

Metronome of the Waves: Gauging Hong Kong's Climate Change Resiliency



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At midnight on July 1, 1997, Great Britain's 99-year lease on Hong Kong expired, and the colony became the first of two Special Administrative Regions (SARs) to be established within the borders of the People's Republic of China (PRC), the second being the former Portuguese dependency of Macau.

Known as the "one country, two systems" policy, SARs were first outlined by Deng Xiaoping in the early 1980s as an assurance to renters and developers, primarily in the New Territories, that their 30-year mortgages would not be seized or devalued by Beijing upon transfer to the PRC¹. Special Administrative Regions protect the capitalist economic and democratic political systems developed under foreign rule, while assigning power over foreign affairs, as well as limited governmental intervention, to the communist People's Republic of China.

Hong Kong's designation as a SAR has a time stamp: the Sino-British Joint Declaration guaranteeing the territory's relative economic and political freedom ends after 50 years². With the treaty set to expire in 2047, developers and renters are faced

¹ Yasuo Awai, (2016). "Hong Kong's 'Year 2047 Problem.'" [Online]. Available: <http://asia.nikkei.com/Politics-Economy/Policy-Politics/Hong-Kong-s-year-2047-problem>

² Sino-British Joint Declaration, Section 3(2).

with the same uncertainty regarding long-term mortgages in 2017 as they were signing leases in the early 1980s.

Despite speculation that the initial transfer of Hong Kong to the PRC in 1997 would slow foreign investment and hamper economic growth in the geographically favorable ‘gateway to China’,³ Hong Kong has risen as the globe’s third largest financial center, and the most economically competitive of all Chinese cities⁴. The capitalist landscape has invited a large expatriate population, along with significant inequality between foreigners and the native population. Hong Kong’s Gini coefficient, a measure of economic inequality, is the highest in the developed world at 0.537⁵, lagging only slightly behind that of highly stratified mainland China. The HKSAR government has prioritized lax economic regulation to lure foreign investment and to provide market confidence that the SAR has maintained its distance from the PRC. In keeping with this separation, progressive social and welfare policies that might equalize income in the territory have been largely unfavored.

Yet, the Umbrella Movement of 2014 and an upwelling of pro-independence sentiment in the 2016 Legislative Council elections were largely reactionary to future uncertainty regarding Hong Kong’s status as an SAR or a fully ingratiated (and regulated) territory of the PRC. Without a definitive resolution regarding the intended status of Hong Kong, legislators are unable to guarantee the willingness of the Chinese government to protect civil liberties, or democratic institutions to protect them, past 2047⁶. The underlying social current of these symbolic political demonstrations suggest a rejection of Hong Kong as a purely laissez-fair financial center, and a popular interest in increasing the social and economic mobility of citizens that decades of growth and unfettered development have ignored.

Indeed, Hong Kong’s financial exceptionalism has largely shielded the city from addressing a geographic reality that nearby Chinese cities within the Pearl River Delta region are acutely aware of: high vulnerability to climate change, particularly to sea level rise and storm surges due to increasingly unpredictable weather patterns.

The nine city Pearl River Delta Economic Zone (PREZ) is a dense conglomeration of Special Economic Zones (SEZs) that offer attractive tax incentives for foreign companies. The Pearl River Delta represents the fastest growing region in the world over the past three decades, as well as one of the fastest urbanizing zones on the planet⁷. As SARs, Hong Kong and Macau are not considered part of PREZ, despite

³ Charlotte Chui, “China’s Golden Goose: The Economic Integration of Hong Kong,” *Harvard International Review*, Vol. 18, No. 3 (Summer 1996), 66-67,85.

⁴ Legislative Council Secretariat of Hong Kong, (2016). “Fact Sheet: Hong Kong in Figures.” [Online]. Available: <http://www.legco.gov.hk/research-publications/english/1516fs01-hong-kong-in-figures-20160406-e.pdf>

⁵ Legislative Council Secretariat of Hong Kong, “Fact Sheet.”

⁶ Stephanie Ortmann, “The Umbrella Movement in Hong Kong: From Economic Concerns to the Rejection of Materialism,” *Kyoto Review of Southeast Asia*, Vol. 17 (March 2015).

⁷ Canfei He and Lei Yang, “Urban Development and Climate Change in China’s Pearl River Delta.” *Land Lines*, Vol. 2 (July 2011), 2-7.

increasingly competing with the SEZs, particularly adjacent Shenzhen, to attract foreign investment and shipping traffic⁸.

Regardless of their political or economic designations in Beijing, the megacity region's relatively low topography and extensive coastal land area makes the Pearl River Delta dramatically vulnerable, and currently unprepared, to face the effects of a changing climate. Average temperatures within the PREZ are documented as warming more quickly than in the rest of mainland China, the result of increasing emissions of greenhouse gases and unchecked development, and annual rises in sea level are gauged as accelerating over the past forty years⁹. An increase in sea level of 40 to 60 centimeters by 2050, as predicted by the Chinese Academy of Sciences, would inundate low-lying coastal areas, flood transportation networks, displace thousands, and, in the event of storm surges, grind commercial and industrial activities to a halt across the megacity¹⁰.

The concentration of infrastructure, industry and dense population in coastal areas make the region disproportionately susceptible to natural disasters. By 2070, Hong Kong and neighboring SEZ Guangzhou will be ranked 9th and 2nd respectively in terms of assets expected to be exposed to coastal flooding¹¹. This risk makes them two of the globe's most vulnerable ports, a caution to investors and residents alike.

Hong Kong's ability to attract foreign investment to benefit Beijing and finance mainland China's lagging infrastructure was one of the considerations behind its original designation as a SAR¹². The economic strength of Hong Kong supported mainland development, while infrastructure and social spending within HKSAR itself have primarily come from foreign investment and independent financing by the Hong Kong government.

In the face of increasing coastal threats, investment in early warning systems and expert evacuation plans, blueprints to retrofit and relocate buildings, and upgrades to coastal defenses are clear pathways to curb risk across the Pearl River Delta¹³. More generally, mitigation efforts to curb greenhouse gas emissions, as well as holistic adaptation plans, are crucial for each city. Yet, with regards to climate change, despite its wealth and the legacy of foreign-funded development, Hong Kong is at a clear disadvantage to its "one country, one system" counterparts across the river.

⁸ Gordon G. Chang (May 17, 2015). "Move Over, Hong Kong, Shenzhen Now Best City for Business." *Forbes Magazine*. [Online]. Available: <http://www.forbes.com/sites/gordonchang/2015/05/17/move-over-hong-kong-shenzhen-now-chinas-best-city-for-busines/>

⁹ He and Yang, "Urban Development."

¹⁰ Chinese Academy of Sciences, *The impacts of sea level rise on China's delta regions*. (Beijing: Science Press, 1994), 212.

¹¹ Susan Hanson et al., "A global ranking of port cities with high exposure to climate extremes." *Climatic Change*, Vol. 104 (2011), 89-111.

¹² Chui, "China's Golden Goose," 66.

¹³ Hanson et al., "A global ranking," 91.

The PRC's timely, transparent and legal designation of Hong Kong as either a SEZ or SAR past 2047 stands as the foremost challenge to increasing the capacity for adaptation and resilience to climate change within the city.

Without a clear economic and political direction for the future, the banking sector is unlikely to continue to invest in the Hong Kong market, including the development of housing and transportation infrastructure, both of which are required to ready the city for a changing global climate. After 2017, 30-year mortgages will no longer be guaranteed the security or confidence that the SAR designation provides; the risk of investing in Hong Kong's physical resilience to climate change will be amplified by the unclear direction of the government after 2047.

In addition to coastal flooding, the Environment Bureau of Hong Kong's comprehensive "Hong Kong Climate Change Report 2015" outlines the increasing risk of landslides, heat stress, water scarcity, health risks and supply chain risks as potential disruptors brought by climate change by 2100, and connects Hong Kong's welfare and labor issues with preparing for climate readiness¹⁴.

Among the steps proposed to mitigate climate change are a reduction in coal usage, as well as the greening of the transportation network and recovery of energy from waste treatment, with specific percentage decreases from 2005 emissions levels targeted. These benchmarks are direct responses to China's national commitments for mitigation, made in parallel to the PRC, not in collaboration. When the mainland increased its target to reduce carbon intensity from 40-45% by 2020 to 60-65%, Hong Kong maintained its own goal of 50-60%¹⁵.

Per capita, cities generate significantly fewer greenhouse gases than suburban and rural residents due to the density of population and decreased dependence on carbon-heavy transportation¹⁶. The potential resilience of cities to climate change is therefore higher than less densely populated areas, and the capacity for adaptation and durability is greater¹⁷. Hong Kong's well-developed and highly utilized public transportation system, the MTR, is ranked first in the world for ridership and accessibility, and the city boasts one of the world's highest population densities¹⁸. Additionally, sustained economic growth and investment offer the opportunity for Hong Kong to invest in clean technologies to decarbonize the local economy. Another indicator of Hong Kong's strong potential for adaptation lies in its abundant green space, with 70% of the territory preserved from human development within the National Park system throughout the New Territories and Lantau Island¹⁹.

¹⁴ Environment Bureau of Hong Kong, (2015). "Hong Kong Climate Change Report 2015." [Online]. Available: <http://www.enb.gov.hk/sites/default/files/pdf/ClimateChangeEng.pdf>

¹⁵ Environment Bureau, "Hong Kong Climate," 13.

¹⁶ Worldwatch Institute, *State of the World 2007: Our Urban Future* (New York: W.W. Norton, 2007), 5-17.

¹⁷ Mark Pelling, *The Vulnerability of Cities: Natural Disasters and Social Resilience* (London: Earthscan Publications, 2003).

¹⁸ Legislative Council, "Fact Sheet."

¹⁹ Environment Bureau, "Hong Kong Climate," 17.

Proposals for the rapid development of more housing and commercial space throughout the New Territories and Lantau Island endanger this concentration of parkland, and simultaneously threaten to displace Hong Kongese who call the car-free outlying islands home, a reflection of the drastic income inequality and lack of agency that divides residents of the territory. Extension plans for Hong Kong International Airport, including the raising of a third runway from the seabed, would threaten traditional fishing communities while degrading the coastal landscape, and putting more infrastructure in danger of storm surges²⁰.

Around the globe, climate change is likely to exacerbate social inequality and further limit economic mobility. Without a clear governmental direction toward preserving civil rights and democracy or integrating with the communist PRC, legislation that effectively combats social inequality and seeks to protect the most vulnerable, namely fishermen and others dependent on natural resources, as well as poorer coastal dwellers without access to sufficient shelter or infrastructure, is unlikely to be adopted.

Owing to its rich legacy of international development and capital investment, Hong Kong's potential resilience to sea level rise and other effects of climate change may be stronger than its neighbors across the Pearl River Delta, but without any guarantee of future economic or political systems, the SAR faces incapacitating uncertainty in its ability to adapt to coming challenges.

Image Credits

By Kira Bre Clingen

Stilt houses on the shore of Tai-O, one of the last fishing villages on Hong Kong's Lantau Island. The village, along with the skyscrapers that characterize the territory, are at risk to coastal flooding and storm surges.

**Views expressed in this article are not necessarily those of
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²⁰ Environment Bureau, "Hong Kong Climate," 23-24.