure 5. Survey flyer posted at the LA River path in Elysian Valley, March 15th, 2024



Figure 6. Survey flyer posted at the Buena Vista Branch Library in Burbank, October 2nd, 2024

Every available effort was made to include as many people as possible in survey outreach, but there were a number of limitations. Though the survey was translated into languages of most need in Los Angeles, this still excluded portions of the population that did not meet the established population or LEP boundaries set for this research study. Outreach efforts were further limited due to inability to access certain groups and communities due to lack of language skills. Though various organizations were contacted for outreach, the lack of face-to-face outreach became problematic. Many communities within the Los Angeles River corridor face survey fatigue and have grown weary of any research being done within their communities. This is significant, given that underrepresentation has historically been an issue for LA River focused plans. Finally, due to lack of resources, alternative survey mediums were not available for those without access to a device with internet capabilities. Survey responses skewed demographically as a result of these limitations. A majority of respondents were between the ages of 18 to 44, of a white ethnic origin, and obtained a Bachelor's degree or higher.[24]

[24] See Appendix B for survey demographic data

Conducting research within complex SES requires attention to ethical principles, particularly when the study engages directly with communities and stakeholders affected by environmental management. This research adhered to ethical standards in data collection, analysis, and reporting. The survey was developed with attention to linguistic accessibility and was approved by the University of Oregon's Institutional Review Board, which ensures that participant recruitment, informed consent, and data management meet ethical standards. Survey participation was completely voluntary, and participants were given clear information regarding the purpose of the study. Participants were also informed they could withdraw at any time. No identifying information was collected beyond demographics. All data was anonymized and coded thematically to protect participant confidentiality.

Reflexivity was maintained throughout the research process to mitigate the effects of biases and potential preconceptions of data. This included considering the effect of prior volunteer and professional work in the field, as well as personal experiences, that could influence survey design, engagement, and data interpretations. Survey questions were also reviewed by third parties to ensure impartiality. Findings have been presented to reflect unaltered participant perspectives. Given the application of this research to community engagement methodologies, planning processes, and future policy development, these safeguards ensure that study results have practical applications for urban resilience for urban environmental management.

While Community Engagement Meeting data offers insight into the scope of general community engagement, analysis of the LARMP Public Draft comments reveals the outcomes of that engagement. With the inclusion of survey responses, these datasets provide a holistic overview of the LARMP – from the beginning stages of agenda setting and formulation to the later stages of implementation. Combining the three allows for a clearer understanding of the

depth, inclusivity, and effectiveness of the social-ecological framework, and its ability to understand, adapt, and meaningfully engage within the SES. Critically, these datasets can be used to identify persistent knowledge and application gaps in the social-ecological framework to develop methods of improvement.

Chapter 5. The Early Stages: Inclusion and Understanding

Inclusion and understanding within the social-ecological framework requires inclusion through flexible capacity building and participation mechanisms according to community needs. LARMP decision-makers should work towards understanding communities along the LA River and lowering the barriers of participation. Through the inclusion and understanding of the communities they work within, decision-makers can develop networks of collaboration with shared knowledge systems. Ideally, this would lead to projects that are more effectively developed and co-designed with communities, and thus more effectively integrated with local knowledge systems that are better for SES. In contrast to historical decision-making that is guided by economic or political prerogatives, this category of the social-ecological framework adds an important element of consideration for environmental management.

LA River corridor characteristics

The Los Angeles River corridor – the one mile stretch of land located on either side of the Los Angeles River – is home to over 1 million Angelenos. When expanded to include all ZIP codes that intersect the corridor, more than 2 million residents live in the LA River's proximity.

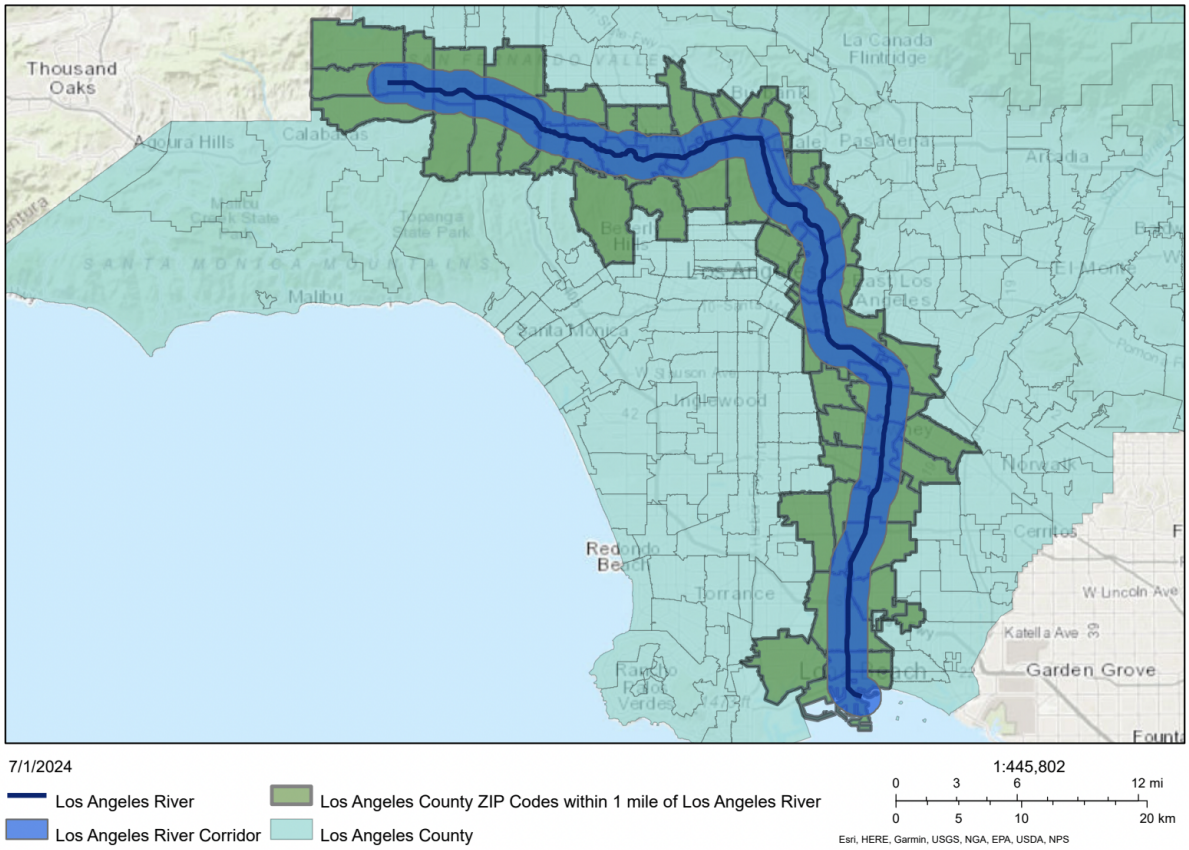


Figure 7. The Los Angeles River corridor

Figure 7 above divides most of Los Angeles County by ZIP Code. The LA River is marked, and the corridor area is highlighted. ZIP Codes that touch the corridor area are noted. To better understand the SES of Los Angeles, Figure 8 below applies CES Data on this map.[25] The CES Environmental Justice Index (EJI) combines measures of pollution burden, including air quality, hazardous waste, and drinking water contaminants, with population characteristics, including poverty, linguistic isolation, and health. The resulting index ranks census tracts by percentile, with higher percentiles indicating greater cumulative environmental and social vulnerability.

[25] Due to actions taken during the Trump Administration, data from CES 4.0, which is the most recent iteration of the screening tool, is unavailable in ArcGIS Online. While partial CES 4.0 data exists, complete data is only available for CES 3.0 within the site. This analysis therefore relies on CES 3.0 data.

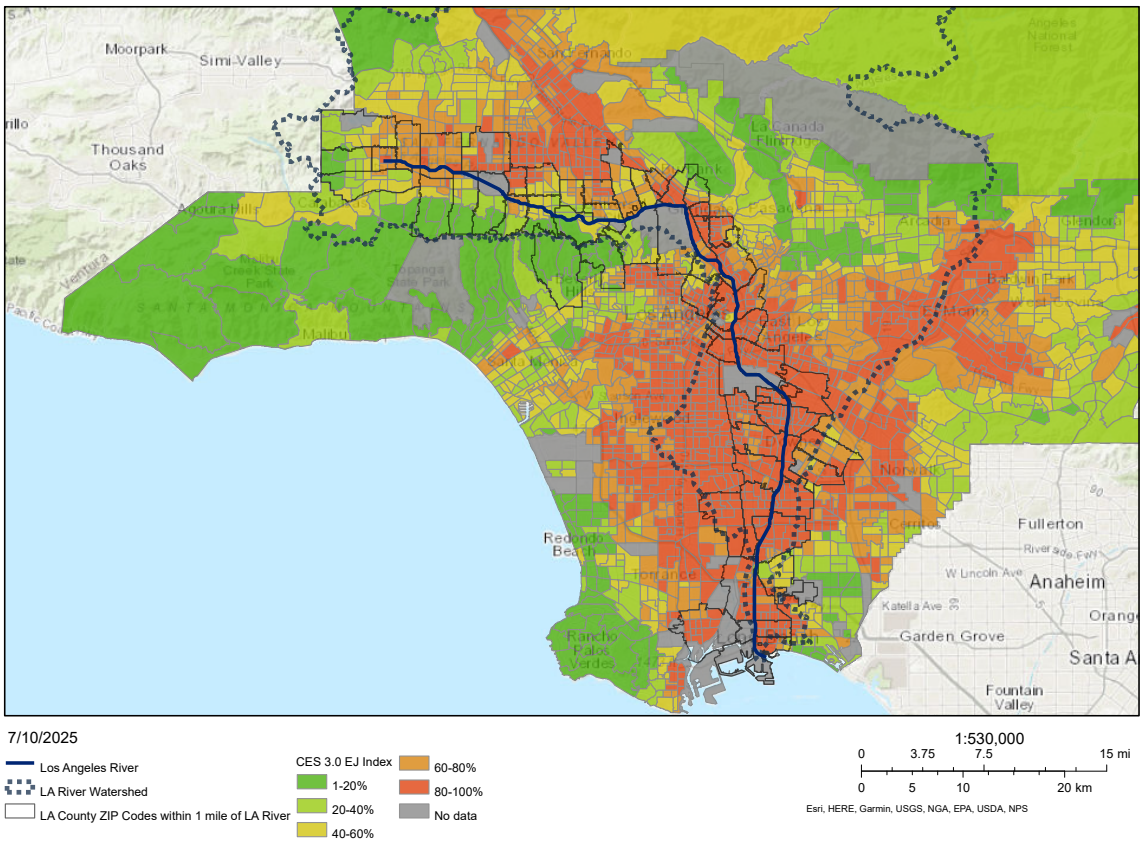


Figure 8. Los Angeles County Census tracts overlaid with CES EJI percentiles

Darker areas indicate higher EJI percentiles, meaning communities in these locations face a greater cumulative environmental burden alongside heightened social and health vulnerabilities. There are clear geographic disparities, with many of the most burdened communities concentrated in historically underserved neighborhoods. A majority of the communities with the highest EJI percentiles be found within the LA River Watershed, and many of them fall within 1 mile of the LA River.

Participation and capacity-building efforts

Thirteen LARMP Community Engagement Meetings were held between July 2018 and October 2019.[26] According to the LARMP, meetings were split into three phases. Phase 1 focused on presenting current conditions on the river and gathering feedback on concerns. The

[26] *See* Figure 104 on pages 126 and 127 in the LA River Master Plan for engagement process timeline.

meetings took place between July 2018 and December 2018 in Canoga Park, Cudahy, Long Beach, Friendship Auditorium (Los Angeles), and Studio City/North Hollywood. Phase 2 meetings focused on following up on key issues and setting a standard for prioritizing goals and location-specific input. They took place between February 2019 and June 2019 in West Valley, South Gate, Compton, Pacoima, and Glendale. Three Phase 3 meetings in October 2019 focused on presenting cumulative information from the first two phases and explained how they informed draft LARMP components (LA River Master Plan 2022, 128). These meetings were held in Canoga Park, North Long Beach, and Central Los Angeles. Organizers at these meetings included Los Angeles County staff, consultant team members, and representatives from local elected offices. Materials were presented in both English and Spanish. Of the outreach and public engagement, 1,306 individual participants attended one of the 13 in-person community meetings (LA River Master Plan 2022, 129).

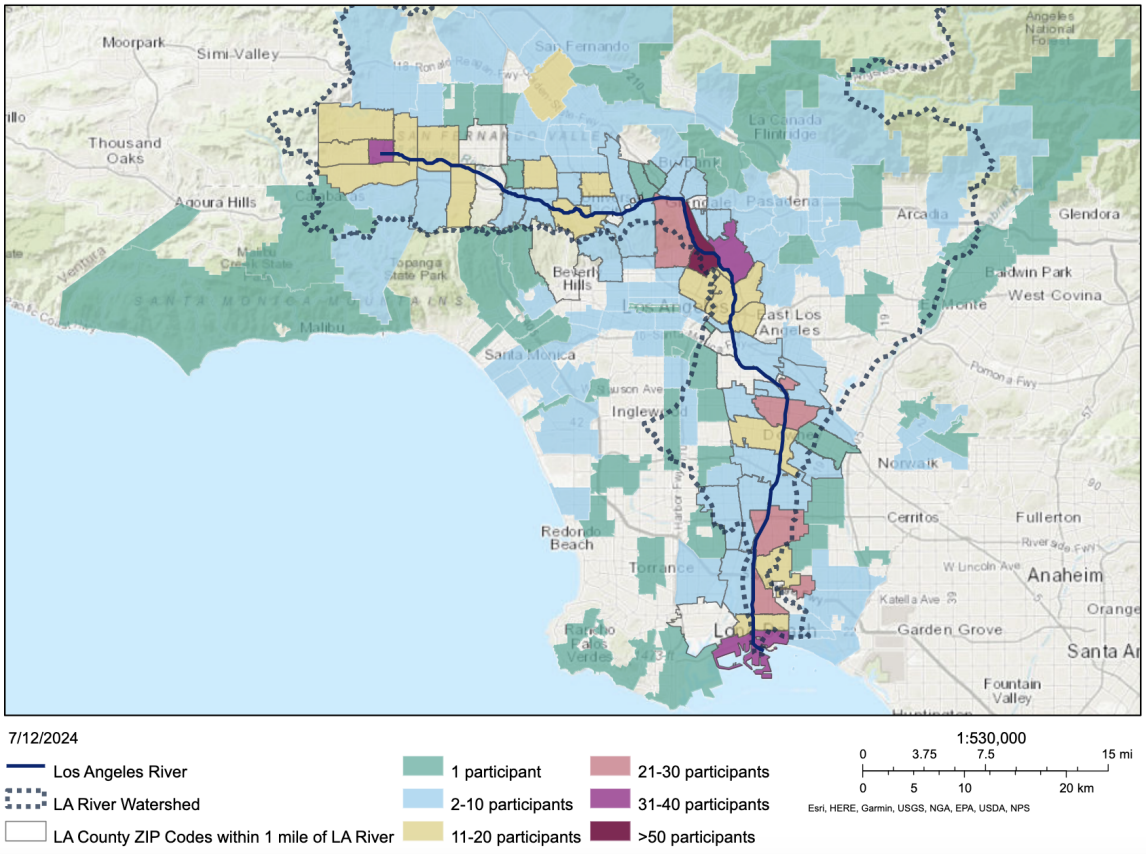


Figure 9. LARMP Community Engagement Meeting Participation by ZIP Code

ZIP codes with recorded LARMP Community Engagement meeting participation are noted in the figure above. Color overlays reflect the number of individuals participating in meetings. Areas without color overlay have no recorded meeting participation. While participation varies across LA County, ZIP codes within 1 mile of the LA River have higher levels of meeting participation.

There are 8 populated ZIP codes within the Los Angeles River corridor without any recorded participation, accounting for a population of 168,559 residents without any recorded participation (U.S. Census Bureau 2020).[27] Only including the ZIP codes located within the river

[27] These ZIP codes include: 90021 (Los Angeles), 90058 (Vernon), 90210 (Beverly Hills), 90744 (Wilmington), 91203 (Glendale), 91406 (Van Nuys/Lake Balboa), 91436 (Encino), and 91608 (North Hollywood).

watershed results in a population of 94,351 residents with no recorded participation.[28] 388,214 residents who live in ZIP codes partially within the watershed also had no recorded participation in LARMP Community Engagement Meetings.[29]

With less than 1,000 recorded attendees, participation in the Community Engagement Meetings account for a small fraction of total area populations. Recorded participation in the LARMP Community Engagement meetings account for approximately .01% of total Los Angeles County residents and Los Angeles Watershed residents, and .03% of residents living in ZIP codes within one mile of the Los Angeles River. Though river watershed boundaries and population counts are imperfect, this data still provides approximate values on the number of individuals and percentage of the total population involved in LARMP Community Engagement meetings.

Table 3. Participation percentage of Los Angeles County populations in LARMP Community Engagement meetings

Area	**Population**[30]	**Number of recorded participants**	**Participation percentage of population**
Los Angeles County	10,014,009	945	.01%
Los Angeles River Watershed	~ 9 million	823	~ .01%
Los Angeles River Corridor[31]	2,265,295	649	.03%

[28] Two ZIP codes, 90210 (Beverly Hills) and 90744 (Wilmington), do not fall within the LA River Watershed but do fall within the LA River corridor.

[29] These ZIP codes include: 90002 (Watts/Southeast Los Angeles), 90061 (Los Angeles), 90063 (East Los Angeles), 90640 (Montebello), 91006 (Arcadia), 91007 (Arcadia), 91042 (Tujunga), 91103 (North Central), 91504 (Burbank), 91326 (Porter Ranch), 91330 (Northridge), 91345 (Mission Hills), 91731 (El Monte), 91733 (South El Monte), 91754 (Monterey Park), 91755 (Monterey Park), 91775 (San Gabriel), 91776 (San Gabriel), 91780 (Temple City), and 91803 (Alhambra).

[30] Population data acquired from 2020 Census Data and the Los Angeles County Department of Public Works

[31] Including population data from ZIP codes within one mile of Los Angeles River

Standard baseline sample size guidelines indicate that for a population of ten million, 385 respondents are needed for 95% confidence with a ±5% margin of error (Lavrakas 2008). Then, the number of participants involved in the LARMP's planning and development process should be appropriate. However, there are some variables that influence how well a sample of the population can represent the entirety of the population. For example, negative feelings towards decision-makers or a population's interest in certain topics can decrease participation from certain groups, which disrupts representation (Groves et al. 2006). The resulting underrepresentation, which likely under samples the most vulnerable communities, will skew outcomes.

The composition of the sample size matters more than the number of participants (Lee et al. 2009). To be more accurate to the population as a whole, variables that are associated with underrepresentation and vulnerability should be considered. Using correction methods, such as oversampling underrepresented groups, may be more accurate (Potthoff, Manton, and Woodbury 1993). However, LARMP decision-makers made no indication of such adjustments and there were entire ZIP codes with very little or no participation. In fact, comparing where the participants reside to CES EJI indicators produce a disturbing result: many areas with the highest CES EJI percentiles also had fewer participants in Community Engagement Meetings.

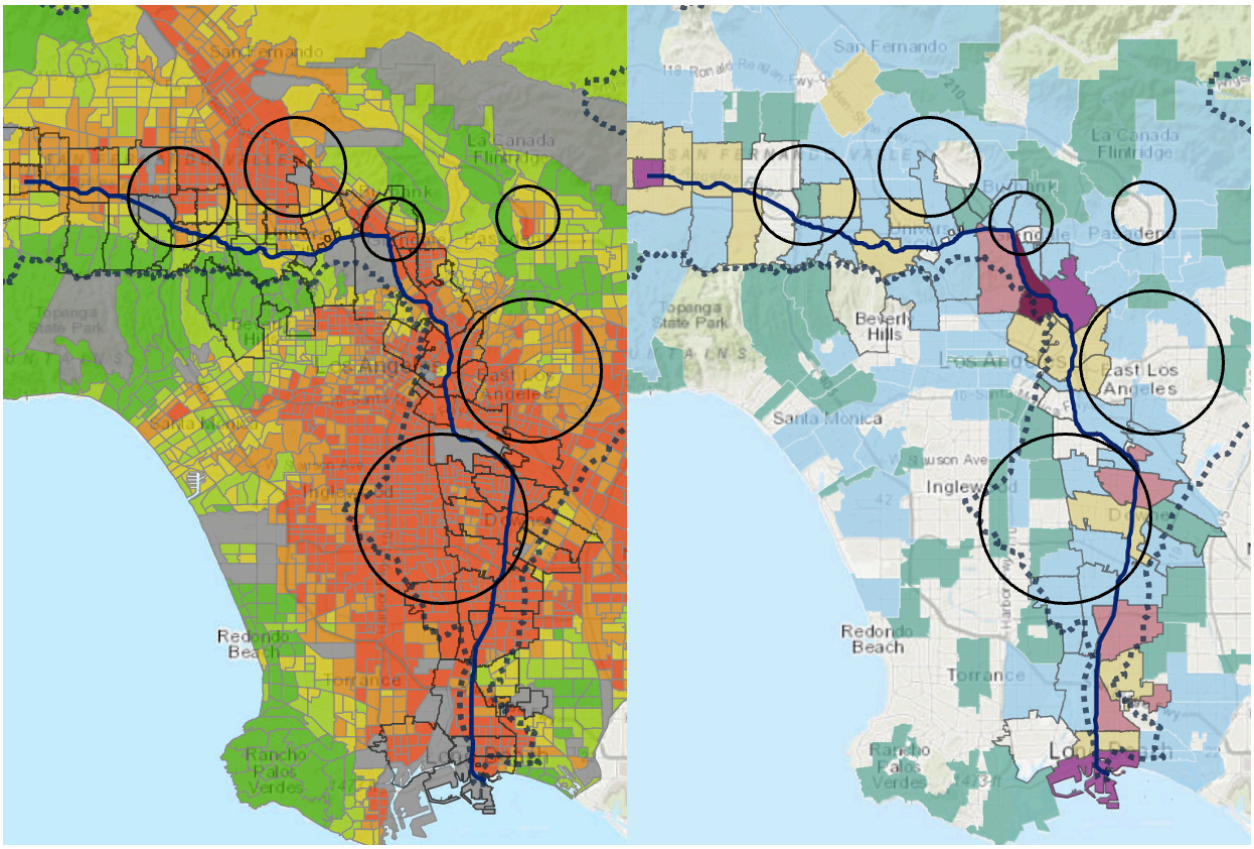


Figure 10. Comparison of CES EJI and LARMP Community Engagement Meeting participation

If areas with higher CES EJI percentiles also have lower participation numbers, the information gathered from Community Engagement Meetings is more likely to be inaccurate. The inclusion of these communities ensures that decision-makers understand the various factors at play: social, environmental, economic, governmental, or otherwise. These meetings did not specifically target the most affected communities but simply invited them to participate along with other communities in the LA River watershed.

Without their inclusion, the LARMP's planning and development cannot adequately represent the needs of the most vulnerable. Had LARMP decision-makers taken underrepresentation risks into account, engagement efforts may have been more comprehensive. Instead, the opposite occurred. Meetings were held in three different phases with little overlap or return to the same neighborhoods. As noted in Chapter 3, early, genuine, and active engagement

is essential for inclusion and understanding and the eventual development of relevant community projects (Maniraho et al. 2023, 8; Osborne et al. 2021, 3). Without such sustained engagement, can these meetings accurately represent the needs of different communities in Los Angeles?

To bridge engagement gaps, decision-makers held various capacity-building and participation events across Los Angeles. These events covered topics from youth connections and engagement, Indigenous and Tribal practice understanding, and education on LAMRP community impacts (LA River Master Plan 2022, 134–35). The purpose of these events was to create opportunities for LARMP decision-makers to work with community partners and embark on cultural asset mapping activities in neighborhoods with limited data. However, it is unclear what the long-term effects of these sessions and capacity building events were, and how the data and knowledge acquired was later integrated into the final LARMP.

Issues with the LARMP's capacity-building and participation efforts become more glaring when taking the Public Draft Comment Log into account.

Table 4. Text analysis of LARMP Public Draft comments showing frequency of topics

Topics	Frequency
Ecosystem and habitat management [5]	206
Equity [3]	173
Sustainability [5]	139
Prioritize current residents [2]	114
Increase community outreach [2]	102
Coordinate policies, plans, and funding [1]	102
Displacement and gentrification [3]	97
Watershed management [4]	91
Concrete management (removal and reduction) [4]	84
Parks and green space access [3]	81
Consult and collaborate with Indigenous communities [2]	59
Climate change [5]	57
Affordable housing [3]	54

Park space concerns (platform and covered parks) [1]	52
LARMP accessibility [1]	43
Flood prevention [4]	41
Environmental justice [3]	38
Support for homeless communities [2]	37
Recreation [3]	37
Water capture [4]	30
Evaluation of restoration plans [1]	28
Public safety [3]	27
Collaborate with river experts [1]	26
Pedestrian access [3]	25
Expand Arts and Culture considerations [3]	18
Engage with BIPOC communities [2]	10
Rights of Nature [5]	10
Natural history [5]	5
Occurrences of Topics in Comments	1786
Total Public Draft Comments	723

Many Public Draft comments were concerned about accurate community representation. Topics like “prioritize current residents”, “equity”, and “increase community outreach” confirm what Figure 10 also shows: that many communities felt ignored in the LARMP’s planning and development. Considered in tandem with other concerns, like environmental justice and Indigenous community outreach, the LARMP’s inability to include the most affected communities and privilege local knowledge and practice becomes even clearer.

Outcomes

Data from the early stages of LARMP planning and development point to a tension in social-ecological framework implementation. Though decision-makers adopted the framework with the intention of better understanding communities and their relationships to the LA River, the data suggests persistent shortcomings in community-based outreach, planning, and cooperation. In theory, the long-term success of the social-ecological framework depends on

aligning management practices with the characteristics of both ecosystems and the people who live within them (Ostrom 2009). Achieving that alignment requires sustained engagement, locally grounded knowledge, and inclusive participation. Yet, the LARMP process appears to have fallen short of these conditions, limited by how decision-makers operationalized the framework they set out to use.

There is no fixed benchmark for what successful inclusion looks like in the social-ecological framework, but certain principles provide guidance. Effective engagement must be tailored to the scale and diversity of the SES and supported by collaborative processes that reflect local realities (Margerum 2008). Against this standard, the LARMP's efforts raise significant concerns. Participation levels were low and unevenly distributed, relative to the overall population of the project area. Combined with the consistent emphasis on engagement concerns in public comments, this patterns suggests that inclusion and understanding efforts did not translate into broad or representative participation.

Although the LA River area contains large and diverse populations, participation in Community Engagement Meetings appears uneven, even limited, across the region. The small share of total residents involved in meetings raises concerns about how representative participation actually is (Table 3). In practice, planning processes are shaped by who is willing, able, and invited to participate. Barriers to participation, such as limited time or resources, language access, outreach efforts, interest, and distrust, can all systematically exclude certain groups. This effect is particularly noticeable for groups already facing social or environmental vulnerabilities.

For intentional inclusion of the most vulnerable communities, the most disadvantaged and underrepresented communities should be prioritized in decision-making (Anderton et al.

1994; Ash and Fetter 2004; Brugnach, Craps, and Dewulf 2017; Cole and Foster 2001; Maniraho et al. 2023, 8; Osborne et al. 2021, 3). The absence of participants from entire ZIP codes suggests that engagement was unevenly distributed and lacked inclusivity (Figure 10). Without clear strategies to address these gaps, the input gathered was likely skewed toward more accessible populations.

Robust and genuine inclusion goes beyond simple outreach mechanisms. It involves recognizing power imbalances, investing in local capacity building, and promoting collectivism (Barker 2005; Khatibi et al. 2021; Leal 2002; Maniraho et al. 2023; Osborne et al. 2021). In this regard, the LARMP process appears to reveal patterns of exclusion, where there is a disconnect between intent and practice. For example, the lack of documented outreach to unhoused communities is notable, particularly given overlapping concerns about displacement, housing access, gentrification and displacement, and homeless community outreach (Table 3). When the most impacted groups are not meaningfully included or understood, it becomes difficult for planning and development outcomes to reflect the full range of community needs within the broader social-ecological system.

Public Draft comments further underscore these issues, where engagement emerged as a major concern. Commentors consistently emphasized the importance of more authentic engagement, calling for processes that prioritize current residents and understand lived experiences and needs. Concerns about equity and displacement were especially prominent, with many questioning whether the plan could adequately account for the needs of underserved communities with lacking inclusion and understanding (Table 4).

Accessibility also emerged as a key barrier. Participation is closely tied to factors such as language inclusion, cultural relevance, and access to information, all of which influence whether

communities can meaningfully engage in planning processes (Khatibi et al. 2021; Leal 2002). Despite some capacity-building efforts, public comments suggest that that these initiatives did not translate into substantive changes in how inclusion was carried out. Many participants perceived LARMP planning and development process as difficult to access or insufficiently responsive:

> i went to the meeting and heard a lot of things that made sense. i also heard stuff that made no sense at all. i'm native to the los angeles river watershed having lived in burbank, toluca lake, north hollywood, atwater village, silverlake, los feliz, and elysian valley(frogtown). i've lived and worked along the river commuting by bicycle to downtown LA. i know the river…i want to be in that future (LA River Master Plan: Public Draft Comment Log 2021, Comment no. 857).

> We are a strong advocate of culturally relevant community engagement and ensuring that residents who live around the River, in addition to those who visit the River, have an opportunity to have their voices heard. "Queremos que nuestros sueños sean reflejados en nuestros vecindarios." [32] (LA River Master Plan: Public Draft Comment Log 2021, Comment no. 567).

> Constructing parks and open spaces in low-income communities should be approached thoughtfully to ensure that current residents will not be displaced by new projects and by increases in property values that can occur adjacent to newly developed public amenities. However, this can be avoided by following investment without displacement principles and authentically engaging communities in the project design and development process… (LA River Master Plan: Public Draft Comment Log 2021, Comment no. 172).

These select comments, as well as others included in the appendices, are a small sample of broader demands for inclusion that is accessible and genuinely impactful. They point to a process that struggled to fully engage the communities it aimed to service.

As a result of lacking inclusion, decision-makers understanding of the SES also suffered. Effective project planning and development depends on recognizing the incorporating the knowledge that community hold about their local environments. When residents are given meaningful opportunities to collaborate and self-organize, management strategies are more likely

[32] Translation: "We want our dreams to be reflected in our neighborhoods."

to reflect on-the-ground realities and produce better outcomes (Ostrom, Gardner, and Walker 1994). Because environmental knowledge varies across communities, integrating these perspectives requires deliberate, context-sensitive approaches to inclusion (Raymond et al. 2010). Public Draft comments, however, repeatedly questioned whether the LARMP achieved this.[33] One commenter noted,

> Based on the LARMP draft, the lack of transparency or community inclusion, we are hard pressed to believe that…opportunities for continued community engagement, development, and education…is realistic or honest… (LA River Master Plan: Public Draft Comment Log 2021, Comment no. 440).

Other comments echoed the same apprehensions, highlighting broader concerns about whether engagement efforts translated into genuine collaboration.

These concerns were especially pronounced in comments addressing Indigenous communities (Table 4). The Los Angeles Basin is the ancestral home to several tribes, including the Ventureño Chumash, Fernandeño Tataviam, and Gabrielino Tongva (LA River Master Plan 2022, Ch. 3).[34] Yet, based on Public Draft comments, engagement with these communities appears limited relative to their presence and cultural connection to the river.[35] One commenter wrote that although consultation summaries referenced recommendations from Indigenous elders,

> …there is no mention of ways the river management agencies plan to build relationships, collaborate, or provide spaces for tribal events--not a single mention…This is not only disrespectful to the living Indigenous communities of the Tongva, Tataviam and Chumash, it also shows a lack of awareness of the history of genocide of these communities. The LARMP should be revised to incorporate specific ways that river management agencies and LA County will build relationships and collaborate with these communities…Your planning process is only inclusive if your LARMP responds to specific requests of Indigenous stewards of the land, even if you don't know what they

[33] See Appendix D
[34] The Chumash have a nuanced relationship with the Los Angeles River. Given their historical tribal grounds and migratory paths, as well as the movement of the river itself, they do not retain a significant connection to the river (personal communications with Chumash representative, April 7th, 2026).
[35] See Appendix D

> did to care for the land over the past 3 centuries (LA River Master Plan: Public Draft Comment Log 2021, Comment no. 11).

Another stressed knowledge of Indigenous communities, arguing that they should play a leading role in restoration efforts:

> … Local indigenous people have expressed over and over again that they do not feel leadership in the planning process, that their voices have not been sought as part of substantive policy. They know best about how to restore the river as a healthy and living habitat and ecosystem. They deserve access to the river for their cultural and spiritual ceremonies. They should take the lead in planning habitat restoration… (LA River Master Plan: Public Draft Comment Log 2021, Comment no. 912).

In response, LARMP decision-makers cited participation by a small number of representatives:

> Rudy Ortega served on the Steering Committee, representing the LA City and County Native American Indian Commission. The Master Plan project team presented to the entire council separately from the regular Steering Committee meetings. Outside of the Steering Committee, additional Indigenous Peoples were involved during the creation of the Plan. One Tongva tribe elder met with the Consultant team on multiple occasions. Another met with the consultant team once. Tataviam members met with the team multiple times as well. The Chumash declined to meet, noting that they did not feel the LA River has a significant tie to their ancestral homes (LA River Master Plan: Public Draft Comment Log 2021, appears multiple times in response to comments criticizing Indigenous community outreach).

However, these efforts appear limited in scope when compared to the size, diversity, and historical significance of Indigenous communities in the region. Reports from tribal leaders further complicate this picture. In one source, Chief Red Blood Anthony Morales of the Gabrieleno San Gabriel Band of Mission Indians says, “I have not heard from any staffers, from any of the councilmembers” (Lozano 2018). Where engagement did occur, it was described as incomplete. Chief Rudy Ortega of the Fernandeño Tataviam tribe noted that while his engagement meant he could “champion the concerns and interests of the native community,” and that “committee members are starting to grasp the importance of native plants,” there was still much work to be done (Lozano 2018). These comments call for broader involvement across tribes with distinct relationships to the river. That involvement unfortunately did not come to

fruition and Indigenous outreach remained low. For example, the two Tongva elders that met with the consultant team accounted for only a fraction of the total Tongva population in Los Angeles.[36]

This limited engagement has broader implications. For communities with deep cultural and historical ties to the LA River, insufficient inclusion risks reinforcing long-standing patterns of marginalization. Public comments and subsequent outreach indicate that some Indigenous participants felt their input was overlooked, particularly when it was in conflict with dominant planning priorities. During personal outreach and engagement for this research, one Kizh culture bearer and water protector explained that Indigenous survey responses would be low. They attended almost all of the LARMP meetings across Tribal territory and noted that,

> Though we are now a small percent of the larger community, all of the Tribe's input was ignored as our focus is the health & rematriation of the lands and waters over profit and recreation (personal communication, May 16th, 2025).

It is important to note how these perceptions of transparency and lacking levels of trust reduced willingness to participate in future outreach efforts. As a direct result of the actions of LARMP decision-makers towards Indigenous groups, they were less willing to participate in future research attempts whether or not they were sponsored by the original LARMP team.

These dynamics help explain declining or uneven participation over time. When communities perceive that their input is not meaningfully incorporated, engagement can feel performative rather than collaborative. This reflects the participation paradox, where engagement processes exist but fail to create real opportunities for influence (Quaghebeur, Masschelein, and Nguyen 2004). Public comments echo this sentiment:

> This plan doesn't work for us, so please work WITH us. Also, I attended one of your outreach events, and I had no opportunity for meaningful engagement; I felt patronized

[36] Population data is unclear but estimated to be between 1,700 - 5,000 people.

> and I was disappointed. So I cringe when I hear you touting your outreach, and I realize that you really have not heard from stakeholders in the way that you think/say you have, and certainly are not qualified to represent us (LA River Master Plan: Public Draft Comment Log 2021, Comment no. 837).

Extending beyond Indigenous groups, the same dynamic likely exists within other communities as well, where reinforced and repetitive exclusion makes them less likely to engage with decision-makers in the future.

How then, could the expected outcomes of inclusion and understanding take place? How could the LARMP be co-designed if meaningful participation and collaboration did not happen? True collaboration requires open channels for negotiation, conflict resolution, and participatory processes (Brugnach, Craps, and Dewulf 2017). Yet, many voices remained underrepresented, raising questions about how effectively the LARMP could reflect the complexities of the SES. Without the inclusion and understanding of the communities within the SES, the quality of the LARMP also suffers.

Chapter 6. In the Thick of It: Integration and Alignment

Integration and alignment reorients decision-making towards community needs. For the LARMP, this would entail close collaboration with local leaders and representatives to understand SES areas. By doing so, decision-makers can align the LARMP with community needs, with attention to the dynamic interactions of people, the environment, and the larger urban system. Integration and alignment will improve the development, implementation, and sustainability of the LARMP. Communities become more invested in plans that are designed by, for, and with them. They are more hopeful that a project finally reflects their needs and desires. Hope for the future is an unappreciated, yet immeasurably important aspect of effective environmental management in SES. Without hope, the willingness of communities to care about the spaces and places around them will fade.

Building collaborative capacities towards empowerment

Following the eighth Community Engagement Meeting in October 2019, eight Steering Committee Meetings took place between January 2020 and October 2020 to develop the first LARMP Draft. These committees comprised of "staff and volunteers from [organizations]…staff from LA Country's other departments, and the general public" (LA River Master Plan 2022, 136–37). Meetings covered the broader attitudes and goals within LA River efforts, where public agencies and community groups helped draft more than 200 proposals for river improvements (Lozano 2018). LARMP decision-makers collected those proposals and reviewed them alongside the more than 140 already existing plans and studies. They extracted common themes that then informed the development of a general LARMP framework (LA River Master Plan 2022, 265–87; LA River Master Plan Appendix Volume II: Technical Backup Document 2022). The result was a 'menu approach' of possible LA River ideas, rather than prescribed projects with measurable timelines and goals (Reid-Wainscoat 2021). In this way, though local representatives

and opinion leaders were initially involved in the LARMP, their involvement was eventually filtered through the priorities of decision-makers. Ultimately, the range of possibilities did not reflect the work of local representatives and opinion leaders.

As a result, comments on the LARMP Draft were largely concerned with the LARMP's ability to incorporate community and environmental needs.

Table 5. Number and percentage of theme occurrences within LARMP Public Draft comments

Theme	Number of occurrences in public comments	Percentage of occurrences in public comments
LARMP [1]	251	14.1%
Community Engagement [2]	322	18.0%
Social [3]	550	30.8%
Watershed [4]	246	13.8%
Environment [5]	417	23.3%

Theme categorizations for Public Draft comments have interesting implications for LARMP integration and alignment. The most common topics within the social theme include 'equity' and 'displacement and gentrification', accounting for almost 50% of occurrences. Many of these comments questioned attention to underserved communities within the LA River corridor. Comments asked that the LARMP focus on alleviating the disproportionately harmful effects of potential plans and practices on underserved communities, while also focusing on increasing economic equity, community health, and building resiliency.[37] The most frequent topics from the environment theme were 'ecosystem and habitat management' and 'sustainability'. This frequency highlights concerns respondents had regarding the LARMP's

[37] See Appendix C

ability to adequately design and implement positive environmental efforts and practices for the LA River.[38] Within the topic of 'sustainability', comments question the ability of the LARMP's sustainable efforts and practices, generally asking that restoration efforts be implemented with sustainability in mind to limit environmental harm.[39] Community Engagement theme comments further focus on the need for the LARMP planners to consult and collaborate with various communities.[40] These have significant implications for integration and alignment in the social-ecological framework.

Though less common, the remaining two themes of LARMP and Watershed, also have significant implications for the social-ecological framework. Many comments underline the importance of funding transparency, the creation of LA River-specific teams that can ensure the implementation and monitoring of the LARMP, and the need for specific integration of cities and neighborhoods in the LARMP. [41] The LARMP theme data also demonstrates a notable issue with LARMP accessibility, be it during the planning process, access to meetings, and/or readability of the document itself.[42] Many comments highlight the prerequisite of internet connection and a computer, which prevents many from document access.[43] Some comments also note that the LARMP and the general planning process lack language accessibility, as only English and Spanish translations were available.[44] Many comments that discuss watershed recommendations are opposed to the recommendations included in the LARMP draft.[45]

[38] See Appendix E
[39] See Appendix E
[40] See Appendix D
[41] See Appendix G
[42] See Appendix G
[43] See Appendix G
[44] See Appendix G
[45] See Appendix G

The categorization of these public comments is meant to determine the most significant concerns of LA County residents regarding the LARMP. However, it is also important to note that many of these concerns are interconnected. Restoration plans must be holistic in their understanding and consideration of communities, the environment, and various social and economic issues. Thus, a holistic interpretation and analysis of the LARMP Public Draft comments is also necessary. Further text analysis demonstrates the interconnected perceptions of these themes within Public Draft comments. The table below shows the 20 most common topic groupings within them.

Table 6. Most common topic groupings and their frequencies within LARMP Public Draft comments

LARMP Public Draft Comment Log Groupings	Frequency
Ecosystem and habitat management [5] & Sustainability [5]	52
Prioritize current residents [2] & Displacement and gentrification [3]	44
Ecosystem and habitat management [5] & Equity [3]	34
Displacement and gentrification [3] & Equity [3]	33
Environmental justice [3] & Equity [3]	31
Displacement and gentrification [3] & Ecosystem and habitat management [5]	31
Sustainability [5] & Watershed management [4]	30
Concrete management (removal and reduction) [4] & Ecosystem and habitat management [5]	29
Equity [3] & Parks and green space access [3]	21
Coordinate policies, plans, and funding [1] & Prioritize current residents [2]	21
LARMP accessibility [1] & Increase community outreach [2]	20
Prioritize current residents [2] & Ecosystem and habitat management [5]	19
Equity [3] & Affordable housing [3]	19
Ecosystem and habitat management [5] & Parks and green space access [3]	19
Climate change [5] & Concrete management (removal and reduction) [4]	18
Parks and green space access [3] & Sustainability [5]	18
Equity [3] & Increase community outreach [2]	18
Prioritize current residents [2] & Displacement and gentrification [3] & Ecosystem and habitat management [5]	18
Equity [3] & Sustainability [5]	17

Public draft comments largely focused on whether the LARMP could meaningfully address both community needs and environmental concerns at the same time. Rather than treating the topics as separate issues, many commenters connected them. This highlights that decisions about environmental factors, like land use or restoration management, are inseparable from their impacts on residents.

Concerns about ecosystem and habitat management were often discussed with the broader topics of sustainability, suggesting a desire for long-term and balanced stewardship, instead of short-term outcomes. On the social side, commenters frequently linked the need to prioritize current residents with fear of displacement and gentrification, pointing to community anxieties and apprehensions about who benefits from the LARMP's proposed changes.

What stands out most is how often equity is brought into conversation with environmental issues. The pairing reflects a broader expectation among community members: environmental decision-making should account for fairness and access in addition to ecological outcomes. Similarly, the overlap between resident protections, displacement concerns, and environmental management shows that communities see these challenges as inseparable and deeply interconnected, rather than isolated policy areas.

These patterns suggest a perceived gap in the LARMP Draft, where it is unable to fully integrate social and environmental priorities. Commenters call for more holistic approaches that can recognize how components of SES function as parts of a whole mechanism and should be addressed together in decision-making. Survey data contextualize these comments with additional community information.

Table 7. Frequency table for Q3 responses on proximity of residence to LA River

Approximately how far away do you live from an LA River access point?	Number of Responses
0-3 miles	206
3-6 miles	58
6-9 miles	23
Over 9 miles	29
I'm not sure	21
No answer	185

Table 8. Frequency table for Q2 responses on LA River visits

Do you regularly visit the Los Angeles River paths for recreation, visiting businesses, or commuting?	Number of Responses
Yes	119
No	142
Sometimes	75
No answer	186

Table 9. Frequency table for Q7 responses on importance of LA River

Is the Los Angeles River an important part of your community?	Number of Responses
Yes	156
No	96
Somewhat	86
No answer	184

Most survey respondents lived within 3 miles of the Los Angeles River, visit it with some regularity, and view it as a meaningful part of their neighborhoods and daily lives. This suggests respondents were geographically connected to the river with personal and community-level stake in how it would be managed and developed. Their familiarity with the river corridor positions them as knowledgeable and experience-based stakeholders. Their perspectives could

meaningfully inform decision-making decisions. Despite this strong connection, the survey indicates a disconnect between community members and the LARMP process.

Table 10. Frequency table for Q8 responses on LARMP awareness

Are you aware of the 2022 Los Angeles River Master Plan (LARMP)?	Number of Responses
Yes	81
No	176
Somewhat	57
No answer	208

Table 11. Frequency table for Q9 responses on involvement in LARMP planning

Have you been involved in the LARMP planning process?	Number of Responses
Yes	9
No	294
Somewhat	11
No answer	208

Many respondents were not actively engaged or centered in planning efforts, and a significant number were unaware of the LARMP altogether. This points to a clear gap in outreach and communication efforts, where those most directly affected by the river's future were not adequately included in shaping it.

Outcomes

Integration and alignment within a social-ecological framework depend on the empowerment of local communities and attention to both social and environmental contexts. Evidence from this middle stage of LARMP planning and development process reveals inconsistencies in both areas. Though decision-makers engaged with local representatives and opinion leaders, Public Draft comments reveal that those contributions were not consistently

reflected in the plan itself. With limited integration of collaborator input, the LARMP Draft was only partially aligned with the needs and aspirations of corridor communities, weakening its relevance for the broader social-ecological system.

Research consistently shows that when communities are genuinely empowered in the decision-making process, environmental management becomes more socially and ecologically responsive (Gann et al. 2019). Meaningful engagement in these contexts requires more than seeking out community-specific knowledge and practice, but also aligning and applying that information into environmental management goals. When done effectively, this process builds trust, strengthens relationships among stakeholders and decision-makers, and improves long-term governance outcomes (Gann et al. 2019). There are so many diverse sources of knowledge in SES, from scientific insights and practitioner knowledge to local experiences and traditional ecological understandings. Integrating these diverse knowledge systems into decision-making can contribute to both environmental resilience and community wellbeing. Those benefits are lost when engagement is extractive or symbolic.

Shared co-development of environmental management is rooted in trust, equity, and collective adaption. Effective governance in complex social-ecological systems depends on collaboration, adaptability, and the equitable distribution of decision-making power (Dietz, Ostrom, and Stern 2003). In these cases, power and authority shifts from centralized institutions and decision-makers to community-based actors instead, ensuring inclusive and bottom-up governance. Though such multi-stakeholders approaches can improve decision-making processes, attention should be given to power imbalances that can reproduce inequalities and marginalize vulnerable groups (Ayala-Orozco et al. 2018). Governance structures that are more decentralized and polycentric can allow for multiple forms of authority and knowledge sources

that can more effectively counter these hierarchies (Andersson and Ostrom 2008; Osborne et al. 2021). In this context, participation efforts should have the intention of real integration and alignment in decision-making, instead of just procedural processes that can check a box.

Tensions in the LARMP highlight these complications in the social-ecological framework. While partnerships and meetings with local representatives were indicative of efforts towards collaboration, the uneven incorporation of their proposals points to more symbolic forms of participation. When local stakeholders lack real influence within the decision-making process, their engagement does little to shift the outcomes of decision-making (Agrawal and Gupta 2005). This is evident in Public Draft comments, where concerns about collaboration with river experts and coordination across policies and plans are prominent (Table 4). The recommendations presented in the LARMP Draft did not reflect the guidance and input that local leaders and representatives had suggested.[46] As a result, the impact of their contributions is absent.

Public Draft feedback reinforces the importance of grounding SES decision-making in local knowledge and historical context. One comment noted:

> knowledge from historians, former public officials, and civil society organizations should be captured and transferred to policy makers to ensure that urban planning is more just. From redlining to destroying neighborhoods with freeways to rampant gentrification, the lessons are enormous (LA River Master Plan: Public Draft Comment Log 2021, Comment no. 690).

Different sources of expertise offer technical advice and the context of personal experiences, while also providing important historical perspectives. Ignoring those lessons risks repeating the same past injustices.

Beyond participation, the ability of communities to engage meaningfully also depends on accessibility and capacity. Even if decision-makers attempt to intentionally work with

[46] See Appendix D

communities, it is still possible that their ability to meaningfully contribute may be stifled by other factors. While accessibility alone was not among the most frequent standalone concerns (Table 4), it appears prominently when examined in relation to other issues (Table 6). In fact, accessibility is often linked with community outreach. Comments contextualize these results, suggesting that barriers to access like technical language, limited formats, and difficulty accessing the Public Draft document inhibited broader participation.[47] Some comments specifically highlight jargon-heavy wording and lack of language translations, while others emphasize the document was too large to download on personal devices and only one paper version was available at the Los Angeles Public Library. These barriers raise important questions about who is able to engage with the plan and whose voices are ultimately included. If the LARMP is so inaccessible to local communities, how can it be truly representative?

Issues of alignment between environmental goals and community needs are also evident in the thematic patterns of Public Draft comments. Table 6 shows that many of the most common concerns combine environmental issues with social and community priorities. For example, concerns about concrete use and management are frequently connected with equity, displacement and gentrification, prioritizing current residents, and environmental justice (Table 6).[48] This suggests that respondents do not view environmental interventions as neutral or standalone. Instead, they are understood as having direct social consequences, particularly for underserved and vulnerable communities.

In Chapter 5, concerns about displacement and gentrification are especially prominent (Table 4). Their pairing with both community and environmental issues in comment groups provides further context (Table 6). These patterns reflect anxiety about how river improvements

[47] See Appendix G
[48] See Appendix D

may reshape neighborhoods, particularly in the absence of clear safeguards. The LARMP Draft gives limited attention to affordable housing and lacks concrete strategies to mitigate displacement. Public Draft comments become particularly salient here. These concerns also align with broader issues in urban development, where environmental and infrastructural improvements without safeguards can increase property values and contribute to displacement pressures (Leung and Lamadrid 2015; Rasmussen 2024, 304–5). While a neighborhood may be ecologically and economically improved, there are potential negative effects on equity and access as communities are priced out. Historical precedent reinforces these concerns within the LA River area. Community investments tied to the 2008 LARRMP contributed to rising neighborhood costs and the displacement of long-standing communities. The risks associated with community development and redevelopment highlights the need to provide safeguards against those pressures.

Without deliberate alignment between environmental strategies and community needs, decision-makers risk overlooking key dimensions of the LA River's social-ecological system. Proactive decision-making and plan design requires both the identification of potential negative impacts, as well as active design strategies for mitigation. Some Public Draft comments point to this need, focusing on the importance of coordinating with previous river plans. Many suggest that a more comprehensive understanding of past successes and failures could improve decision-making processes.[49] Such an approach supports more informed, adaptive strategies that can anticipate and address recurring challenges.

Environmental concerns appear in two forms within Public Draft comments (Table 4, 5, and 6). Some comments focus narrowly on ecological outcomes, particularly critiquing the

[49] Appendix G

LARMP's approach to concrete management and its limited exploration of alternatives, such as concrete removal or reduction.[50] Concerns suggest dissatisfaction with what is perceived as a constrained vision of ecosystem health and environmental awareness. Many seek answers as to why the LARMP did not consider concrete removal as a strategy to improve ecosystem health. One commentor noted,

> The strength and longevity of LA and California as a whole relies on the preservation, and in the case of the LA River, restoration of its natural features and resources. It's an embarrassment as a resident of LA that its namesake river, which should be a source of joy and curiosity, has been reduced to an eyesore. The only remedial course of action is to remove all of the concrete that has encased this natural ecosystem and restore the native wildlife that existed in and along its banks for millennia. The senseless and myopic diversion of water across this country has contributed to and exacerbated the effects of climate change and we will suffer the dire consequences if we maintain the status quo. We need an intense revitalization plan to avoid this and I feel that the current proposal simply does not go far enough (LA River Master Plan: Public Draft Comment Log 2021, Comment no. 842).

Other comments emphasize the human-nature relationship, or the relationship between communities and the river's ecological functions. Instead of approaching environmental restoration as an isolated goal, these responses frame the river as a shared social-ecological space that combines environmental improvements to tangible community benefits. They call for call for expanded green space and park availability and enhanced recreational opportunities (Table 6). The message is clear: local communities seek more than limited ecological improvements, they also want to enjoy everyday access to nature within their urban neighborhoods. However, access alone is not sufficient. Comments also seek better public safety measures, walkability, and pedestrian infrastructure (Table 6). Without these elements, environmental improvements may remain underutilized or unevenly accessible. Taken together, these comments point to aspirations for better human-nature relationships based on improved access.

[50] Appendix G

Frequent pairings of topics such as ecosystem and habitat management with sustainability, equity, displacement and gentrification, and concreate management, all illustrate how respondents understand these issues as interconnected.[51] Similarly, recurring combinations like prioritizing current residents and equity with displacement and gentrification reaffirm a consistent theme.[52] Environmental decision-making cannot be separated from social impacts. These patterns highlight key oversights in decision-making: though decision-makers attempted to integrate and align the LARMP to communities, they were unable to do so in meaningful ways. The LARMP does not fully reflect an integrated or holistic approach.

Survey findings reinforce this conclusion. Although many respondents live near the river (Table 8), regularly use it (Table 9), and consider it an important community asset (Table 10), a majority were unaware of the LARMP (Table 6) and had not participated in its planning and development (Table 7). Given that this survey specifically targeted residents within the river corridor, this lack of awareness and involvement is notable. It suggests that even those most directly connected to the river have not been effectively reached or included. While the social-ecological framework guiding the LARMP emphasizes inclusion and integration of social and ecological dimensions, the evidence indicates that those goals were poorly implemented in practice.

In fact, even following the LARMP Public Draft, many of the concerns and recommendations failed to be incorporated. Upon release of the LARMP Final Draft, many contributors withdrew their support, citing concerns with collaborative efforts for integration and alignment (Cortez et al. 2022). Later, nonprofit organizations including Los Angeles

[51] See Appendix H
[52] See Appendix H

Waterkeeper and the Center for Biological Diversity pursued legal action against the decision-makers and institutions leading the LARMP (Los Angeles Waterkeeper and Center for Biological Diversity v. County of Los Angeles and Board of Supervisors of the County of Los Angeles and Los Angeles County Department of Public Works and Los Angeles County Flood Control District 2022). Had meaningful integration and alignment taken place, such significant actions would not have followed.

Chapter 7. Hindsight is 20/20: Transformative Justice

The previous two chapters reveal a consistent pattern of limited and uneven community engagement during the LARMP's planning and development process. These findings raise important questions about how effectively the social-ecological framework was applied in practice. While the framework emphasizes collaboration, co-development, and inclusion, the compiled data suggest that these principles were not fully implemented.

Evidence from the early planning stages underline shortcoming in building sustained, collaborative relationships with communities. Community Engagement Meetings were geographically limited and did not return to the same neighborhoods, making it difficult to establish continuity or trust. Engagement appears episodic, rather than ongoing, during this initial stage. Feedback on the Public Draft reinforces this pattern, with many comments explicitly questioning the inclusiveness of the planning process. They highlight gaps in outreach to and representation of the most vulnerable communities.

However, it is important to note that these data reflect the LARMP's planning and development process prior to its finalization. Assessing whether the plan ultimately achieved more transformative, equitable outcomes requires examining what occurred *following* adoption, and particularly during implementation. While these initial findings reveal significant limitations, they cannot be applied to the LARMP's long-term impact.

LARMP finalization

Because this final category of the social-ecological framework focuses on long-term outcomes, it is useful to briefly pivot to examine the broader context. Examining the goals and intentions of the LARMP final draft, then considering how these ambitions compare with longer-term effects, allow for a more holistic assessment.

The final LARMP is designed to function as both a guiding framework for river-related investments and a foundation for future, smaller-scale projects. It establishes a vision for the Los Angeles River that is multi-functional. It recognizes important LA River roles, from infrastructure and flood management to ecological habitats, natural spaces, and public uses. The LARMP identifies nine core goals that support this vision:

1. Reduce flood risk and improve resiliency
2. Provide equitable, inclusive, and safe parks, open space, and trails
3. Support healthy, connected ecosystems
4. Enhance opportunities for equitable access to the river corridor
5. Embrace and enhance opportunities for arts and culture
6. Address potential adverse impacts to housing affordability and people experiencing homelessness
7. Foster opportunities for continued engagement, development, and education
8. Improve local water supply reliability
9. Promote healthy, safe, clean water

(LA River Master Plan 2022, 149)

Each of these goals is accompanied with a "need analysis," that identifies communities along the river that have the greatest need for additional attention during LARMP implementation. Need analysis for environmental goals are identified using various ecological data points. For example, areas with significant flood risk have been identified using floodplain data, sea level rise data, and critical infrastructure density data (LA River Master Plan 2022, 155–62). Similarly, ecosystem need was determined by evaluating existing ecosystems and surveys of habitat areas to find areas for linkages (LA River Master Plan 2022, 175–83).

These goals are meant to be a roadmap that can transform the 51-mile LA River corridor into a healthier, more accessible, and more equitable resource for the city and its communities. They reflect an effort to move beyond single-purpose planning and toward a more integrated approach that acknowledges the interdependence of ecological health and community well-being.

There are two distinct, yet overlapping, levels of application in the LARMP. At the site scale, the LARMP identifies areas of need with overlapping land assets to determine areas of greatest impact (LA River Master Plan 2022, 22). Resulting 'opportunity sites' helped inform LARMP project development, recommendations, and strategies for site-specific river improvements. Site specific opportunities are identified within the LARMP document, along with planning frames for each larger region of the LA River corridor.[53] Notable features, including population and environmental characteristics are noted, though without specific suggestions as to allow collaboration among the communities and decision-makers. At the systems-wide scale, the LARMP seeks to create large networks of integrated sites focused on broader environmental and social-ecological goals. To implement recommendations, the LARMP relies on continuing partnerships between river-adjacent municipalities, advocates, institutions, and stakeholders at different levels (LA River Master Plan 2022, 420). The overarching theme among site-specific and systems-wide application is equity. The LARMP's vision for the LA River includes strategies to support the social-ecological system, from the recognition of collaborative approaches to strategies for vulnerable community support.

The goals and application framework for the LARMP seem conducive to the final category of transformative justice in the social-ecological framework. The nine goals co-consider social and environmental equity and justice and seek to strengthen the social-ecological future of the LA River. The site-specific focus ensures individual communities are considered, and the larger systems-wide approach connects communities with each other for empowerment. The reliance on partnerships targets leverage points and shifts them towards adaptive and

[53] See Ch. 7 and Section IV in the LA River Master Plan

collaborative governance. On paper, the LARMP should align with the social-ecological framework for transformative justice.

Community input during implementation

The tables below include responses to survey questions that were designed to evaluate how effectively the LARMP's stated goals have been implemented in practice. These questions focused on community perceptions of decision-making processes, specifically their clarity, transparency, and inclusiveness. These questions indicate the level of progress toward the LARMP's broader transformative justice objectives.

Table 12. Frequency table for Q11 responses on transparent river restoration goals

Do you feel that the County of Los Angeles and others involved with the LARMP have made their goals clear to the community?	Number of Responses
Yes	30
No	190
Somewhat	78
Not sure	13
No answer	211

Participants felt that decision-makers did not clearly or effectively share the plan's goals with the broader community. Others suggested that communication efforts were only partial or inconsistent, leaving room for confusion or lack of awareness. Only a small portion of respondents perceived the communication of LARMP goals as clear and accessible.

Table 13. Frequency table for Q12 responses to inclusion of community concerns

Do you feel that community concerns have been included in the LARMP?	Number of Responses
Yes	39
No	108
Somewhat	108
Not sure	38

Do you feel that community concerns have been included in the LARMP?	Number of Responses
No answer	229

A similar pattern emerged regarding the incorporation of community concerns. Respondents frequently indicated that local perspectives were either insufficiently reflected in the plan or only somewhat acknowledged. While a minority believed that community input had been meaningfully included, a comparable share expressed uncertainty, suggesting that the process may not have been transparent or visible enough for participants to fully evaluate.

Table 14. Frequency table for Q13 responses on community provisions

Do you feel that the County of Los Angeles and others involved with the LARMP are adequately providing for your community?	Number of Responses
Yes	42
No	124
Somewhat	103
Not sure	28
No answer	225

Perceptions of how well the LARMP ultimately served the community also varied, but tended toward skepticism. Respondents felt that decision-makers did not adequately provide for community needs, while others described outcomes as only partially meeting expectations. A smaller group viewed the plan as successfully addressing community priorities, and some remained unsure, reinforcing the broader theme of limited clarity and engagement.

Table 15. Frequency table for Q6 responses on environmental perceptions

Has the status of the Los Angeles River improved due to restoration efforts in your area?	Number of Responses
Yes	63
No	191
Somewhat	78

Has the status of the Los Angeles River improved due to restoration efforts in your area?	Number of Responses
No answer	190

Perceptions of river improvements, whether environmental, social, structural, or otherwise, were also broadly skeptical or uncertain. Certain confounding variables, such as the visibility of projects within certain areas or stage of LARMP implementation, may also skew these responses. Even with this consideration, most respondents either felt the river had not improved or only perceived limited progress.

Given that many survey participants were less familiar with the LARMP than those directly involved in its development or public comment process, the survey also invited respondents to identify what they considered the plan's most important issues. These responses, organized by recurring themes and cross-referenced with Chapter 5, Table 4, offer additional qualitative insight into community priorities and concerns, helping to contextualize perceptions of the plan's implementation.

Table 16. Frequency table for Q16 categorized responses on most important LARMP issues

What do you think is the most important issue the County and others involved with the LARMP should address in relation to the Los Angeles River and your community?	Number of Responses
Ecosystem and habitat management [5]	58
Public safety [3]	45
Affordable housing [3]	30
LARMP accessibility [1]	28
Pedestrian access [3]	26
Increase community outreach [2]	22
Parks and green space access [3]	14
Equity [3]	10
Watershed management [4]	10
Concrete management (removal and reduction) [4]	9

What do you think is the most important issue the County and others involved with the LARMP should address in relation to the Los Angeles River and your community?	Number of Responses
Prioritize current residents [2]	9
Environmental justice [3]	8
Support for homeless communities [2]	8
Water capture [4]	7
Flood prevention [4]	6
Recreation [3]	4
Sustainability [5]	3
Climate change [5]	2
Displacement and gentrification [3]	2
Collaborate with river experts [1]	1
Coordinate policies, plans, and funding [1]	1
Expand Arts and Culture considerations [3]	1
Evaluation of restoration plans [1]	1
Natural history [5]	1
Rights of Nature [5]	1
No answer	283

Table 17. Number and percentage of theme occurrences from survey responses

Theme	Number of occurrences in Q16 responses	Percentage of occurrences in Q16 responses
LARMP [1]	31	10.1%
Community Engagement [2]	38	12.4%
Social [3]	141	45.9%
Watershed [4]	32	10.4%
Environment [5]	65	21.2%

Excluding null responses, social concerns remained as the most frequently cites area of importance among survey responses, indicating that respondents primarily interpreted the LARMP through the lens of everyday community needs and lived experiences. Many of the most

common responses emphasized issues such as public safety, access to affordable housing, pedestrian accessibility, availability of parks and green space, and broader questions of equity. The prominence of these themes suggests that respondents were concerned with the plan's environmental and technical dimensions, as well as how it addressed quality of life and inclusivity within the community.

Environmental considerations were also widely discussed, making up the next most common thematic grouping. Responses in this category often reflected concerns about natural resource management, ecological health, and the long-term sustainability goals associated with the LARMP. However, even within this theme, respondents frequently framed environmental issues in relation to their direct impact on communities, further reinforcing the overlap between environmental and social priorities.

Following these two dominant themes, respondents raised concerns related to community engagement, particularly the extent to which local voices were included in planning and decision-making processes. This was closely followed by watershed-specific issues, which pointed to localized environmental challenges and management concerns tied to water systems and land use. Finally, a smaller but still notable set of responses addressed broader, plan-level issues within the LARMP itself, such as its structure, implementation, and clarity.

Long-term outcomes after LARMP finalization

This final category of the social-ecological framework requires equity, justice, targeted interventions, and connected community networks for transformative justice. With these foundations, the LARMP can advance long-term and lasting change for both communities and ecosystems.

The capacity of the LAMRP for transformative justice should be considered through the lens of LARMP finalization and formal adoption. Survey data collected between 2024 and 2025

provide an important look into these outcomes, particularly in relation to community awareness, inclusion, and perceived benefits. Although there were limitations in survey outreach, the responses are still valuable because they are able to capture perspectives from Los Angeles residents who were previously uninvolved with the LARMP. This factor alone is significant, revealing the extent to which the plan has (or has not) permeated public awareness and created justice outcomes among those living within or near to the corridor.

Based on survey responses, the ability of the LARMP to secure transformative justice is poor. A significant portion of respondents expressed doubt that the LAMRP would adequately provide for their communities (Table 13), echoing concerns raised in Public Draft comments (Table 3 and 5). While there are continuous threads connecting earlier and later feedback, survey respondents placed even greater emphasis on social issues, including public safety, housing affordability, and accessibility (Table 4 and 15). This shift reflects the tangible challenges communities experienced following LARMP finalization, suggesting that LARMP efforts have not addressed the conditions that shape everyday life in the river corridor. It also points to broader shortcomings in aligning environmental decision-making with community concerns.

Effective social-ecological governance requires place-based and context-informed decision-making that draw on community knowledge and lived experiences (Virji, Padgham, and Seipt 2012). Absent this, the social-ecological framework risks functioning as a surface-level intervention that is unable to address underlying vulnerabilities (Sundmeier-Rieux 2014, 75–76). The persistence and amplification of social concerns between the Public Draft phase and post-finalization survey results suggests that the LARMP has not substantially improved community resilience.

Survey responses also highlight additional transformative justice challenges. A majority of respondents felt that decision-makers did not clearly communicate their goals to the public (Table 11), and many believed that community concerns have only been partially incorporated, if at all, into the final plan (Table 12). These perceptions are reinforced by responses indicating that the LARMP has not adequately provided for community needs (Table 13). When open-ended responses are analyzed, a consistent emphasis emerges on mitigating negative social outcomes and addressing persistent inequities (Table 15 and 16). Engagement practices did not translate into meaningful influence over outcomes, nor did they foster the level of trust necessary for long-term collaboration.

Social and environmental equity and justice are important considerations for SES and transformative justice. In urban contexts, the dominance of the built environment obscures ecological processes and weakens human-nature relationships. Recognizing and reinforcing the importance of human-nature relationships in SES can improve awareness and attention to sustainability, environmentalism, and environmental justice (Ercantan and Eyupoglu 2022; Nisbet, Zelenski, and Murphy 2008; Uralovich et al. 2023). Combined with the above survey responses, the relatively poor perception of environmental improvements (Table 14) also suggests that LARMP efforts have not been visible, accessible, or equitably distributed across the project area.

These challenges are further reflected in how the LARMP identifies and responds to community needs. Decision-making should step away from generalist assumptions and adopt specialized solutions based on unique community needs (Fleischman et al. 2020; Löfqvist et al. 2023), which can improve the equitable distribution of benefits. To do so, the LARMP establishes nine core goals and employs an analysis method to assess areas of greatest need.

Nevertheless, its approach is limited. Detailed environmental data guides technical goals, such as flood risk reduction and ecosystem restoration (LA River Master Plan 2022, 155-62; 175-83). In contrast, the narrow approach to social goals stifles the potential for community understanding. The identification of engagement and education needs for Goal 7, for example, used GIS data to identify educational assets, such as schools, adult education centers, and libraries, across the corridor. These assets were then compared to population density. Communities with high populations and low asset densities were identified as high need, while areas with low populations and low assets were categorized as general need, and so on (LA River Master Plan 2022, 209-15). Critical factors are overlooked. Perhaps accessibility to assets is low due to lacking language access or funding availability. Perhaps a portion of residents do not have time to make use of neighborhood assets because of familial or employment obligations. Some assets, like schools, may be prolific in an area, yet still perform low on national education standards.

Decision-makers could easily improve this effect by incorporating the insights they gained from Community Engagement Meetings or Public Draft comments. The LARMP final document, however, makes no mention of this. Thus, the LARMP's "need analysis" is incomplete, even misleading, as it omits key community characteristics.

Similar limitations appear in the treatment of housing affordability and displacement, where the LARMP may be underestimating the scale of vulnerability throughout the project area. The LARMP references the 2017 Displacement Index, which combines socioeconomic indicators to identify displacement risk for communities (LA River Master Plan 2022, 199–207). Using this method, only a limited number of high-need areas have been identified. These include communities in Long Beach, Compton, and Downtown, also known as Mile 0 – 3, Mile 9, and

Mile 20 – 28. Meanwhile, the most recent iteration of the Displacement Index data indicates that displacement and gentrification pressures now extend far beyond those same boundaries (Chapple, Thomas, and Zuk 2021). Compared to the mile markers identified in the LARMP, newer data identifies a much larger range of need: from Mile 0 through approximately Mile 32, Mile 50 – 51, and other areas throughout the watershed. Concerns about displacement and gentrification were prominent during the LARMP's planning and development process (Table 3) and the same concerns remail in post-finalization survey responses (Table 15). Yet, the LARMP does not use the most recent data or incorporate engagement data, the absence of which have contributed to rising property values and the displacement of long-standing communities in the past.

The persistence of these issues across different iterations of LA River projects distinguishes them as larger systemic inequities, rather than rare or isolated symptoms. This is not uncommon in SES, as they are influenced by systemic patterns and governance structures that can reinforce systems of inequality and privilege (Fischer et al. 2021). The issue, however, is the lack of mitigation strategies and long-term solutions that target the system as a whole. The same issues are likely to happen again without targeted efforts that can challenge these reproducing dynamics. Many survey respondents were concerned about long-term systemic challenges that would render the LARMP ineffective:

> … Start prioritizing non-humans, stop sending all our rain out into the ocean, stop ignoring all the trash, address this as it is - a systems-level problem that requires acknowledging how the challenges are interconnected. And deal with it as an intersectional environmental justice issue… do capacity building in communities around environmental stewardship and climate resilience, hire locals along the river with stakes in restoration to lead or serve in jobs related to it. Not just one-off community reps, make a web of connection and stewardship with all that money that will go into this…

There is a clear need for approaches that can recognize the interconnected nature of environmental and social challenges within dynamic SES. By targeting and challenging larger and deeper systemic inequalities, rather than those on the surface, a social-ecological framework can be implemented to ensure long-lasting transformations.

Similarly, without creating large networks of interconnected communities, opportunities for collaboration, collective action, and shared knowledge systems remain limited (Hopper 2003; Newman and Dale 2005; Wilson 1996). For example, challenging institutional dynamics by decentralizing decision-making power creates opportunities for more participation across a large social-ecological system, thereby strengthening relationships across the network. This creates durable, adaptive, and lasting networks that are better positioned to address environmental and social challenges.

Interestingly, it was the lack of intentional community network creation within the LARMP process that led to its emergence. Preparation for this study required community enmeshment, which entailed multiple years of volunteer work with river-based organizations and community engagement. One of the most significant takeaways from this participant observation was that corridor communities had become largely untrusting and doubtful of governance practices within Los Angeles. As a result, many neighborhoods developed community-based groups aimed at protecting residents from inequitable environmental governance and environmental injustices. For example, East Yard Communities for Environmental Justice (EYCEJ) is an organization established by City of Commerce and East Los Angeles residents in 2001 who were concerned with the health impacts of industrial pollution (East Yard Communities for Environmental Justice n.d.). More recently, EYCEJ began advocacy work related to the LA River, highlighting displacement and policy enforcement issues that muddy LA

River efforts (Los Angeles River Revitalization: A Master Plan Gone Awry 2021). They began an open dialogue of educational outreach and collaborative strategy-making that helped empower residents to take an active role in shaping the future of their neighborhoods.

Other nonprofit organizations, such as Friends of the Los Angeles River (FoLAR) and Los Angeles Waterkeeper, advise advocacy and policy work related to LA River efforts, while also organizing community events and river clean-ups (Friends of the LA River n.d.; Los Angeles Waterkeeper n.d.). Other organizations aim to continue the rich history of the LA River in their communities. Groups like LA River Arts and East Side of the River are dedicated to community-based artistic expression and empowerment of LA River communities (East Side Of The River n.d.; LA River Arts n.d.). A wide array of diverse cultural organizations, including Indigenous and immigrant-focused coalitions, uphold and continue cultural practices and traditions along the river.

River communities have developed deep levels of distrust toward LA River decision-makers because of the lack of transparency and accessibility during project planning, development, and implementation. Rather than becoming disinterested or remaining passive, many communities instead responded by organizing and leading their own empowerment initiatives. Over the years, they have been able to carve a small sliver of power within local decision-making processes. Organizations and community groups are also able to create larger networks of collaboration across SES, which can increase power over time. These largely community-led efforts showcase what alternative pathways for decision-making might entail outside of formal governance structures.

There are still challenges to these structures when they are not intentionally implemented. In the LARMP process, decision-makers did not incorporate the work of these organizations and

groups. Many were ousted from the process, and others were unable to influence decision-making in a formidable way. Though decision-making benefits from the process of conflict and resolution, a common occurrence within SES, the LARMP process was not conducive to this process. Instead, it limited the scope of dialogue and the integration of diverse perspectives. As a result, the fragmentation of ideals among participating organizations and groups intensified into chasms of difference without collaboration or trust. Rather than empowerment, these networks led to even greater levels of disparity, which also explain some of the challenges to the LAMRP's social-ecological framework and ability to create transformative justice.

Conclusions

Based on the findings throughout this study, the LARMP's application of the social-ecological framework was not effective in promoting equitable and adaptive governance for urban resilience. The LARMP failed to fully meet the framework's core drivers during the planning process, which further prevented substantiable or transformative change following finalization. According to public draft comments and recent survey responses, many community members appear to remain in conditions similar to, or even worse than, those documented prior to implementation.

At the same time, it is important to acknowledge the positive contributions of the LARMP to environmental management within SES. Compared to earlier iterations of LA River plans, the LARMP demonstrates a greater commitment to community engagement. It drew lessons from past planning failures, engaged Angelenos across diverse neighborhoods, and elevated public awareness of the river in ways that previous plans did not. Anecdotally, public familiarity and environmental awareness related to the LA River has noticeably increased since the start of this research in 2018: more residents participate in cleanups, more users post about the river on social media, and overall public interest appears to have grown. Whether these shifts

can be attributed directly to this LARMP iteration or to broader socio-environmental dynamics remains uncertain. Nonetheless, LARMP decision-makers are now well-positioned to make targeted amendments that could strengthen the plan's long-term impact. Doing so will require a more coherent and transparent application of the social-ecological framework.

Chapter 8. The Peoples' River

The combination of both built and natural environments, large and highly diverse populations, many active and interacting stakeholders, and long cultural and social histories all make for highly complex urban SES that cannot be generalized within a simple framework. Place-based attributes of different areas require some flexibility within the framework, but urban environmental management projects, like urban resilience initiatives, require additional guidance.

In a highly diverse urban SES, communities are not a monolith and cannot be treated as such. Each community is unique and deserves targeted planning and justice-oriented initiatives (Banzhaf 2012; Cutter 1995; Holifield 2001; Pulido 2000). Decision-making bodies must recognize social, economic, and political factors that may impact how initiatives are implemented (Cross and Chappell 2022). Without clear guidelines or considerations for vulnerable communities, environmental management and urban resilience initiatives become largely ineffective (Cross and Chappell 2022; Díaz-Pascacio, Castillo, and Jelks 2022; Holifield 2001; Ingram and Schneider 1997; Mikulewicz 2019; Power et al. 2023; Pulido 1994; Woodruff and Stults 2016). Though relegating the responsibility of justice-oriented initiatives to each individual neighborhood, as the LARMP does, can be effective in ensuring that each community has specialized attention, this creates a justice issue in itself.

Vulnerable communities often lack the same accessibility as other communities, leading to unequal outcomes of environmental initiatives in historically underrepresented areas (Bullard 1990; Eden and Tunstall 2006; Moran 2007; Pulido 2000). Often, urban resilience initiatives require technocratic and expert knowledge, making exclusion almost guaranteed (Eden and Tunstall 2006). For vulnerable communities facing disparities in information access, educational

outreach, and power, this knowledge gap becomes a significant barrier to meaningful participation in a project's planning and development processes. With greater accessibility, wealthy and politically powerful stakeholders are likely to be the loudest voice at the bargaining table and thus are able to take advantage of their place within skewed power dynamics (Ingram and Schneider 1997). This power imbalance is evident in the results of the LARMP Public Draft comments and survey results, where primary concerns include increasing equity and community outreach, supporting current residents, and reducing levels of displacement and gentrification. Social themes occur most frequently in the Public Draft Comment Log and survey responses, and it is clear why: there is an unequal distribution of access among powerful decision-makers and stakeholders that led to an unjust LARMP planning and development process.

As a result, initiatives designed to enhance resilience can unintentionally reinforce existing inequities by marginalizing those who are most affected. Bridging this gap requires intentional, community-centered approaches that prioritize inclusivity, local expertise, and equitable access to resources and information. Though this is the purpose of the social-ecological framework, its limited scope continued creating challenges.

In the LARMP planning process, LARMP decision-makers pursued stakeholder participation from both communities and other stakeholders. In this instance, decision-makers may have followed the expectations of a social-ecological framework, yet failed to incorporate the realities of power dynamics, inequalities, and accessibility within the SES. The configurations of race, power, marginalization, and oppression, influence political outcomes (Strolovitch, Wong, and Proctor 2017). In the economically, ethnically, and demographically diverse County of Los Angeles, attention to such relationships is paramount.

Social, economic, and political dynamics play a significant role within communities and project outcomes (Cross and Chappell 2022; Holifield, Porter, and Walker 2010; Stanford, Zavaleta, and Millard-Ball 2018). The social-ecological framework that decision-makers use does reference paying greater attention to environmental justice and equity issues within the project area but without recognizing the challenges of doing so in an urban SES. For example, challenges that impose a negative view of governance and decision-making among communities, such as historical or modern-day inequalities, play a significant role in the trust residents may hold in governing systems. Such challenges require additional trust-building efforts, which may be difficult in the urban context with large populations combined with varied levels of inequality, access, and needs. Without specific considerations for the application of the social-ecological framework in urban areas, decision-makers cannot always ensure equitable and effective outcomes.

There are many social, economic, and ecological benefits to be gained from urban resilience initiatives. However, there are also many potential burdens brought on by the same initiatives if the unknowns associated with underserved communities are not reckoned with (Díaz-Pascacio, Castillo, and Jelks 2002, 539). The implementation of a social-ecological framework cannot create just outcomes without specifically identifying and apportioning decision-making power to underrepresented communities.

Communities must be equipped with knowledge of the project and project area's history, scope of the project, political landscape, and environmental context, all so that they can meaningfully participate. One-off meetings or comment periods are not effective, as clearly demonstrated from the results of the LARMP's planning and development process and cannot be

the extent of participation or outreach. The success of environmental management projects using social-ecological frameworks relies on the co-development and collaboration of projects.

This requires meaningful capacity-building and community inclusion beyond simplified or purposefully streamlined mechanisms. When it comes to the application of the social-ecological framework, projects benefit from robust community engagement and are more likely to be effective in the long-term (Folke 2006; Folke et al. 2005; Meerow and Stults 2016; Ostrom 2009; Reed 2008). True capacity-building and engagement requires mechanisms that can facilitate accessible, ongoing participation, be it through education outreach, more accessible engagement, or simply the right to primary contact on behalf of decision-makers. Community members must maintain control of project development and planning, rather than being asked to react to predetermined agendas. They must be active, not passive, participants.

Based on the levels of public participation in Community Engagement meetings, as well as the concerns for outreach and engagement from the Public Draft comments and survey responses, the social-ecological framework must improve community understanding and engagement reach. Importantly, the social-ecological framework already requires community engagement, so what changed when it was applied to the LARMP?

The Los Angeles River carves through a huge urban area consisting of a diverse population of millions of people. Throughout this study, I have chosen to use terms like “communities”, “neighborhoods”, “community engagement”, “community needs”, etc., rather than terms like “people” or “individuals”. This was an intentional distinction meant to bring attention to the cultural enclaves that often form in urban areas and are particularly relevant in cities like Los Angeles.

Many LA River corridor communities are characterized by their unique attributes encompassing wide cultural identities, histories, and longstanding traditions – both in relation to other communities and in relation to the LA River. As an example, the Iranian diasporic communities that I grew up in often use the LA River for cultural activities. Every Spring, we would all go to the river for Nowruz (Persian New Year) activities. During a time of renewal, the river represented new beginnings, prosperity, and celebration. For many communities across the corridor, the LA River is a historical and culturally significant touchstone, often a site for traditional practices, foods, medicines, and memories. In more recent years, the river has also become a site of recreation, green space, art, and expression.

Nuances in SES become even more pronounced in the urban context. Decision-makers who fail to recognize the additional complexity of urban SES will not understand the distinct social and environmental needs of communities within them. When decision-makers conceptualize an urban SES as a monolith, they fail to consider the distinct social and environmental needs of individual communities. The LA River is the river of the peoples, as in, the river of the many communities of peoples who reside in the corridor and within the watershed. Unique histories, traditions, experiences, and relationships that communities have with the LA River are imperative to its future resilience, and the resilience of the communities themselves.

What is the LA River without the stewardship of Indigenous communities or the cultural traditions of the many ethnic enclaves within the city? What is the LA River's importance in the city without its recreational opportunities and green space access? What does the LA River's future look like without the involvement of the very communities it supports on a day-to-day

basis, and has supported for generations? The environment is inseparable from communities, and the two need each other to survive.

Lessons from the LARMP

In this study, the LARMP functions as a case study to test the political dynamics, ecological objectives, and social realities in the application of social-ecological framework to improve urban resilience initiatives in urban environmental management. According to the SES lens and the social-ecological framework, the LARMP's success cannot be defined by political goals established by decision-makers, nor can it be measured solely by environmental outcomes. The effectiveness of resilience planning and development can be measured by local perceptions of prioritization and effectiveness, barriers to community resilience planning, and participatory structures (Malecha, Clavin, and Walpole 2024). Successful adoption of resilience therefore centers communities within environmental management. For the LARMP's social-ecological framework, these targets remained unmet.

Decision-makers were largely unable to incorporate the complex social, political, and environmental realities of the LA River into the LARMP. Collaboration and co-development were minimal, where many communities were excluded from meaningful participation in decision-making. Capacity-building efforts were insufficient, and outreach failed to engage corridor communities. Distrust limited participation, where some communities feared exclusion, and those who did engage were sidelined regardless. Community networks that emerged did so in opposition, rather than in partnership, with decision-makers. Thus far, environmental outcomes have been inconsequential and many of the concerns for LA River improvements have remained.

These shortcomings may be misinterpreted as capacity challenges among decision-makers. However, despite limited engagement and outreach, decision-makers were still able to

reach a statistically representative population and conduct an adequate number of meetings and events over the years. The key issues that emerged included the exclusion of vulnerable and historically underrepresented communities, limited community understanding, insufficient integration of community concerns, and a lack of alignment between environmental equity goals, environmental needs, and those community priorities. A more plausible interpretation of these results is that the social-ecological framework cannot meet the additional complexity and challenges of urban social-ecological systems. There are several key shortcomings that make this claim more credible.

First, the framework's relative novelty and conceptual breadth have made consistent implementation difficult. Social-ecological frameworks are relatively new and largely theoretical. It was not until Maniraho et al.'s (2023) systemic review of social ecological systems literature that a decisive outline was developed. Prior to their work, the application of social-ecological frameworks to environmental management projects varied across cases. Though these cases adopted many attributes of various social-ecological methodologies, there was little generalizability across cases. The lack of clear social-ecological framework guidelines also made the analysis of such applications difficult. Different projects have used different indicators, methods, and development strategies, all with varying levels of success. This should not be read as a critique of the framework's principles, as the framework does contain many of the necessary elements to support equitable social-ecological outcomes. However, the intentional flexibility of the framework begins to breakdown within complex urban SES. The lack of structure evolves into inconsistent applications within urban SES, requiring additional considerations.

Second, though Maniraho et al. attempted to organize the social-ecological framework more clearly, they did not prescribe a certain order of operations insofar as when or at what stage

each driver should be implemented. While this allows some level of flexibility, it ultimately compromises the mechanism for social-ecological framework success. In highly politicized and historically marginalized spaces, the progression of engagement matters. For example, early and sustained community engagement increases collaboration and ensures solutions are developed according to local ecosystems and cultures (McDonald, Jonson, and Dixon 2016, S15).Without that primary and deliberate engagement of vulnerable communities, engagement among other, more powerful groups, while still necessary within the SES, sets a precedent for project development and thus skews outcomes. If community engagement only occurs later in a project development process, decision-makers may fail to understand the full extent of the social-ecological system context. Simply put, the timing of implementation matters.

Third, the social-ecological framework fails to set specific benchmarks for success. Again, while this is meant to allow for flexibility, it can hinder success. While decision-makers perceive the LARMP process as a success, many communities are dissatisfied with their access and inclusion. Critically, many vulnerable and historically underrepresented communities continue to be excluded. Urban SES contain many stakeholders and diverse communities that will face uneven decision-making access without deliberate attention. Benchmarks should be established by collaboration and co-development within each project area, but the lack of any guidelines altogether subverts the purpose of the framework altogether.

Fourth, while the framework requires that decision-makers understand historical contexts, it does so within the context of inclusion and understanding. The reality is that SES may have long histories plagued with exclusion and inaccessibility. At best, communities may react to decision-makers with doubt and uncertainty. At worst, they may be suspicious and uncooperative. In the case of the LARMP, different communities had faced years of continuous

exclusion which made them unwilling to participate in subsequent research attempts. As it currently stands, the social-ecological framework cannot bridge adversity among stakeholders. Decision-makers may enter a community with the greatest of intentions yet those community members, having faced years of exclusion and adversity (often at the hands of previous decision-making processes), are unlikely to engage. Without the foundation of trust, subsequent stages of planning or consultation risk reinforcing existing power imbalances, rather than transforming them.

Fifth, the social-ecological framework does not include opportunities for evaluation and revision if project outcomes do not meet expectations. There is no opportunity or requirement of returning to communities, changing outreach methods, or pursuing mitigation strategies if community members or other stakeholders are dissatisfied with results, or if participation is generally low.

Finally, the framework does not effectively set expectations for the prioritization and co-consideration of social and environmental contexts. Prioritization of decision-makers and powerful stakeholders, who seemed to already have a set ideation of expected outcomes, led to a misaligned LARMP. Upon finalization, the LARMP reflected the very same issues that constituents had voiced their concerns about throughout the LAMRP's planning and development process (Reid-Wainscoat 2021). There was a clear tension among LARMP priorities of decision-makers versus environmental and local needs.

Despite its limitations in practice, the social-ecological framework remains a suitable evaluative and planning model for environmental management. It offers a valuable lens for understanding SES dynamics and prescribes methods to integrate equity and justice social considerations with broader environmental goals. Lessons from the LARMP can help develop

alternative strategies and improvements for the social-ecological framework when used in urban SES.

The new urban social-ecological framework

In practice, it is not uncommon for resilient environmental management projects to put greater attention on the ecological and technical aspects of resiliency and in turn neglect local communities (Maniraho et al. 2023). A lack of structure and oversimplification of the many interconnected relationships limits the ability of these projects to facilitate interactions with stakeholders (Krievins, Plummer, and Baird 2018; Maniraho et al. 2023). Perhaps the social-ecological framework did not function as intended because of the vast considerations within the urban SES of Los Angeles. In some cases, the social-ecological framework applied to non-urban contexts has resulted in successes (Armitage 2002; Berkes, Colding, and Folke 2002; Olsson, Folke, and Berkes 2004; Ostrom 1990). While LARMP decision-makers did make efforts for community involvement and engagement in the planning process, the results remain less than ideal. Not only is the LARMP lacking in community involvement and engagement, but it also fails to incorporate the most underserved and underrepresented communities. The application of a more comprehensive iteration of the social-ecological framework within the LARMP will improve outcomes.

Based on this, and the results of this study, this section suggests a new urban social-ecological framework that can more effectively pursue environmental and community resilience in urban environmental projects. The structure is modelled after the theoretical framework presented in Chapter 4 but supplemented and refined by the lessons learned from the LARMP.

It should be noted how specific findings are incorporated into the new urban resilience social-ecological framework. Structurally, the revised framework diverges considerably from the original theoretical framework with more clearly defined expectations and methods. While this

restricts some flexibility, it reduces ambiguity and streamlines applicability. A key feature of this framework is timing, where each phase builds on the successful completion of the previous one. This makes progression more linear throughout the implementation process, which also improves transparency. The framework also establishes benchmarks for success. While they must still be adapted to the context of individual projects and project areas, they provide decision-makers with a clearer sense of anticipated outcomes.

Framework content has also been strengthened. Historical context is now a prerequisite to action, ensuring that decision-makers are equipped with the knowledge needed to collaborate effectively with communities. This is followed by trust and capacity building, a necessary component in advancing partnerships among adverse stakeholders. The new urban social-ecological framework also implements a structured process for post-implementation evaluation and review. This ensures that decision-makers are held accountable by staying in conversation with communities. With this, decision-makers also have access to mechanisms for revision and refinement when needed. In addition, greater emphasis is placed explicitly on the human-nature relationship. It is fully integrated within the framework, rather than treated as an afterthought. Overall, the new urban social-ecological framework offers stronger guidance for decision-makers by supporting the development of urban environmental projects that are community centered and ecologically informed.

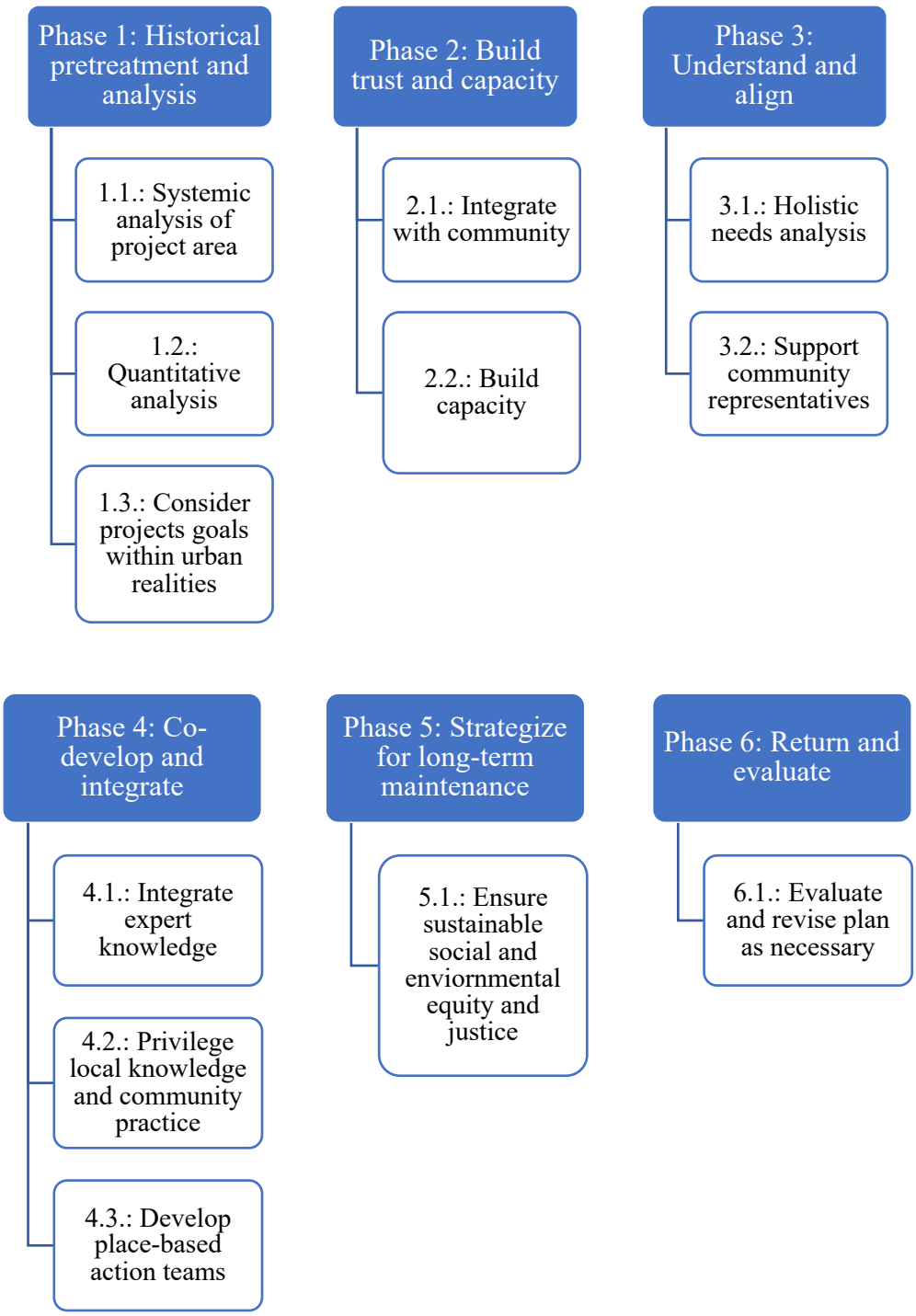


Figure 11. The urban social-ecological framework

The urban social-ecological framework is meant to guide decision-makers in developing resilient environmental management that is both community centered and sustainable within urban areas. Evaluating the social-ecological framework through an urban lens highlighted

challenges with its application. This urban social-ecological framework provides a clearer, more comprehensive guide for incorporating the framework within urban contexts. Most importantly, it recognizes the complexity of urban social ecological systems and guides project planning and development through targeted outreach and data compilation mechanisms. This urban social-ecological framework also recognizes the realities of planning and development in urban areas, such as large populations and a diverse mix of public and private stakeholders, offering alternatives when possible. Implementation of the urban social-ecological framework is carried out in five phases, each with its own requirements. Some requirements align with the original social-ecological framework, though have been reordered to align more comprehensively with each phase.

1. Historical pretreatment and analysis

    1.1. Systemic analysis of project area

The first step in developing any environmental initiative is to clearly define the project area. Because preconceptions of project goals may inhibit collaboration, no goals should be established here. A systemic review of previous plans with comparable goals must take place instead, including their development processes, implementation trajectories, and long-term outcomes. Attention should be given to the outcomes of previous projects, with particular consideration for social inequities and environmental failures. This process establishes a foundational understanding of the project area.

Reviewing past plans can uncover critical social and historical contexts, particularly regarding how earlier decisions affected local communities. These are essential for informed and equitable planning and development of environmental initiatives. Planners should study both successful and unsuccessful aspects of previous efforts to understand what contributed to their

outcomes. For example, had LARMP decision-makers thoroughly analyzed the LARRMP, the primary inspiration for the LARMP, they may have found that while economic development and ecological revitalization goals were partially met, insufficient community inclusion contributed directly to gentrification and displacement in vulnerable and underrepresented communities throughout the LA River corridor (Leung and Lamadrid 2015; Rasmussen 2024, 304–5).

Such findings underscore that initiatives deemed successful from technical or economic standpoints may simultaneously produce harmful social consequences, particularly for historically marginalized communities (Díaz-Pascacio, Castillo, and Jelks 2022; Mennis 2005; Pulido 1994). With attention to environmental, social, and economic outcomes, a rigorous and holistic systemic analysis of the project area should incorporate the entire range out outcomes. The resulting report, which contains these nuanced effects, will help decision-makers anticipate the unintended consequences of past projects and begin developing mitigation strategies.

1.2. Quantitative analysis

Following the review of past initiatives, decision-makers should complete a detailed quantitative analysis of the project area. This involves assessing key environmental, demographic, and socioeconomic indicators, such as population composition, income, education, housing availability, environmental burden, and public health vulnerabilities. This data allow decision-makers to identify the communities of greatest need, understand disparities across neighborhoods, and determine which communities should be prioritized for early and sustained engagement. When combined with insights from prior plans and forthcoming qualitative engagement, these quantitative findings form the basis of needs analysis for communities within the project area.

1.3. Consider project goals within urban realities

Initial project goals should be developed with an understanding of the complex realities of urban environments. Quantitative results should be integrated with qualitative insights form these meetings to create a holistic understanding of the social, historical, and environmental conditions shaping each community. Parsing results by neighborhood or general area is essential, as concerns vary across contexts due to differences in geography, demographics, political histories, or local environmental burdens. Environmental conditions, along with social, economic, and spatial constraints, shape what is feasible and equitable. Informed by both the systemic and quantitative analysis, decision-makers develop initial project goals for the urban SES. More importantly, they set a tangible foundation for the project that is based on the practical limitations and opportunities of the project area.

Table 18. Phase 1: historical pretreatment and analysis

Phase 1: Historical pretreatment and analysis			
	Significance	Method	Benchmarks
1.1.: Systemic analysis of project area	Comprehensive review uncovers social, historical, and equity-related contexts that shape project area	Conduct systemic analysis of comparable past plans, examining their development, implementation, and full range of environmental, social, and economic outcomes	Report that integrates lessons from both effective and harmful past projects to inform future project development
1.2.: Quantitative analysis	Detailed quantitative analysis identifies disparities and ensures that the most vulnerable and underrepresented communities are recognized and prioritized within project area	Analyze environmental, demographic, and socioeconomic indicators to build data-driven understanding of community needs	Identification of priority communities

1.3.: Consider project goals within urban SES realities	Grounding initial project goals within SES realities sets an equitable, feasible, and responsive project foundation	Combine results from systemic and quantitative analyses	Development of initial goals that are realistic for the project area and can address urban constraints, mitigate unintended consequences, and consider environmental and community needs

2. Build trust and capacity

    2.1. Integrate with community

The most significant finding from this study has been that community engagement within the social-ecological framework lacked depth, robustness, and meaningful reciprocity. Many core concerns, such as equity, resident protection, and displacement and gentrification fears, remain insufficiently addressed. Decision-makers must initiate contact with communities and integrate within them to develop a substantive understanding of their lived experiences, priorities, and constraints. Decision-makers should not attempt to influence communities but understand them instead.

Decision-makers can build trust with project area communities early in the process. They should target the most vulnerable, historically underrepresented, and most affected communities first and share their findings. Focusing on communities that are most vulnerable aligns with long-standing environmental justice scholarship, which emphasizes the need to prioritize marginalized groups to ensure equitable planning outcomes (Banzhaf 2012; Cutter 1995; Holifield 2001; Mikulewicz 2019; Pulido 2000). This approach supports to integration of equity considerations in the planning process by centering resident needs and redesigning outreach practices accordingly. Sharing the findings from Phase 1 with project area communities enters

them in a direct dialogue and engagement with residents. This dialogue may help contextualize Phase 1 findings with additional information that initial analysis may not have been able to capture.

2.2. Build capacity

Capacity-building efforts, such as free community events, educational programs, or informational workshops, further strengthen this process. Residents must be informed about issues affecting their neighborhoods, potential mitigation strategies, and the steps involved in project planning and implementation. Implementing solutions that address specific community needs, such as providing translation services, using nontechnical language, offering multiple opportunities for engagement, and maintaining transparency, further strengthens these relationships. By engaging communities as collaborators rather than passive participants, decision-makers can create a more adaptive and responsive outreach structure. If a chosen engagement strategy proves ineffective, it should be revised based on community feedback. Over time, as relationships deepen and capacities grow, community-defined goals and desired outcomes will evolve to more accurately capture their specific needs and priorities.

Table 19. Phase 2: trust and capacity

Phase 2: Trust and capacity			
	Significance	Method	Benchmarks
2.1.: Integrate with community	Early, meaningful, and reciprocal community engagement ensures that initial project development reflects the lived experiences and needs of communities	Proactive engagement and trust-building with communities through local integration, prioritizing listening and learning, and sharing Phase 1 findings	Improved relationships with communities and integration of insights into project planning
2.2.: Build capacity	Empowers communities to	Implement educational initiatives	Increased community engagement,

	actively participate in decision-making processes	and collaborative outreach strategies that inform residents and encourage their participation in the decision-making process	knowledge-sharing, and adaptation over time

3. Understand and align

3.1. Holistic needs analysis

Because power is held differently based on dynamics within the SES, meaningful changes ought to understand the extent of these dynamics. More holistic approaches for understanding urban SES challenges are necessary to supplement traditional environmental assessments. A comprehensive needs analysis grounded in a holistic understanding of local communities effectively guides outreach and planning efforts, identifies appropriate methods of community integration, highlights particular community challenges, and clarifies the types of strategies that are appropriate for project areas.

As a result of Phase 1 and Phase 2 data collection, the holistic needs analysis will highlight variations in results across different neighborhoods, which issues to focus on, and greatest needs. It will also bring attention to unique community histories and practices that decision-makers may not have otherwise been aware of. This holistic needs analysis reflects more genuine recognition and centering of the communities within urban SES. The needs analysis can connect neighboring communities by identifying areas with shared histories, needs, and challenges to further strengthen collective empowerment. In large and complex urban SES, such cross-neighborhood linkages are essential for progress. At the same time, each community must be allowed the space to retain their own voice, even within the broader, multi-community group. The communities themselves should determine the best methods for this.

Effective understanding and alignment is a two-way street that requires transparency. Upon completion of the needs analysis, findings should be shared widely with communities, technical experts, local organizations, and other involved stakeholders to ensure that everyone is working from the same informational baseline.

3.2. Support community representatives

Advancing co-development and collaboration requires sharing power, not just collecting input. This requires creating transparent, community-driven mechanisms through which residents can identify individuals who reflect their priorities, histories, and concerns. Community representatives will also help streamline the process of project planning and development.

It is equally important that selected representatives are willing and prepared to participate meaningfully in dialogue with decision-makers, technical experts, and other stakeholders. Providing training or orientation on the project's goals and constrains can strengthen capacities to advocate effectively. These roles should not rely on unpaid labor. Establishing paid positions, or at minimum, offering consistent stipends or compensation, recognizes the value of community expertise, reduces barriers to participation, and affirms the important work of local representatives. It also places community members firmly within decision-making processes, helps redistribute authority, and builds long-term capacity.

Table 20. Phase 3: understand and align

Phase 3: Understand and align			
	Significance	Method	Benchmarks
3.1.: Holistic needs analysis	Combines findings from Phase 1 and 2 to better reflect community differences and challenges	Integrate multiple data phases to identify neighborhood-specific conditions, shared histories, and appropriate outreach	Analysis meaningfully centers diverse communities, reveals both unique and shared needs across communities, and supports

		and integration strategies while allowing community autonomy and voice	collective empowerment
3.2.: Support community representatives	Redistributing power recognizes residents as essential decision-makers	Establish transparent, community-led systems for selecting and training representatives	Community representatives are meaningfully integrated into decision-making and have decision-making power

4. Co-develop and integrate

4.1. Integrate expert knowledge

It is likely that urban SES projects will require multiple iterations for specific communities and neighborhoods, given their population, size, and diversity. This is a significant undertaking for any single planning organization, making collaboration with experts already familiar with specific areas necessary. Collaboration with project area experts, including local experts, scientists, NGO's and practitioners, and academic institutions/researchers, will ease the undertaking of large projects. Important to note, however, is that 'expert' knowledge cannot overpower the voice of local communities. Local communities are experts in their own right and should not need to compete with other representatives for decision-making power.

4.2. Privilege local knowledge and community practice

Local knowledge that is rooted in long-term place-based relationships, cultural practices, and lived experiences, should remain central to planning discussions and decision-making. Community knowledge should not be supplemental – it is essential in the planning and development process. Such knowledge should guide how environmental goals are operationalized, how benefits and burdens are assessed, and how effectiveness is measured. This includes acknowledging expertise that exists outside of formal institutions, such as Indigenous

environmental stewardship practices and other land use practices. Prioritizing local knowledge reduces barriers to meaningful participation and ensures communities have a voice from the beginning of project development.

Through intentional outreach and genuine efforts to understand local perspectives, decision-makers demonstrate good faith and build trust, which is critical sustainable co-development and integration. Additionally, place-based relationships are rooted in the long-term political, environmental and personal histories of communities, and may be unintelligible to outsiders. Recognizing these forms of knowledge helps produce plans that are culturally relevant and socially equitable, while also being effective and sustainable. When communities see their input is leading to tangible action, they are more likely to engage in long-term knowledge sharing and collaborative decision-making.

4.3. Develop place-based action teams when project areas are large or highly complex.

For large project areas, dividing the project area into smaller, manageable action teams can streamline coordination and ensure communities are not overlooked. For example, the LA River corridor may be divided into groups based on mile markers, populations, land square footage, or other approximately equal partitions. Smaller teams can better focus on site-specific challenges, community dynamics, and ecological conditions that may differ across the broader project area.

While this approach requires additional funding, staffing, and logistical coordination, it also enhances responsiveness, improves communication, and increases opportunities for community participation. In the case of the LARMP, many initiatives had already been divided based on neighborhood. The difference here is that the LARMP did not develop place-based teams that integrated community input. Rather, place-based initiatives were developed without

significant local involvement and based on general quantitative data of each area. This structure also requires that non-community stakeholders commit to meaningful participation within these smaller units. In some cases, these stakeholders may also need to create their own internal teams to match the organizational structures used within the multi-community linkages. When implemented, this multi-team model can strengthen collaboration and ensure that hyper-local needs are integrated into the larger environmental initiative.

Table 21. Phase 4: co-develop and integrate

Phase 4: Co-develop and integrate			
	Significance	Method	Benchmarks
4.1.: Integrate expert knowledge	Urban SES projects require large-scale collaboration efforts	Partnerships with a range of experts from different stakeholder groups	Collaborative processes effectively integrate multiple forms of expertise without diminishing authority within any one stakeholder group
4.2.: Privilege local knowledge and community practice	Reflects lived experiences, long-term place-based relationships, and forms of expertise often excluded in the decision-making process	Integrate and prioritize community knowledge into decision-making	Community knowledge directly shapes decision-making and residents remain engaged over time
4.3.: Develop place-based action teams	Ensures that diverse local conditions and community needs are accurately represented	Organize action teams that better coordinate participation from stakeholders	Multi-team structure improves coordination, increases participation, and ensures that hyper-local needs are integrated into the broader project

5. Strategize for long-term maintenance

    5.1. Ensure sustainable social and environmental equity and justice

Upon establishing a strong urban social-ecological framework foundation, decision-makers, community members, and other stakeholders can begin the ongoing work of reinforcing that foundation through continued adaptive management and community engagement. Shorter term project timelines, even when developed through the urban social-ecological framework lens, are not enough to ensure continued results.

Long-term maintenance strategies should be developed in accordance with best practices for the project area. In some cases, this may require the creation of permanent positions or funding structures that allow for continuous monitoring of burdens and benefits within a project area. For example, the County of Los Angeles may retain a team of technically trained LARMP decision-makers to engage in yearly project assessments, which includes both quantitative data collection and community engagement meetings to identify any emerging challenges. Long-term stewardship roles should also be made available to community leaders and can also include standing community oversight boards. Capacity-building events should continue, ensuring that residents retain meaningful influence over decision-making following project finalization and implementation. Embedding equity and justice into long-term governance structures ensures that long-term maintenance strengthens community resilience, cultural continuity, and social wellbeing overtime, in addition to environmental benefits.

These permanent structures also challenge the underlying systemic conditions that shape environmental and social outcomes. Shifting priorities from long-standing institutional structures and decision-making processes towards community-driven stewardship transforms how decisions are made for the future. Going past tangible environmental and economic results to include social impacts, equity, and cultural integrity completely redefine how success and effectiveness is measured. These changes recognize the critiques of surface-level solutions and

respond by restructuring the reactive nature of problem-solving towards transformative strategies instead. Maintaining a strong urban social-ecological foundation through ongoing assessments ensures that shifts in social, environmental, and economic conditions are monitored. Urban SES maintenance strategies do not become disconnected from community realities. Instead, they can adapt over time to reinforce community and environmental resilience and equity.

Table 22. Phase 5: strategize for long-term maintenance

Phase 5: Strategize for long-term maintenance			
	Significance	Method	Benchmarks
5.1.: Ensure sustained social and environmental equity and justice	Long-term sustainable outcomes are essential for resilient urban SES	Establish permanent governance structures like monitoring teams, community oversight boards, and ongoing capacity-building programs	Urban SES can continuously adapt to changing conditions while still maintaining equity and community authority in decision-making processes

6. Return and evaluate

6.1. Evaluate and revise plan as necessary

A limitation of the social-ecological framework is that it does not include a mechanism for evaluation and revision. Without opportunities for reassessment, plans risk becoming static documents that fail to adapt to new information and changing conditions. The LARMP illustrates this challenge clearly. Though the LARMP's planning and development process revealed substantial community concerns, these concerns were not adequately acknowledged or integrated into the final plan. As a result, many community members became skeptical of the decision-making process while other stakeholders, like nonprofit organizations and community-based groups, withdrew their support for the project altogether. Once implementation began, those unresolved issues intensified and created new obstacles for communities and community groups.

To avoid the same outcomes, decision-makers must return to project areas and continue the collaborative process. Community members must retain the authority to request pauses or adjustments to project activities in response to new concerns. This does not necessarily mean pausing implementation altogether. Instead, it creates a protective measure so that a project cannot proceed without broad support, transparency, and accountability.

Strategies for evaluation should also be co-developed with communities and other stakeholders. Strategies may include: establishing clear social and environmental monitoring indicators, creating an oversight board of community members and other stakeholders, implementing public reporting requirements, developing management and conflict resolution protocols, and establishing permanent funding mechanisms. Ideally, the presence of such safeguards fosters stronger collaboration among decision-makers, communities, and other stakeholders. When all parties operate with the understanding the project continuation requires sustained approval, they are more likely to prioritize co-development and collaboration. An evaluation and revision process helps prevent the escalation of conflicts, strengthens trust, and ensures the project continues to align with the principles of the urban resilience social-ecological framework.

Table 23. Phase 6: return and evaluate

Phase 6: Return and evaluate			
	Significance	Method	Benchmarks
6.1.: Evaluate and revise plan as necessary	Avoids projects becoming statis and unresponsive to urban SES needs	Co-develop evaluation systems with communities	Projects maintain transparency and accountability through continuous reassessment, sustained community approval, and adaptive adjustments

More than a seat at the table

Too often, environmental management projects that claim to embrace transformative and equity-driven frameworks fail to create meaningful space for underrepresented communities. For urban resilience initiatives that are specifically aimed at improving both social and ecological outcomes, this oversight is particularly harmful and leads to poor outcomes for both. Decision-makers may offer a symbolic seat at the negotiating table, but without real opportunities to influence outcomes. In other cases, communities are invited to voice their opinions only to be quickly dismissed. Most commonly, it seems that decision-makers build a façade, a decoy table where community members are openly invited to the planning and development process to voice their concerns and opinions. Meanwhile, the real negotiations unfold elsewhere, behind closed doors, among powerful decision-makers, developers, and other entrenched stakeholders. The result is an act of performative inclusion that gives the appearance of collaboration without granting genuine power or agency.

Even in the application of the social-ecological framework, a framework specifically meant to counter the challenges of project planning and development within an SES, this covert exclusion through performative inclusion continues to occur, impacting the expected effectiveness of urban resilience. The realities of environmental management should be mentioned here. Often there are constraints in funding and staffing, strict environmental laws and policies, and complicated governing protocols paired with equally complicated institutions. The interactions among these variables confuse the already complex process of environmental management.

The social-ecological systems lens attempts to untangle this messy network to provide insights into how its components interact. In doing so, it brings attention to the integral role each component plays within the SES. Of course, governance systems and environmental resources

within a project area are fundamental in influencing outcomes, but residents, communities, and organizations play a similarly significant role. And yet, projects like the LARMP, that are designed with a social-ecological framework meant to recognize the dynamic interactions and interconnectedness of components within the SES, still fail to implement mechanisms that promote co-development and collaborative processes within urban resilience.

To test the effectiveness of the urban social-ecological framework suggested here, a similar analysis of urban resilience initiatives in other cities should also be conducted. Particular attention should be given to the planning and development phases of the project, as well as long-term outcomes, to identify any remaining gaps for the framework. Though the practical application of this framework may not happen for many years, or may even never happen, this research has identified a number of challenges in the current application of social-ecological frameworks in the context of urban resilience. Future studies may apply similar methodologies to observe the challenges of implementing social-ecological frameworks in environmental management projects elsewhere, such as those in rural or remote areas, Indigenous lands, or cross-boundary locations. Perhaps there are additional considerations for social-ecological frameworks when applied to other contexts as well that will aid collaboration, co-development, and long-term effectiveness.

True collaboration and co-development requires going beyond symbolic gestures. It is more than just offering a seat at the table; it is about dismantling the table entirely. It is about shifting away from speaking at or for communities and instead engaging in dialogue *within communities*, on their terms. It is about being comfortable stepping out of formalized settings and into the unknown, where power shifts from centralization to communion, and where decision-makers are no longer decision-makers, but simply the peoples' arbiters. It is about listening

deeply to the perspectives, histories, and lived experiences of each unique community, recognizing that these insights cannot always be translated or fully understood by outsiders, but trying anyways. It's about appreciating the distinct ways in which each community interacts with the natural environment, their rhythms, practices, and human-nature relationships, and how these all compliment their built environment. The urban social-ecological framework replaces performative inclusion and covert exclusion with a new mechanism for understanding the integral role of communities within the SES.

So, let's go to the river, sit on its banks, and work towards a future for all.

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Appendix A: Survey questions

Demographic Questions

Q1. Age: What is your age?
Under 17 years old
18-24 years old
25-34 years old
35-44 years old
45-54 years old
55-64 years old
65-74 years old
75 years or older

Q2. Ethnic Origin: Which category best describes you?
White (*For example: German, Irish, English, Italian, Polish, French, etc.*)
Hispanic, Latino or Spanish origin (*For example: Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian, etc.*)
Black or African American (*For example: African American, Jamaican, Haitian, Nigerian, Ethiopian, Somalian, etc.*)
Asian (*For example: Chinese, Filipino, Indian, Vietnamese, Korean, Japanese, etc.*)
Alaska Native or Native American (*For example: Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, etc.*)
Southwest Asian, Middle Eastern, or North African (*For example: Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, etc.*)
Native Hawaiian or Other Pacific Islander (*For example: Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, etc.*)
Other, *please describe*:

Q3. Education: What is the highest degree or level of school you have completed? *If currently enrolled, what is the highest degree you have received?*
No schooling completed
Nursery school to 8th grade
Some high school, no diploma
High school graduate, diploma or the equivalent (for example: GED)
Some college, no degree
Associate degree
Bachelor's degree
Trade/technical/vocational training
Master's degree
Professional degree
Doctorate degree

Q4. Employment Status:
Employed
Self-employed

Unemployed
Student
Homemaker
Military
Retired
Unable to work

Q5. Household Income: Which of the categories below describe your household income?
Less than $10,000
$10,000 – $25,000
$25,001 – $50,000
$50,001 – $75,000
$75,001 – $100,000
$100,001 – $125,000
$125,001 – $150,000
$150,001 and above

Q6. Number of People in Household:

Q7. Geographic Location: What zip code do you reside within?

Q8. Residency: How many years have you been a resident of your zip code?
0-2 years
3-5 years
6-9 years
10+ years

Community Survey Questions
Please respond to each question below. Feel free to add more information in the text boxes provided.

Q1. Have environmental burdens been an issue for you in the past?
Yes
No
Somewhat

Q2. Do you regularly visit the Los Angeles River paths for recreation, visiting businesses, or commuting?
Yes
No
Sometimes

Q3. Approximately how far away do you live from an LA River access point?

0-3 miles

3-6 miles
6-9 miles
Over 9 miles
I'm not sure

Q4. Do you feel safe recreating near or on the LA River?
Yes
No
Somewhat

Q5. Are you aware of current Los Angeles River restoration efforts?
Yes
No
Somewhat

Q6. Has the status of the Los Angeles River improved due to restoration efforts in your area?
Yes
No
Somewhat

Q7. Is the Los Angeles River an important part of your community?
Yes
No
Somewhat

Los Angeles River Master Plan Questions
Q8. Are you aware of the 2022 Los Angeles River Master Plan (LARMP)?
Yes
No
Somewhat

Q9. Have you been involved in the LARMP planning process?
Yes
No
Somewhat

Q10. Are you familiar with any of the local nonprofit organizations that were involved in the LARMP planning process?
Yes
No
Somewhat

Q11. Do you feel that the County of Los Angeles and others involved with the LARMP have made their goals clear to the community?
Yes
No

Somewhat
Not sure

Q12. Do you feel that community concerns have been included in the LARMP?
Yes
No
Somewhat
Not sure

Q13. Do you feel that the County of Los Angeles and others involved with the LARMP are adequately providing for your community?
Yes
No
Somewhat
Not sure

Recommendations

Q14. Is the LARMP effective for both the Los Angeles River and your community?
Yes
No
Somewhat

Q15. Are there any changes you would like to see regarding the LARMP?
Yes, *explain*
No, *explain*

Q16. What do you think is the most important issue the County and others involved with the LARMP should address in relation to the Los Angeles River and your community?
Open ended question

Q17. How would you prefer to receive information about the LARMP or other plans for the LA River?
In-person community events
Virtual community events
Online videos
Social media
Other: [Short answer]

Q18. Describe a vision for the LA River that you would like for local governments and organizations to work toward.
Open ended question

Appendix B: Survey demographic data

Q1. Age: What is your age?

Age Group	Number of Responses
18-24 years old	53
25-34 years old	168
35-44 years old	131
45-54 years old	75
55-64 years old	36
65-74 years old	19
75 years or older	8
No answer	25
Decline to answer	6

Q2. Ethnic Origin: Which category best describes you?

Ethnic Origin	Number of Responses
White (For example: German, Irish, English, Italian, Polish, French, etc.)	250
Hispanic, Latino or Spanish origin (For example: Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian, etc.)	94
Asian (For example: Chinese, Filipino, Indian, Vietnamese, Korean, Japanese, etc.)	34
Biracial or Multiracial	16
Black or African American (For example: African American, Jamaican, Haitian, Nigerian, Ethiopian, Somalian, etc.)	13
Middle Eastern or North African (For example: Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian, etc.)	6
Alaska Native or Native American (For example: Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, etc.)	1
Native Hawaiian or Other Pacific Islander (For example: Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, etc.)	1
No answer	88
Decline to answer	19

Q3. Education: What is the highest degree or level of school you have completed? *If currently enrolled, what is the highest degree you have received?*

Educational Attainment	Number of Responses
Some high school, no diploma	1
High school graduate, diploma or the equivalent (for example: GED)	13
Some college, no degree	61
Associate degree	27
Bachelor's degree	194
Trade/technical/vocational training	8
Master's degree	88
Professional degree	14
Doctorate degree	20
No answer	92
Decline to answer	4

Q4. Employment Status:

Employment Status	Number of Responses
Employed	283
Self-employed	48
Unemployed	27
Student	22
Homemaker	7
Retired	28
Unable to work	5
Decline to answer	10
No answer	92

Q5. Household Income: Which of the categories below describe your household income?

Household Income	Number of Responses
Less than $10,000	9
$10,000 – $25,000	18
$25,001 – $50,000	45
$50,001 – $75,000	41
$75,001 – $100,000	61
$100,001 – $125,000	44
$125,001 – $150,000	42
$150,001 and above	126
Decline to answer	45
No answer	91

Q6. Number of People in Household:

Household Size	Number of Responses
1	112
2	169
3	64
4	64
5	5
6	4
7	1
8	1
10	1
Decline to answer	2
No answer	98

Q8. Residency: How many years have you been a resident of your zip code?

Number of years living in neighborhood	Number of Responses
0-2 years	96
3-5 years	98
6-9 years	49
10+ years	181
Decline to answer	7
No answer	91

Appendix C: Social theme comments

The following appendices (C, D, E, F, and G) contain a selection of LARMP Public Draft comments. Parenthetical numbers refer to the comment number in the publicly accessible LARMP Public Draft comment document.[54] No changes have been made to comments to account for any spelling or grammatical errors, though some have been shortened for brevity.

For a reference guide for all public draft comments and their categorization, please contact the author of this study. Please note that many comments have been categorized into multiple categories, the comments below are merely a selection.

Regarding 'equity' and 'gentrification and displacement'
Risk for displacement is high and the LARMP itself does not provide a specific action plan to ensure that people feel protected and acknowledged. Please consider the many families and individuals who will be affected by this project if there aren't more equitable and socially just solutions put in place at the neighborhood, encampment, and individual levels. (#707)

I am a resident of Los Angeles and a student at Venice High School. I would first like to thank County staff for all the work you do to protect our water resources. I am writing to recommend improvements to the LARMP Update because a healthy river is important to me. I would like you to prevent displacement and ensure housing affordability. Some of our close friends live in a single room, renting from someone else because they cannot afford housing or renting a larger property. These people are hard workers. I hope you will be able to prevent displacement and ensure housing affordability by producing and preserving affordable housing through land banks, and by protecting tenants. (#828)

Regarding economic equity, community health, resiliency
The vision statement is still problematic and not truly a vision statement. It is trying to be all things to all stakeholders, leaving it lacking in clarity, vision, and ambition. We would like a strong vision statement that prioritizes ecological health of the river and community health and resilience, while taking into account community needs around flood risk, open space, housing, and economic opportunities. (#227)

…Moreover, people regularly visit the River, particularly during the recreational season, to kayak, fish, participate in cleanups, and more. This LARMP does not celebrate how Angelenos already engage with the River and lacks solutions to make these activities easier on visitors. Access should not stop at the edge of the River but should extend into the river channel so visitors can experience the River for what it is – a river. One can imagine a climate resilient future where the river provides a much needed respite of shade and urban cooling for those residents who are without air conditioning amidst a catastrophic heat wave. Keeping people out of the channel is to keep people away from a source of relief, refuge, connection, and sustenance. (#383)

[54] Available at https://larivermasterplan.org/wp-content/uploads/220511-LARMP_Public-Draft-Line-by-Line-Responses_FINAL.pdf (accessed 2 November 2024)

i went to the meeting and heard a lot of things that made sense. i also heard stuff that made no sense at all. i'm native to the los angeles river watershed having lived in burbank, toluca lake, north hollywood, atwater village, silverlake, los feliz, and elysian valley(frogtown). i've lived and worked i along the river commuting by bicycle to downtown LA. i know the river. the plan fails on three key points: 1). indigenous peoples representatives in leadership positions on land use decisions. 2). mixed use conflicts and safety through elevation of human mobility transports for the mobility impaired. 3). every city on the river has had a plan for the river before. they need a seat at the table to make the not changes that smooth transitions between neighbors along the river path. local small businessmen are the engine of the sustainable economy into the future. they need to connect to unsheltered, disabled, and otherwise underrepresented clients to elevate the experience of the river. i want to be in that future (#857)

goal 7 raises grave concerns about underpinning work that has not been undertaken in the master planning exercise. It is too little and too late to 'Identify community vulnerabilities, such as displacement risk, flood risk, or climate vulnerability, and investigate potential impacts associated with river improvement projects.' and to 'Develop a strategy to address identified threats by projects to community and resident stability, particularly forces of economic displacement, flood risk, and climate risk' (p. 205) after the LARMP is approved. (#726)

Regarding affordable housing access, displacement, and gentrification
I have been a resident from Paramount my whole life and suddenly in December 2019 I was evicted due to the increase in rent. As a community volunteer and resident near the LA River affordable housing is very important in the areas that are going to be gentrified due to the LARMP. Along with the planned architecture more importantly there should be a protection for renters and homeowners to avoid eviction. I would like to see a larger portion of the LARMP including homelessness and affordable housing. The LARMP is for the residents surrounding the LA River therefore, their homes should be prioritized so that they could enjoy the activities and parks that will be created near the LA River. (#156)

The LARMP fails to clearly address the displacement risk that communities will face when these improvements are implemented. While we recognize it will be likely many years before the proposed changes will become reality, it is critically important for there to be plans to counter displacement risk right from the start of the process to ensure current residents who live and work in these communities have the opportunity to benefit from the new amenities in the plan. (#167)

Appendix D: Community engagement theme comments

Regarding 'prioritize current residents'

Constructing parks and open spaces in low-income communities should be approached thoughtfully to ensure that current residents will not be displaced by new projects and by increases in property values that can occur adjacent to newly developed public amenities. However, this can be avoided by following investment without displacement principles and authentically engaging communities in the project design and development process. Los Angeles County must demonstrate its commitment to anti-displacement through programs and enforceable policies that go into effect before any project construction is underway. A mandate, or another enforceable mechanism, would give the County the power to ensure that communities are not displaced due to projects it supports, promotes, or implements. Recommendations without enforcement have a high risk of being ignored. (#172)

The method for establishing ecosystem need prioritizes areas that already have habitat (Pages 166- 167). Clearly, those areas are not necessarily the biggest need areas. This method does not prioritize urban developed areas, many of which include low-income communities of color. Not prioritizing these areas is an environmental justice issue. Specifically, the statement on page 166 that "areas that were predominantly urban were categorized as having no need" is problematic. (#240)

Regarding engagement and outreach

Based on the LARMP draft, the lack of transparency or community inclusion, we are hard pressed to believe that goal #7 (Foster opportunities for continued community engagement, development, and education) is realistic or honest…(#440)

We are a strong advocate of culturally relevant community engagement and ensuring that residents who live around the River, in addition to those who visit the River, have an opportunity to have their voices heard. "Queremos que nuestros sueños sean reflejados en nuestros vecindarios." (#567)

knowledge from historians, former public officials, and civil society organizations should be captured and transferred to policy makers to ensure that urban planning is more just. From redlining to destroying neighborhoods with freeways to rampant gentrification, the lessons are enormous. (#690)

goal 7 raises grave concerns about underpinning work that has not been undertaken in the master planning exercise. It is too little and too late to 'Identify community vulnerabilities, such as displacement risk, flood risk, or climate vulnerability, and investigate potential impacts associated with river improvement projects.' and to 'Develop a strategy to address identified threats by projects to community and resident stability, particularly forces of economic displacement, flood risk, and climate risk' (p. 205) after the LARMP is approved. (#726)

Regarding aesthetic, economic, and practical values for current residents

…Another equally valuable opportunity is the restoration of LA River fish, plant and animal ecosystem. A sterile inaccessible river corridor is one big piece of urban blight. A prohibited

river, such as the present situation, means lots of graffiti, drug and crime activity, and vagrancy. The only solution is replacing poor uses with good uses. Allowing public access and recreation elevates the value of the area, gives people pride and ownership of the river, and creates an upward spiral over multiple generations. Public access means bike/walking paths, access to river water in safe weather, education programs and much more. Return of wildlife, which are then discovered by children year after year, yields a future where earth's environment is valued and protected for others…(#98)

Having witnessed the flourishing riparian ecosystems of the soil-bottom stretches of the river along the 5 Freeway near Frogtown, any plan to revitalize the River and its banks should include concrete removal and river widening schema. In addition, the LARMP needs to include more opportunities for civic engagement and protections against displacement and gentrification as revitalization efforts increase property values and spur new construction. Please endeavor to improve the plan by prioritizing cleanups of contaminated areas, wildlife refuge protections, and natural reclamation of almost century-old concrete beds (#916)

Regarding Indigenous community engagement
The brief description of business partnerships in this section does not engage with Tribal member businesses, as the tribal elders requested in your consultation with them (p. 128). If you only ignore their requests you continue the history of settler entities and governments violating the sovereignty and dignity of Indigenous peoples. Saying something about working with Tongva, Tataviam, and Chumash owned businesses here would be an important step in engaging with those communities and building the relationships with them that they have requested of your planning process. This would also be a way for your planning process to draw on the native plant expertise of the People of the Land and LA River in landscaping, habitat restoration, flood mitigation, and flood resiliency that are high priorities in the LARMP process. (#4)

Your summary of the consultation with Indigenous elders notes that they "recommended ways to practice deep engagement as well as how to build relationships, collaborate, and provide spaces for tribal ceremonies and religious practices along the river." Yet there is no mention of ways the river management agencies plan to build relationships, collaborate, or provide spaces for tribal events--not a single mention p. 128-end of document. This is not only disrespectful to the living Indigenous communities of the Tongva, Tataviam and Chumash, it also shows a lack of awareness of the history of genocide of these communities. The LARMP should be revised to incorporate specific ways that river management agencies and LA County will build relationships and collaborate with these communities--see page numbers above for places to do so. Your planning process is only inclusive if your LARMP responds to specific requests of Indigenous stewards of the land, even if you don't know what they did to care for the land over the past 3 centuries. (#11)

Input and leadership from indigenous local tribes: Local indigenous people have expressed over and over again that they do not feel leadership in the planning process, that their voices have not been sought as part of substantive policy. They know best about how to restore the river as a healthy and living habitat and ecosystem. They deserve access to the river for their cultural and spiritual ceremonies. They should take the lead in planning habitat restoration…(#912)

Regarding LARMP response explaining Indigenous outreach and engagement
Rudy Ortega served on the Steering Committee, representing the LA City and County Native American Indian Commission. The Master Plan project team presented to the entire council separately from the regular Steering Committee meetings. Outside of the Steering Committee, additional Indigenous Peoples were involved during the creation of the Plan. One Tongva tribe elder met with the Consultant team on multiple occasions. Another met with the consultant team once. Tataviam members met with the team multiple times as well. The Chumash declined to meet, noting that they did not feel the LA River has a significant tie to their ancestral homes. (response to #591)

Footnote 14: Regarding homelessness
The LARMP needs to map homeless encampments along the LA River. The LARMP should have a plan to house all the individuals that live there now. Housing is an asset too. (#146)

I grew up sneaking through the sewer near my tia's house as a kid to get to the river. I am glad to see that there are now accessible routes to the river but NOT glad to see all the displacement that occurred over the years. Anti-Displacement: When observing how investors made their way into Frogtown, a neighborhood along the river, one can notice the gentrification and the devastating impacts it's had on the community that once lived there. The wording in the LARMP around affordable housing is weak and you all need to place more detail into what your definition of "affordable housing" is. WHO is it affordable for? This river is LONG and it runs alongside cities in South East LA who are majority working class. This weak wording around how you will build affordable housing is unacceptable. Also please don't get me started on the homeless population. I know very well the cities will violently displace and sweep the homeless community out of the river and the LARMP doesn't address this issue. They deserve a voice in this LARMP as well because they live there and I don't see that anywhere in the LARMP! Listen to the working class communities near the river and the homeless communities on the river. This LARMP REQUIRES their input first and foremost. Parts of the river run near industrial factories that cause much pollution to the river. how will that be addressed??? (#874)

Appendix E: Environment theme comments

Regarding habitat connectivity, native habitats, biodiversity, wildlife and endangered species, ecological restoration

We must create more native habitat - trees, plants and wildlife. (#3)

…Many endangered animals will be affected such as the Least Bittern, White-faced Ibis, Golden Eagle, Prairie Falcon, Long-billed Curlew, Burrowing Owl, Vermillion Flycatcher, California Horned Lark, and Summer Tanager. These animals are a vital part of LA's environment. The development of the LARMP will kill species residing in the living parts of the river and will lead to biodiversity loss. (#41)

Biodiversity will be affected by the implementation of the LARMP. The living parts of the river are home to many endangered species who will ultimately lose their habitats if more concrete is added to the soil. (#49)

…This document neglects the restoration plans that have been in the works for years. (#119)

We're in the midst of a global crisis, with species going extinct at up to 1,000 times the background rate. If the county wants to live up to its own goals to fight the extinction crisis and protect biodiversity, it needs to articulate a clear vision of ecosystem and community health that's backed by metrics and policies for all future projects along the river. (#511)

Our advice regarding the LARMP is the medical profession's admonition to first, do no harm. This means that local communities must be protected and not displaced by gentrification. It also means that ecological degradation must not be allowed to continue and that climate resiliency should be promoted and should be prioritized in every decision made and every action taken. We join with our parent organization, the Angeles Chapter of the Sierra Club, and many other groups, in supporting these goals, which fit with the Club's values of conservation and environmental justice.

Scrap grandiose development projects. Clean up the contamination created by industries along the river. Listen to the people who live near the river and to all Native groups. Restore habitat for plants and wildlife. (#774)

A naturalized, semi-re-wilded River - we should not ignore the robust community involvement and comments reflected in LA City's river plan (LARRMP) before leaping headlong into the county plan. The LARRMP demonstrate the feasibility and popularity of concrete removal, channel widening, and habitat restoration. The County Plan should embrace and amplify these calls to "reestablish riparian strand, freshwater marsh, and aquatic habitat communities and reconnect the River to major tributaries, its historic floodplain, and the significant ecological areas of the Santa Monica Mountains, San Gabriel Mountains, Elysian Hills, and Verdugo Mountains and restoring the potential for regional habitat and wildlife connectivity by improving connections between the River and these significant ecological areas. The River's channelization in concrete poses the biggest challenge to restoring this connectivity." Why not remove concrete bottom areas where feasible to allow for re-wilding and replenishing of the water table , such as along the Glendale Narrows? We must treat the LA River as a whole system watershed, not a

river theme park to be gazed at from above — people want to be a part of nature, not an observer in another constructed environment. As green spaces diminish in our city, we must protect the ecosystems which we are a part of, which means the water, land, and people first. Developers should be last among those considered and disincentivized to build along the river corridors. (#882)

Regarding sustainability
With the amount of money necessary for a platform parks, we could afford to remediate lands, green heavily-concretized schools that are often at the center of neighborhoods, prepare for climate change, and stem the tide of displacement in river-adjacent communities. An emerging and very local example of this strategy can be seen in the multi-jurisdictional 100- acre partnership which covers three different contiguous parcels owned by separate agencies in the mid-river. These parcels were once operated as railyards and are thus significantly contaminated. The City of Los Angeles, Mountains Recreation and Conservation Authority, and CA State Parks have formed a mutually beneficial partnership to plan for the remediation and restoration of these lands for equitable public use. The City of Los Angeles has recently released an RFI aimed specifically at NGOs and CBOs to lead an equity strategy for the development of these 100 acres. This shows a proactive and creative approach to addressing systemic issues that cross jurisdictional boundaries. (# 388)

I commend the actions around increasing public awareness of flooding (p. 150), but systemic solutions are also crucial, such as not permitting dense developments inside of high-risk flooding areas. (#712)

Appendix F: Watershed theme comments

Regarding watershed management

The current storm water capture plan is detrimental to our climate and futures as Angelenos. It serves little benefits, other than swiftly transporting rainwater out of the city into the ocean. But it deprives the city of all other essential ecosystem services. With the impending climate crisis, it is imperative we implement living rivers and healthy watersheds. They provide water supplies, filter out water and air pollutants, move sand to ocean beaches building coastlines, provide critical habitat, sequester carbon and other greenhouse gasses, regulate floodwaters, and create cooling oases for relaxation and recreation. (#54)

The discussion of naturalizing and widening the River (Pages 26-27) is presented in an extreme way that is disingenuous. The scenarios presented include widening all 51 miles of the river by 3, 5, and 7-fold. We are certainly not advocating for widening of all 51 miles of the River and we don't know of any other groups calling for this. We recommend removing or updating this section to be more realistic and nuanced. This LARMP should identify those areas where widening could be possible without impacting communities and then search for watershed multi-benefit solutions that might be able to allow for widening. Page 26 acknowledges that "there may be strategic locations in the LA River watershed where channels can be widened into a right-of-way or an acquired mosaic of parcels", but that "a holistic 51-mile restoration strategy is not realistic, even on a generational timeline." The LARMP needs to, at a minimum, explore the first part of that statement more – it does not currently do this and needs to. (232)

California Native American Tribes are sovereign nations and there are multiple scenarios, including related to watershed management and river restoration, which require state and local agencies to engage in government-to-government consultation with Native American Tribes as part of the planning process. As a general comment, the LARMP should acknowledge and uplift this perspective on tribal sovereignty as it relates to urban planning and watershed management whenever possible throughout this document and all future related planning and implementation documents. (#779)

Regarding concrete management

We capture more water upstream in levees or green streets, can we eliminate the concrete? As if it were a city of sponges? (please note, original comment in Spanish and has been translated. #7 in Spanish Public Draft comments)

The massive use of concrete in this LARMP is unsustainable and unwise in the wide scope of preventing climate change. Concrete manufacturing creates huge amounts of greenhouse gases, or CO2, that we are supposed to be working against as a county. By following through this plan, LA county would be working away from sustainability and a greener future. A more natural plan, allowing a local ecosystem to grow, would be the better option. (#38)

The LARMP is harmful to the environment and development needs to be ceased. Raising the channel walls and increasing the amount of concrete used on the river emits Carbon Dioxide because this common greenhouse gas is embedded in concrete. This project therefore emits hundreds of thousands of kilograms of Carbon Dioxide into the atmosphere. In addition, many

endangered animals will be affected. Finally, the concrete used will raise temperatures of nearby neighborhoods and affect mainly communities of color that are located near the river. Therefore, we need to gradually reduce the concrete used on the river and rely on natural methods to stop floods. (#47)

It is worth noting that while the LARMP goes out of its way to argue the absolute impossibility of naturalizing any segment of the River (no matter what we try to do), curiously there is no similar section that points out the extreme financial and regulatory impracticability (if not impossibility) of burying the River under massive concrete structures (which could also exacerbate flood risks if any support structures are needed within the river channel). (#387)

Appendix G: LARMP theme comments

Regarding funding transparency, LA River specific teams, integration of cities
…River-adjacent communities have long demanded community-driven restoration and park access to the LA River. But as we have seen in some areas of the upper watershed, just the mention of large-scale River investments has sparked gentrification and displacement that has made historically low-income neighborhoods inaccessible… (#363)

Unfortunately, what the draft LARMP does offer for future management along the Los Angeles River is nebulous and self-limiting. We are told that, "LA County Public Works shall establish an implementation team responsible for ongoing coordination after the completion of the Master Plan." LARMP at 50. With all due respect to the County's overworked Public Works employees, "ongoing coordination" is the current situation and it is inadequate to the tasks at hand. Instead, the LARMP should designate a specific entity responsible for implementing the LARMP that is capable of bringing a comprehensive vision to the transformation of the Los Angeles River. Our experience as volunteers working to help protect and preserve the Los Angeles River Bike Path in the west San Fernando Valley has taught us that the Los Angeles River clearly needs a responsible and responsive management agency with oversight powers if it is to be "reimagined" as a river for all Angelenos. Unfortunately, the draft LARMP lacks a core management component, and has no explicit provision for direct public input and oversight of the future "ongoing coordination". Instead of having a defined management structure to tap into, members of the public will still have to wade through a jurisdictional nightmare to get simple things done in our own communities along the river. Frankly, it is difficult to see a County departmental "implementation team responsible for ongoing coordination" doing any more than shepherding through a few piecemeal development projects. This is a far cry from the grand vision that was put forward by the planners. (#493)

Parks and recreational space – Some of the river's adjacent communities are the most park poor in the county, and the LARMP rightly addresses it in the document's second goal. Neighborhoods along the river with the smallest amount of park space include: Compton - .6 acres per 1,000. East Rancho Dominguez - .4 acres per 1,000. Maywood - .3 acres per 1,000 Congratulations are due to the LARMP for highlighting this in its second goal. If the plan delivers, the liveability around some neglected neighborhoods will improve significantly. (#701)

…I am immensely energized by the presence of many reports of this LARMP and simultaneously disappointed that several solutions offered did not go far enough to address those needs. For example, affordable housing. Y'all did such a beautiful job assessing the community need for affordable housing and displacement mitigation! But after that, the solutions were not written strongly enough to meet that assessed need. The LARMP needs to tie commitment, funding, and enforceability in the protection of affordable housing or the protection of tenants…(#845)

Regarding platform or covered parks
no to platform parks! (#21)

Instead of building over the LA River with platform parks, dozens of locations exist in the vicinity of the planned platform parks that could potentially be transformed into community-based parks. The benefits of building community-based parks rather than one or two large platform parks projects include a more dynamic variety of parks and green spaces throughout the community, greater accessibility to parks for more people, and the opportunity to locate parks in areas with the greatest park need (such as those identified in the LA County Parks Needs Assessment)...(#386)

Regarding LARMP accessibility
…Document complexity, coupled with poorly designed online meetings, places tremendous burdens on readers and locks people out of the public comment process… (#20)

Lastly, the LARMP is too confusing, relies too heavily on engineering/landscape architecture jargon, and is far too lengthy to truly be read by anyone other than professionals. (#394)

Regarding internet/computer access
Without a hard copy and public access such as a library, this document is difficult to access. A computer is needed as well as internet access. The document will not download on a smartphone. (#1)

Additionally, the WiFi bandwidth required to download the document is far beyond what most residents in LA County have access to. If this LARMP is to be truly rooted in community feedback, you must actually talk to the community. And not just through large design development meetings, but through a varied series of events from larger community-wide meetings to smaller focus group gatherings that can support a direct dialogue with residents. Moreover, even the ways in which the County is soliciting feedback - through an online portal where interested parties have to reference specific page numbers and proposed changes - undermines meaningful public feedback on the LARMP. Such a portal is geared more for experts to provide very technical comments, rather than hearing community voices who might just want to note their preference for the future of the River (which may be better accomplished through a short letter, which is not allowable with the current portal). (#395)

Regarding available translations
…Simply translating into Spanish is not enough. (#185)

…translation should be required into other languages as well considering Los Angeles is an incredibly diverse region… (#186)

Appendix H: LARMP comment groupings

Regarding 'ecosystem and habitat management' groupings

This discussion of adaptive management and refuge habitat protection with invasive species patchwork removal makes sense in concept, especially given the relative lack of maintenance within the Narrows over the last decades. We do remain concerned however that the invasive species and sediment patchwork removal will yield enough channel capacity benefit, and if not significant enough, will ultimately usher in a new management period that removes refuge habitat as well under the banner of "more had to be done" (#556)

We strongly caution against unrestricted development and encourage the deterrence of predatory developer practices in consideration of mitigating gentrification and displacement. Local residents neighboring the LA River along its path have long voiced a desire for a community-led effort in rehabilitating the river and its landscape for the benefit of both their health and well-being and the natural ecosystem. Access to its ecological and recreational potential remains a point of concern for the immediate communities. However, speculations and community "buzz" around major investment and development signals the significant likelihood of gentrification and displacement - forces that make low-income communities inaccessible to their own people. Many community members in the Northeast Los Angeles River Communities have told us that they prefer not to provide their opinions because they know that their children will not enjoy the benefits of these projects. In addition, they have observed that beautification of space rarely occurs with them in mind.

The LARMP in its current form does not sufficiently address the history of displacement experienced by these vulnerable communities, nor outline enforceable policy for protecting these communities from ongoing developer interest and gentrification due to the LA River revitalization lacking culturally relevant community input.
Los Angeles residents need for the LA County and river-adjacent municipalities to:
1. Actively advocate for and invest heavily in anti-displacement programs,
2. Listen to, reflect upon, and act on the voiced concerns of community members seeking community stability.
3. And put substantial focus on the health and vitality of the actual LA River including water quality, the health of its ecosystem and wildlife. (#571)

I am a lifelong Los Angeles resident. I have grave concerns for the LARMP. My biggest issue is that it does not reimagine the LA River as being a naturalized habitat, with native plants and animal life that would follow. This is imperative. We must break down more of the concrete and create a healthful ecosystem. We need a living River. Trout were recently found in the Arroyo Seco River. There is no reason that the La River could not bounce back with healthful life if we chose to use resources to actually foster a real living River ecosystem. This is a great opportunity and we must rise to the occasion. A living River would bring an incredible amount of health to Los Angeles as a whole. Please you must naturalize the river. Thank you. (#838)

Regarding 'prioritize current residents' and 'displacement and gentrification'

The LARMP fails to clearly address the displacement risk that communities will face when these improvements are implemented. While we recognize it will be likely many years before the

proposed changes will become reality, it is critically important for there to be plans to counter displacement risk right from the start of the process to ensure current residents who live and work in these communities have the opportunity to benefit from the new amenities in the plan." (#167).

The County must invest heavily in and adopt anti-displacement programs and enforceable policies now, so that they may be implemented before any real project planning is underway. While the County doesn't directly have jurisdiction to control the policies of each individual city along the River, there are opportunities to support smaller cities to develop and implement policies to best address their specific needs. Just as we must protect residents from flooding, the County has the moral obligation to step-up and support our communities to stay in place and thrive, so all folks are able to enjoy the benefits the LARMP proposes. (#381)

Regarding 'displacement and gentrification' and 'equity'
The LARMP needs to make a stronger commitment to community stabilization. We commend the County for considering impacts to housing and displacement within this LARMP. This acknowledgement of how the built environment impacts housing is critical to ensuring communities have access to nature and safe environments as well as affordable housing. However, without protections in place well before projects are proposed and planned, there is a real risk of the LARMP causing harm to communities through gentrification and displacement. (#266)

As is the LARMP and PEIR does not treat both the ongoing displacement of Black, Indigenous, unhoused, and communities of color as an environmental justice issue and therefore does not analyze nor mitigate potential environmental impacts as a result. The LARMP lists all the policies and programs that each city, located near the LA River basin, has implemented that specifically respond to housing needs. However, it is very clear and alarming that there are uneven protections across these cities. For example in the Southeast LA cities, there is a lack of strong tenant protections and programs for unhoused and rent-burdened folks. Not all communities have sufficient and comprehensive enough policies and programs to meet housing needs. This is crucial as the "opportunities" cited in the LARMP will definitely increase housing prices, increase policing of these areas which will further criminalize and impact the unhoused, Black, Indigenous and People of Color, and already disenfranchised folks, and will cause further displacement across all these regions. The County needs to work towards increasing these protections and programs so that all the cities and unincorporated areas surrounding the LA watershed have the resources necessary to respond adequately to housing and tenant needs. The LARMP needs to be clear and direct with its approaches to combat the potential displacement of folks in these communities especially as housing injustices are being exacerbated due to the COVID-19 pandemic. The LARMP needs to treat this displacement and gentrification as a result of the LARMP as an environmental impact on local communities. (#380)