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BAY AREA SEA-LEVEL RISE: At-risk neighborhoods face inequitable climate impacts unless the right actions are taken now

New report outlines equitable adaptation recommendations in preparation for devastating sea-level rise

Case studies examine real-world implications for six Bay Area neighborhoods

SAN FRANCISCO - Sea-level rise will inflict enormous damage on Bay Area communities near the shore in the coming decades. With approximately \$110 billion needed to address sea-level rise by 2050, we must change how we approach property institutions and land governance to equitably address the region's climate vulnerability according to a new report by Next 10 and authored by faculty from the University of California Berkeley.

"No coastal community will be spared the impacts of sea-level rise, but the impacts will be felt unevenly. Marginalized neighborhoods across the Bay Area will be forced out as our world warms," said Noel Perry, founder of the non-partisan, non-profit Next 10. "By closely examining the San Francisco Bay Area we can create a model for equitably addressing sea-level rise across the state, the nation, and globally."

The report, *Bayshore Urbanism: Property and Climate Change Adaptation on San Francisco Bay*, introduces a framework for overcoming three main challenges to achieving transformative and equitable adaptation to sea-level rise: shifting our static view of property rights and ownership to a more flexible one, moving away from our current fragmented system to collective action, and by advancing justice.

"Our current approach to sea-level rise in the Bay Area will put certain neighborhoods at a disadvantage when faced with the realities of adaptation," said Zachary Lamb, Assistant Professor of City and Regional Planning at UC Berkeley. "Right now, we view property rights as being fixed in space, like millions of separate boxes with a different person or group making decisions for each. This fragmented and static view of property sets us up to have arbitrary winners and losers as the owner of each box addresses the problem. This approach will be expensive, inefficient, and unfair."

Comparing Conventional vs. Transformative Sea-level Rise Adaptation

The report outlines two property strategy scenarios with different pathways toward more flexible, collective, and just adaptation; Scenario A takes a conventional approach while Scenario B is transformative, applying the report's proposed recommendations.



- Scenario A: In this scenario, property regimes remain predominantly static, individualized, and socially regressive. The primary adaptation mechanisms are "gray" infrastructures like seawalls and drainage pumps. This approach is prone to "lock-in" dynamics wherein investment in expensive hard-engineered installations enables more risky development, placing more people and property at risk when infrastructures are inevitably overwhelmed. This approach is not an effective long-term solution, as it moves impacts from one impacted area to another until all properties are eventually affected.
- Scenario B: In this scenario, alternative property regimes enable new forms of adaptation that are more cost-effective and equitable. They also address the three property challenges enabling adaptation that is 1) more responsive to climate and landscape changes, 2) more conducive to collective action, and 3) more oriented to redressing historic and ongoing injustices. Some proposed measures include establishing community land trusts while planning for "receiving" sites to accommodate residents displaced from flood-prone areas and wetland restoration on coastal land acquired through rolling easements.

"The mechanics and the costs of the adaptation process are going to be challenging, yet we've only just begun to address it," said Robert Olshansky, visiting professor at UC Berkeley. "If we can start now to think about property rights in more flexible and collective ways, we can ease the way to an adaptation process that will better benefit everyone."

Impacted Communities Case Studies and Policy Recommendations

To illustrate pathways towards more flexible, collective, and just adaptation, the report includes case studies for six different Bayshore neighborhoods: the Canal District in San Rafael, Bayview-Hunters Point in San Francisco, Alameda, the East Bay from San Leandro to Hayward, Gallinas, and East Palo Alto. Individual solutions and strategies for addressing sea-level rise in these communities include:

- New rent control and eviction protections in advance of significant investments in sea-level rise
 resilience, such as community land trusts, supported through public and philanthropic funds,
 acquiring flood-safe "receiving" sites to enable resettlement without the threat of climate
 gentrification.
- Wetland restoration, shipyard redevelopment, adaptive land-forming and establishing a Public Land Trust.
- New multipurpose levee landscapes and ecological restoration of estuary areas to buffer against projected sea-level rise.
- Rolling easements, which allow wetlands and beaches to migrate inland, as we remove buildings, roads, and other structures from the land it becomes submerged, would be employed for property acquisition, with newly flooded land preserved as open space under the public trust doctrine.
- Retrofits like buoyant foundations and strategic relocation from the most hard-to-protect areas.
- Offer the option to join a collectively-owned flood-adaptive floating residential development or to relocate using a newly created Transfer of Development Rights (TDR) program.



 Floodplain restoration, creek widening, new Bayfront ecotone levees, which are sloped embankments of plants to reduce impacts from sea-level rise, and floating neighborhoods on artificial ponds.

"There is no one-size-fits-all solution," said Lamb. "We must look at each community and address the mismatch between climate change adaptation and our ability to address the threat together versus the current reality of property and land governance. Our case studies led us to make policy recommendations that deliver ongoing adaptation and climate justice for marginalized communities."

Policy recommendations in the report include:

- Enabling the Bay Conservation & Development Commissions (BCDC) to become a vehicle for transformative adaptation: Much of the agency's 100-foot shoreline band of jurisdiction is projected to be inundated, and thereby, converted to public ownership. Thus, BCDC's mandate and jurisdiction will need legislative modification, and BCDC will need to revise some core policies.
- Supporting shared ownership: While coastal land holdings in the Bay Area are very fragmented, much of the land at risk from sea-level rise is owned by various types of private commoninterest communities (e.g., HOAs and condo boards). These entities vary widely in their capacity and focus, but, under the right conditions, they could use commonly held lands for adaptation. However, these shared ownership entities need to have the right incentives and resources in place to manage this responsibility.
- Improving coordination between public, private, and shared ownership entities: Multiple scales of cooperation are needed to support collective investments in green infrastructure to benefit more people, while minimizing practices that pit neighboring property owners and neighboring public jurisdictions against one another. Existing regional entities—public, private, and nonprofit—could convene collaborative councils to coordinate collective investments, and state agencies could provide direct support for such efforts.
- Exploring a broader range of property strategies: Alternative property rights strategies would make it easier to move property rights from one location to another through tools like land readjustment and transfer of development rights, proactively and intentionally share some of the costs of sea-level rise, create new property rights schemes to facilitate future adaptations, and redress past and ongoing injustices.

"Some climate tragedies are swift and draw the eyes of the world, while others, like sea-level rise, slowly and relentlessly damage whole communities," said Perry. "There is a gap in how we're currently working to address sea-level rise, and we hope that with our research we can prevent these vulnerable communities from falling into that gap."