CHINA RESEARCH MONOGRAPH 75

CENTER FOR CHINESE STUDIES

# From a British to a Chinese Colony?

## Hong Kong before and after the 1997 Handover

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FIVE

# The Roots of Regionalism: Water Management in Postwar Hong Kong

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Hong Kong, a product of Britain's desire to trade with China, has always been highly reliant on international commerce. Until the 1960s, this city-state, comprised of an urban core and a small agrarian hinterland, was self-reliant in an essential commodity: fresh water. Since then Hong Kong governments, monopoly suppliers of water, have sought to balance regionalism (an increasing reliance on water supplied from the Mainland) and localism (a continuing desire for water security).[1] Since 1960, Mainland water has come from a reservoir in Shenzhen, near the border with Hong Kong, and from the East River (Dongjiang 東江) in Guangdong Province.[2]

The relationship between Hong Kong's socioeconomic dependence on Guangdong and its administrative autonomy ignites considerable interest today. The Hong Kong government, aware that the rapid economic development of South China has led to water stress in Guangdong, has sought to augment local water infrastructures in preparation for a future of climate change–induced droughts. But Hong Kong remains dependent on the supply of water from Guangdong at preferential rates, which civil society groups have criticized.[3] Asit K. Biswas, a world authority on water governance, has damned water management in Hong Kong as being worse than in "many Third World Countries" and one characterized by excessive waste, low consumer confidence in the quality of piped water,

[1] The use of "localism" here captures a desire for self-sufficiency in water. It does not convey a sense of collective belonging to a place, Hong Kong, or a movement for constitutional reform.

[2] Mainland China is defined here as the PRC. Hong Kong government documents often refer to supplies from Kowloon and the New Territories to Hong Kong Island as being from the "mainland."

[3] Liu Su, *Hong Kong's Water Resources Management*.

and an unnecessary reliance on imported supplies.[4] There is an urgent need for historical perspectives on this situation.

Scholarship on the history of Hong Kong water is developing fast, with new scholars entering the field, including Nelson K. Lee, who has written a landmark study. Lee conceptualizes two periods of water management under late British colonialism: from 1959 to 1978, when Hong Kong developed an expedient trading relationship with the Peoples' Republic of China (PRC) while investing heavily in the local water infrastructure to defend its position as a colonial city-state; and post-1978, when the British colonial administration, during a period of managed decolonization, prioritized regionalism.[5]

This chapter qualifies Zardas Shuk-man Lee's thesis in chapter 4 by arguing that mutually beneficial exchange relations between Hong Kong and Guangdong were established in the 1960s. This is a routine trade in water that created strong path-dependent effects, locking in regionalism as a long-term solution to Hong Kong's water problem. The chapter addresses three themes central to this volume: the socioeconomic interdependence of Hong Kong and China; the impact of the Cold War that complicated regionalism, since the PRC did not recognize the legitimacy of British rule; and the high degree of autonomy enjoyed by the British colonial administration, which formulated and implemented public policies with minimal interference from the London government.

This chapter begins by detailing water insecurity in Hong Kong. It then outlines water diplomacy in three stages: the initial negotiations in 1960 to supply water from the Shenzhen reservoir; dialogues that led to an agreement to pump water from the East River to Hong Kong; and the disruption to water provision caused by the revolutionary politics of 1967 in Mainland China and Hong Kong. Four subsequent sections explore the material benefits and social and environmental costs of regionalism. The final section concludes and outlines implications for today's policy makers in Hong Kong.

## Water Insecurity in Hong Kong

Hong Kong, for most of its history, suffered from endemic water scarcity because its natural hydrosphere was unsuitable for mass settlement.[6] Large-scale rivers bringing rainwater from distant water basins and meltwater from glacier-clad mountains do not run through Hong Kong. Lo-

[4] Asit K. Biswas, "Time to Overhaul Hong Kong's Water Supply System."

[5] Nelson K. Lee, "The Changing Nature of Border."

[6] L. A. Mills, *British Rule in Eastern Asia*, 479–484; S. G. Davis, *Hong Kong in Its Geographical Setting*; G. B. Endacott, *A History of Hong Kong*.

cal geology also limits groundwater supplies. Unlike other parts of the Mainland, Hong Kong has never been able to use drilling and pumping technologies to tap abundant groundwater.[7]

The water authority of British Hong Kong, supported by the Public Works Department and other agencies of the colonial state, pursued a three-prong strategy to deal with water shortages. It invested in local rainwater-capture technologies, encouraged consumers to practice water conservancy, and created a dual-supply network that used vast quantities of seawater for flushing away waste and as a coolant for energy generation.[8] Aided by the importation of water-intensive products such as foodstuffs and raw materials, the public water authority delivered a reasonable supply of clean water.[9]

Until 1960, the Hong Kong government had relied almost exclusively on the use of reservoirs to draw water from local water basins during the wet months, April to November, when 80 percent of local rainfall fell. In contrast, in 1971, only 1 percent of the people of Hong Kong Island and Kowloon gained water for drinking from wells.[10] Hong Kong's people and industries usually did not go thirsty, but as systems for capturing rainwater became ever more technologically advanced, supplies of drinking water became more expensive.[11]

The first major local reservoir scheme in the postwar period was at Tai Lam Chung, one that was designed to end endemic water shortages by the late 1950s.[12] A population explosion meant that this scheme failed to deliver water security, and in the mid-1950s the government commissioned a dam on the Shek Pik River on Lantau Island. This vast project, costing HK$200 million, was scheduled to increase local storage capacity by 50 percent within seven to eight years. Within a few years, however, industrialization and rising private affluence (which increased demand for wet sanitation) had dramatically altered predictions about future demand. Government estimates of Hong Kong's supply requirements made in the late 1940s and early 1950s had proved to be far too conservative. This

[7] By the late 1950s, for example, wells provided only 400,000 gallons per day, an insignificant amount when considering Hong Kong's need. See Great Britain, Colonial Office, Letter from D. H. Reed (Colonial Office) to Major C. A. Pogson [a consulting water diviner offering his services to Hong Kong], late May or early June 1963, CO 1030/1658.

[8] Ho Pui-yin, *Water for a Barren Rock.*

[9] Kimberly Warren-Rhodes and Albert Koenig, "Escalating Trends in the Urban Metabolism of Hong Kong."

[10] A. Aston, "Water Resources and Consumption in Hong Kong," 333.

[11] Ho Pui-yin, *Water for a Barren Rock*, 17–47, 70–108, 151–182.

[12] Great Britain, Colonial Office, Telegram from Hong Kong [Sir Alexander Grantham] to the Secretary of State for Colonies [A. T. Lennox-Boyd], 530, November 27, 1953, CO 1023/199.

forced the government to commission a colossal and technically challenging project, reclaiming a sea inlet at Plover Cove to create a new reservoir. This project, which cost HK$641 million, was scheduled to treble local water-storage capacity and secure self-sufficiency in water by 1970. Before then, water shortages were chronic.[13] Hong Kong's final major domestic scheme was the High Island Reservoir, commissioned in the late 1960s for HK$1.38 million. It augmented Hong Kong's storage capacity by a third.[14]

Hong Kong embarked on these expensive local schemes because the Cold War complicated the implementation of an obvious solution to chronic water shortages: building conventional reservoirs some distance from urban areas, over the border in Communist China. The next three sections explore how this political problem was overcome.

**Water Diplomacy, 1959–1961**

On November 15, 1959, the PRC invited three hundred guests from Hong Kong to attend a ceremony that marked the beginning of the construction of a reservoir at Shenzhen.[15] On arrival at the site, these Hong Kong residents were informed that the reservoir would be able to supply a city of three million people for seven months of the year. In January 1960, the Guangdong government organized excursions to the construction site for the Chinese Reform Association as well as journalists from the *Wei Pao,* the *Ta King Pao*, the *New Evening Press*, and the Xinhua News Agency.[16] The PRC was sending a message to the water-starved people of Hong Kong: Mainland China could alleviate their suffering.[17]

This development created a political problem for the colonial administration in Hong Kong. If the PRC's message was the opening salvo in a propaganda war, how would the government respond at a time of water shortages in Hong Kong? The Great Leap Forward (1957–1961), which will be detailed later, was characterized by unsustainable development. It was fueled by propaganda, outlandish claims about the PRC's economic capacity. Yet, private conversations between Hong Kong and PRC officials

[13] Great Britain, Colonial Office, Letter from J. F. Saunders, the UK Trade Commissioner in Hong Kong (UKTC), to T. Sharp, Board of Trade (BT), July 22, 1960, CO 1030/1280.

[14] Nelson K. Lee, "The Changing Nature of Border," 912–913.

[15] Great Britain, Colonial Office, Extract from the Hong Kong Special Branch Report, November 1959, CO 1030/1280.

[16] Great Britain, Colonial Office, Extract from the Hong Kong LIC Monthly Report, January 1960, CO 1030/1280.

[17] Nelson K. Lee, who has used files in the Guangdong Provincial Archives, suggests that pro-PRC elites in Hong Kong first propagated the idea of a reservoir at Shenzhen with the colonial government *and* with the Guangdong authorities. See "The Changing Nature of Border," 909.

reassured the Hong Kong government that the PRC was not engaging in a publicity stunt.[18] In January 1960, an employee of the China Resources Company, a PRC agency that organized trade between Mainland China and Hong Kong, approached John Clague, a director of John D. Hutchinson and Co. and an unofficial member of the Legislative Council, and Arthur Clarke, the financial secretary in the Hong Kong government.[19] Formal talks soon followed, culminating in an agreement to connect the reservoir at Shenzhen to Hong Kong.[20]

Throughout the five-month negotiations, the British officials in London and Hong Kong expected that the PRC would use the premise of "water diplomacy" to augment its influence within Hong Kong. It was anticipated that the PRC would use the negotiations to request a political representative in the territory and the resumption of through trains from Guangzhou.[21] It was also expected that the PRC would launch a sustained propaganda campaign. As the event turned out, PRC negotiators did not ask for political concessions, nor did they exploit the propaganda potential of the agreement. Although two Chinese Communist Party–aligned journalists attended the opening ceremony, the Hong Kong Information Service Department provided far more comprehensive coverage of this event than the communist-aligned press in Hong Kong.[22] The PRC did not even insist that the full text of the agreement be published.[23]

From the perspective of the colonial administration, this water diplomacy had been "remarkably cordial."[24] The provincial authorities in Guangdong had built a reservoir, proclaimed publicly that its water would be supplied to Hong Kong, and then opened up talks.[25] This sequence gave

[18] Great Britain, Colonial Office: Telegrams from Hong Kong (Black) to the Secretary of State for the Colonies [Macleod], 35 and 61, January 9 and 18, 1960; Far Eastern Department, Colonial Office, Submission to Ministers, Chinese Water Supply to Hong Kong, January 21, 1960, CO 1030/1280.

[19] Great Britain, Colonial Office, Telegram from Hong Kong (Black) to the Secretary of State for the Colonies [Macleod], no. 40, January 14, 1960, CO 1030/1280.

[20] Great Britain, Colonial Office, Extract from the Hong Kong Special Branch Summary, June 1960, CO 1030/1280.

[21] Great Britain, Colonial Office, Water Shortage in Hong Kong, undated Memorandum for submission to the Minister of State, CO 1030/1655.

[22] Great Britain, Colonial Office, Extract from Peking Fortnightly Summary 23 for the period ending November 20, 1960, CO 1030/1281; Telegram from Hong Kong (Black) to the Secretary of State for the Colonies [Macleod], 882, November 15, 1960, CO 1030/1280.

[23] Great Britain, Colonial Office, Telegram from Hong Kong (Black) to the Secretary of State for the Colonies [Macleod], 867, November 7, 1960, CO 1030/1281.

[24] Great Britain, Colonial Office, Telegram from Hong Kong to the Secretary of State for the Colonies [Sandys], 2593, December 27, 1962, CO 1030/1281.

[25] Great Britain, Colonial Office, Letter from Maclehose to H. Stewart, March 14, 1960, CO 1030/1280.

the Hong Kong government hope that it could gain additional supplies of water from Mainland China.

In London, Foreign Office officials were concerned that the water diplomacy would have two detrimental effects. First, it might augment the power base of the PRC in British Hong Kong. Second, it might provide the PRC with an opportunity to raise the issue of Hong Kong's sovereignty during talks about the exchange of water.[26] Governor Robert Black (r. 1958–1964) of Hong Kong, however, disagreed. He believed that the political risks of engaging in the water diplomacy with the PRC would be low. He was vindicated.

**Water Diplomacy, 1963–1964**

From 1963, the government of Hong Kong developed lines of communication with the PRC with the intention of securing emergency water supplies from the Mainland. In May 1963, the Hong Kong government broached the issue of new arrangements to bring water to Hong Kong with the Xinhua News Agency, the PRC's de facto representative in Hong Kong. In June 1963, E. Wilmot-Morgan of the Public Works Department asked Tseng Shen曾生 (Zeng Sheng), the deputy governor of Guangdong, about the prospect of bringing water from the Pearl River (Zhujiang 珠江) and the East River to Hong Kong. While Tseng sanctioned the shipment of water from the Pearl River, the effects of which will be explored later, and the Beijing government had to approve negotiations for a deal to pipe water from the East River.[27] This created a diplomatic impasse.

In May and June 1963, the local Hong Kong press was reporting obsessively on what the government had declared to be a "water emergency," a period of acute water stress that will be studied closely in a later section. This pressured the government to act. On June 13, Governor Black requested that the British government approach the PRC government in Beijing.[28] Progress on the East River scheme was slow. The arrangement to bring water from the East River was hampered by information asymmetries. Hong Kong wanted exploratory talks to exchange geological and hydrological data so that it could provide the authorities in Guangdong with a detailed engineering plan. The Guangdong authorities, by contrast, wanted to know how much water Hong Kong wanted and over what

[26] Great Britain, Colonial Office, Letter from Maclehose to H. Stewart, March 14, 1960, CO 1030/1280.

[27] Hong Kong Record Series, Hong Kong Water Emergency 1963: Report on Discussion with Guangdong Authorities in Canton, June 5, 1963, HKRS 287/1/343.

[28] Hong Kong Record Series, Copy of Telegram from the Governor Hong Kong to Secretary of State for the Colonies, June 13, 1963, HKRS 287/1/343.

period before they would open up talks.[29] Hong Kong officials suspected that the Guangdong authorities were hesitant due to the fear that if Hong Kong secured water, the authorities would back out of the scheme. If this happened, the PRC would have wasted scarce resources laying pipelines to the border. To break the impasse, Hong Kong officials considered offering to meet all the capital costs of the project incurred in Guangdong.[30] In the end the Hong Kong government did not make this offer, and it is extremely unlikely that the PRC would have agreed to terms that would have symbolized Mainland China's dependence on Western technical and financial aid.

Throughout 1963, public interest in Hong Kong about a new pipeline from the Mainland grew and pressure on the Hong Kong government intensified.[31] The colonial administration maintained dialog with the provincial authorities in Guangdong and used diplomatic channels in Beijing to put pressure on the PRC. In November, Lo Fan-Chun (Chinese characters for name unknown), the vice-governor of Guangdong, met T. W. Garvey, from the office of the British chargé d'affaires in Beijing. Lo confirmed that a pipeline was under consideration and that Guangdong was "anxious to do its best for Hong Kong."[32] But in December, Ho Yin (Chinese characters for name unknown), a Macau-based "communist millionaire" with good contacts in Beijing, reported to the colonial administration that the PRC would insist on the establishment of an official representative office in Hong Kong as a condition for a settlement.[33] This would have been unacceptable to Hong Kong. Just when a deal began to look unlikely, the provincial government in Guangdong, acting "from their consistent stand of cooperation and help," presented an engineering plan to bring water from the East River to Hong Kong without attaching political preconditions.[34]

Governor Black was so surprised and delighted by this "altruistic" act that he suspected the PRC would ultimately request a "worthwhile *quid*

[29] Great Britain, Colonial Office, Telegram from Peking (T. W. Garvey) to Foreign Office, 435A, June 18, 1963, CO 1030/1654.

[30] Great Britain, Colonial Office, Letter from E. G. Willan to Garvey, October 3, 1963, CO 1030/1656.

[31] Great Britain, Colonial Office, Telegram from Black to the Secretary of State for the Colonies [Sandys], 672, August 14, 1963, CO 1030/1655.

[32] Great Britain, Foreign Office, Telegram from Peking to Foreign Office, 882, November 22, 1963, FO 371/170648.

[33] Great Britain, Foreign Office, Letter from E. G. Willan to Garvey, December 20, 1963, FO 371/175908.

[34] Great Britain, Foreign Office, Extract from LIC Monthly Intelligence Report, January 1964, CO 1030/1655; Telegram from Peking to Foreign Office, 77, January 21, 1964, FO 371/175908.

*pro quo.*"[35] Garvey, however, believed that this was a "unilateral act of benevolence" designed to enhance Mainland China's image as Hong Kong's "generous and unselfish neighbour and protector."[36] Garvey's judgement was sound. In 1964, Lo Kwan-hung 羅君雄, a left-leaning Hong Kong-based filmmaker, shot on location in Guangdong an iconic documentary film, *Water Comes over the Hills from the East* (*Dongjiang zhi shui yueshan lai* 東江之水越山來).[37] Three quarters of a million people watched this "box-office sensation" when it was screened in Hong Kong in 1965.[38] The film augmented the PRC's symbolic power in the British colony, but PRC publicity was muted. Its local activists were "torn between the need not to advertise this too blatantly and the natural desire to obtain maximum credit for their achievement."[39]

Mark Chi-kwan has argued that in the mid-1960s, the PRC was playing a long game with respect to Hong Kong. Ultimately it wanted to enter into negotiations to secure the transfer of Hong Kong back to Mainland China. In the meantime, the PRC wanted to maintain "the status quo."[40] This required the embedding of regionalism. Friendly water diplomacy was the upshot.

**Water Diplomacy in 1967**

Between 1960 and 1967, rising imports of water heightened anxiety in Hong Kong about water insecurity. The provision of clean water was now dependent on harmonious political relations with a neighboring power that did not recognize the legitimacy of British rule. Ordinary people were acutely aware of the precariousness of this settlement. In February 1963, for example, the state broadcaster in Guangzhou mentioned that if supplies from the Shenzhen reservoir "halted," the "water situation" of Hong Kong would become unbearable. According to the *China Mail*, a Hong Kong newspaper, this announcement was a veiled threat leading to "widespread bewilderment and concern." The Hong Kong government responded by releasing a statement that it believed the authorities in Guangdong would adhere to an obligation to supply water under the

[35] Great Britain, Foreign Office, Telegram from Hong Kong to the Secretary of State for the Colonies [Sandys], 98, January 22, 1964, FO 371/170648.

[36] Great Britain, Foreign Office, Telegram from Peking to Foreign Office, 86, January 23, 1964, FO 371/170648.

[37] Ian Aikten and Michael Ingham, *Hong Kong Documentary Film*, 57.

[38] Great Britain, Colonial Office, Hong Kong Police Special Branch Monthly Summary, April 1965, CO 1030/1657.

[39] Great Britain, Colonial Office, Extract from LIC Quarterly Intelligence Report, January 1 to March 31, 1965, CO 1030/1657.

[40] Mark Chi-kwan, "Lack of Means or Loss of Will?," 54.

1960 "contract."[41] The reference to the "contract" was rhetorical. Governor Black recognized privately that the continuation of supplies hinged on the maintenance of good will.[42]

It was the revolutionary politics of 1967 in Mainland China and Hong Kong that provided the severest test of this informal arrangement. During the Riots-cum-Confrontation, local communist activists used strikes and violence to destabilize British rule. The colonial state suppressed unrest. The year 1967 also saw many water shortages. Rainfall was below average and Plover Cove was not fully operational. Moreover, as disturbances escalated, Hong Kong's water security deteriorated. The PRC piped its contracted supply between October 1966 and June 1967, but relations between Hong Kong and PRC officials, hitherto cordial, broke down. Hong Kong's water engineers were mistreated. Meetings to reconcile supply arrangements were canceled. Payments went into arrears.[43] When Hong Kong officials, anticipating water shortages, requested additional supplies, the provincial authorities in Guangdong did not reply.[44] This had not happened before. Trust dissipated. Governor David Trench (r. 1964–1971) feared that the PRC's strategy had changed. Rather than alleviating acute water stress, it would exacerbate it. He became convinced that the PRC would not miss a "golden opportunity" to leave Hong Kong in a "very grave danger": "waterless."[45]

The Hong Kong government responded, rather desperately, by contacting governments in Japan, the Philippines, and Thailand about the prospects of shipping water from their rivers and reservoirs.[46] Importing water across such distances would have been extremely expensive and push up water rates but would not have alleviated water shortages completely. The colonial administration admitted in private that only a com-

[41] "Will China Cut off Our Water?," *China Mail*, February 27, 1963, HKRS 545/1/38.

[42] Great Britain, Colonial Office: Telegram from Hong Kong to the Secretary of State for the Colonies, 1098, May 27, 1960, CO 1030/1280; Extract from the LIC Quarterly Intelligence Report, January 16 to April 15, 1961, CO 1030/1280.

[43] Great Britain, Foreign and Commonwealth Office, Telegram from Hong Kong to the Commonwealth Office, June 17, 1968, FCO 40/129.

[44] Great Britain, Foreign and Commonwealth Office, Letter from A. M. J. Wright (Water Authority, HK) to the Director, The East River, Shenzhen Water Supply Project, July 24, 1967, FCO 40/129.

[45] Great Britain, Foreign and Commonwealth Office, Letter from David [Trench] to Arthur [Goldsworthy], July 1963, FCO 40/129.

[46] Great Britain, Foreign and Commonwealth Office, Letter from R. B. Crowson (British Embassy, Tokyo) to T. K. K. Elliot (Political Adviser, Hong Kong), August 18, 1967, FCO 40/129; Telegram from Manila to the Foreign Office, 145, August 17, 1967, FCO 40/129; Telegram from Hong Kong to the Secretary of State for Commonwealth Affairs, 1301, August 24, 1967, FCO 40/129.

bination of abundant late-summer rain and the resumption of supplies from Mainland China would negate the need for draconian rationing.[47] It put in place an emergency plan to provide households with access to running water for only five hours per week.[48] This would have put an unprecedented burden on the people of Hong Kong.

Thankfully for Hong Kong, the crisis soon ended. Governor Trench's prediction had been poor. Late in 1967, Plover Cove began to fill with rainwater, providing additional supplies. And crucially, in October 1967, before the beginning of the dry season, the PRC met its supply obligations: the Shenzhen–East River scheme replenished Hong Kong's supplies. The crisis of 1967 had two effects. First, as Nelson K. Lee notes, it restimulated localism: the High Island Scheme, Hong Kong's last, great water-engineering project was commissioned; and pressure for the implementation of a preexisting plan for an expensive desalination plant intensified.[49] Second, the quick resumption of exchange relations—the PRC had only turned off the taps for three months—restored confidence in regionalism. Yet, as shown later, what really made regionalism a compelling strategy for a fiscally conservative colonial state systematically underinvesting in the social and physical infrastructure was the price the PRC charged Hong Kong for water.[50]

### Gains from Regionalism, I: Cheap Water

When water is drawn from distant water basins, capital costs and water rates charged to households rise. In Hong Kong, due to the PRC's pricing strategies, high prices for clean water are a relatively recent phenomenon.[51] In the 1960s, the price of Mainland water was extremely low. Throughout the decade water rates in Hong Kong approximately doubled; and they were to increase again in the early 1970s. These price hikes resulted from high capital investment in nonconventional water capture technologies. It was believed that imported water reduced price inflation.[52] The evidence for this supposition comes in the form of the price ratios between

[47] Great Britain, Foreign and Commonwealth Office, Memorandum for the Executive Council, Water Supply Position, August 5, 1967, FCO 40/129.

[48] Great Britain, Foreign and Commonwealth Office, Memorandum for the Executive Council, Water Supply Position, August 5, 1967, FCO 40/129.

[49] Nelson K. Lee, "The Changing Nature of Border," 912.

[50] David W. Clayton, "From Laissez-Faire to 'Positive Non-Interventionism,'" 5, 8.

[51] Liu Su's *Hong Kong's Water Resources Management* makes the useful distinction between rising prices for East River water and, due to the subsidization of saltwater for flushing, the low average per unit price of water.

[52] Great Britain, Colonial Office, Letter from [Sir Arthur] Clarke [Financial Secretary] to Harding, March 31, 1960, CO 1030/1280.

imported water and newly commissioned domestic supplies. During the 1960s, water piped from Shenzhen and the East River was cheap, costing approximately HK$1 per thousand gallons, the same as the prevailing rate for domestic supplies, a strategy of "equivalent pricing" (see later).[53] But the price of water from the Plover Cove scheme was predicted to be a third higher than Mainland water, and it was estimated in 1963 that water supplied by a desalination plant would be five times more expensive than Mainland water.[54]

Acquiring Mainland water was a low-tech and thus cheap solution to Hong Kong's water stress. For example, the capital costs incurred by the Hong Kong government to link its existing supply network to that in Guangdong were small relative to those for the large projects documented at the beginning of this chapter. In 1964, Hong Kong's Public Works Department budgeted for HK$4.5 million to link the new East River–Shenzhen water scheme to the Hong Kong network. Most of this expenditure was for buying and laying pipes, installing pumps, and amending or building new pumping stations; farmers in the New Territories also received compensation for the loss of crops and access to cultivated land.[55] This expenditure was fiscally insignificant as it was only 1 percent of the cost of the Plover Cove scheme and 2 percent of the Shek Pik scheme.

Before considering the hidden costs of this trade, it is worth pondering the PRC's strategy of "equivalent pricing." It is clear that during the 1960s, the PRC could have set higher prices and thus gained more foreign exchange from its unbalanced trade with Hong Kong. In 1963, the colonial administration in Hong Kong was desperate for emergency supplies of water and was contemplating bringing water by tanker from Japan and Southeast Asia.[56] PRC negotiators could have held out for higher prices. They could have let Hong Kong reservoirs dry out before making final

[53] Great Britain, Colonial Office: Memorandum for the Executive Council, Development of Water Resources, October 1, 1963, CO 1030/1656; Telegram from Hong Kong (Information Department) to the Secretary of State for the Colonies, April 22, 1964, CO 1030/1656; Extract of a speech by the Financial Secretary [Sir John Cowperthwaite] in the Legislative Council, February 28, 1962, CO 1030/1279.

[54] Great Britain, Colonial Office: Calculations derived from estimates in an extract of a memorandum [probably for the Executive Council] (untitled and undated), CO 1030/1280; and in an extract of a letter from the Deputy Financial Secretary, October 14, 1963, CO 1030/1656.

[55] Compensation made up 2 percent of the capital budget. See Hong Kong Record Series, Director of Public Works (Water) to Deputy Financial Secretary, August 12, 1964, HKRS 287/1/348.

[56] Great Britain, Colonial Office, Letter from Willan to Garvey, July 30, 1963, CO 1030/1655.

demands.[57] Why did the provincial authorities in Guangdong not bargain harder?

Negotiations between Guangdong and Hong Kong followed a pattern. The provincial government in Guangdong would initially offer to provide water for Hong Kong free of charge.[58] The Hong Kong government would then insist that any deal would be on commercial terms. At this point, PRC officials would ask the Hong Kong government to set a price equivalent to prevailing prices in Hong Kong.[59] The PRC pricing strategy did not reflect conditions of supply in Guangdong. All of the schemes to supply water to Hong Kong varied greatly. The PRC erected earthen dams just over the border that could be used to pump floodwaters into Hong Kong, constructed large-scale reservoirs, and built canals and dams to redirect water from the East River.[60] Prices did not reflect the different costs of these schemes, a typical feature of the Maoist economy.[61] In Mainland China, irrational decision-making eroded incentives for investment in productive projects. It did the same in Hong Kong, eroding the case for localism, for sustained investment in highly productive (but costly) unconventional schemes to deliver water security. Instead it strengthened the case for regionalism, reliance on low-tech communist schemes.

Securing water from the Mainland was a quick fix. Local capital-intensive schemes took on average seven to eight years to augment domestic supplies. By comparison, in the 1960s the PRC supplied Mainland water within a few years.

### Gains from Regionalism, II: Mitigation of Acute Water Stress, 1962–1964

The breakdown in exchange during 1967 was exceptional. Normally the PRC was receptive to requests made by Hong Kong for supplementary and emergency supplies. The main evidence concerns conditions afflicting Hong Kong in 1963.

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[57] Great Britain, Colonial Office, Telegram from Black to the Secretary of State for the Colonies [Macleod], October 22, 1960, CO 1030/1280.

[58] Great Britain, Colonial Office, Telegram from Hong Kong (Black) to Secretary of State for the Colonies [Iain Macleod], 151, February 21, 1960, CO 1030/1280; Hong Kong Record Series, Hong Kong Water Emergency 1963: Report on Discussion with Guangdong Authorities in Guangzhou, June 5, 1963, HKRS 287/1/343.

[59] Great Britain, Colonial Office, Telegram from Hong Kong (O. A. G.) to the Secretary of State for the Colonies [Macleod], 336, April 11, 1960, CO 1030/1280.

[60] Hong Kong Record Series, E. Wilmot-Morgan, Assistant Director Waterworks, Meeting with Po On County Officials, November 26, 1963, HKRS 287/1/343.

[61] Kent G. Deng, *China's Political Economy in Modern Times*.

In 1963, Hong Kong suffered from an unprecedented weather shock (with rainfall of only 40 percent of the average) at a moment when the colony's reservoirs had already been depleted. In the spring of 1962, with rainfall 60 percent below average, Hong Kong reservoirs contained water sufficient only for a month's consumption.[62] And during the whole of 1962 Hong Kong received three quarters of its normal volume of rain.[63] By 1963, Hong Kong was in a "period of extreme peril," the government having no choice but to halve daily household consumption.[64]

In present-day Hong Kong, the average person consumes 130 liters of drinking-quality water per day, 220 liters of water per day in total, including saltwater for flushing.[65] In 1963 and 1964, the ration was a tiny fraction of this level, perhaps as low as 30 liters per person per day.[66] The precise ration was determined by the ability of households to prioritize the collection of water when the taps were switched on.

Normally, in the 1950s and 1960s Hong Kong people enjoyed a 24-hour supply of water only when collected rainwater was plentiful; in 1960, this occurred on only 35 days. During dry spells, taps were typically turned off for twenty hours per day. During severely dry spells, consumers were only allowed access to water for four hours every second day.[67] Rationing caused social inequities. Much of the burden fell on Hong Kong women, who, as part of their weekly work schedule, had to store water for drinking, cleaning, and cooking, while those without indoor pumping expended considerable amounts of time queuing at standpipes, public toilets, and bathhouses. Except for those lucky few with access to private wells, privation would have been intolerable without supplies from the Mainland.

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[62] Great Britain, Colonial Office, Information Services Department, Hong Kong Daily Information Bulletin, May 19, 1962, CO 1030/1280.

[63] The long-term norm is 2,254mm/year, calculated from rainfall data for 1920 to 1980, excluding the period 1939–1946. The norm is derived from Census and Statistics Department, Hong Kong, *Hong Kong Statistics*, 10; *Hong Kong Blue Books*, 1920–1938; Census and Statistics Department, Hong Kong, *Hong Kong Monthly Digest of Statistics*, 1970–1984.

[64] Great Britain, Colonial Office, Extract from Governor's Speech in Legislative Council, February 26, 1964, CO 1030/1656.

[65] Water Supplies Department, Hong Kong, "Calculation of Per Capita Daily Water Consumption."

[66] This estimate was computed from the total annual consumption data that were converted from imperial to metric measures (one gallon equals 4.55 liters), and deflated by mid-year population estimates to arrive at a figure of 50 liters per person per day. See Census and Statistics Department, Hong Kong, *Hong Kong Statistics*, 84. A. Aston estimated that 55 percent of stored water was for domestic consumption, and so the final estimate is 30 liters per person per day. See "Water Resources and Consumption in Hong Kong," 229.

[67] Public Works Department, Hong Kong, *The Water Problem in Hong Kong*, 5.

During the early and mid-1960s, Mainland China normally supplied between 20 and 30 percent of consumption needs in Hong Kong.[68] The significance of Mainland water was greater during periods of acute crisis. In 1962, nearly 40 percent of Hong Kong's freshwater derived from the Shenzhen scheme.[69] The storage capacity at Shenzhen fell in 1963 because drought afflicted the entire region. Shenzhen's capacity fell by two thirds, and the PRC cut its exports of water to Hong Kong.[70] Liu Su's{correct name order?} claim that the "water stopped flowing" during this "great drought" is wrong.[71] The Shenzhen scheme supplied nearly a fifth of Hong Kong's needs during a period of severe water shortages. During 1963, the PRC also mitigated water shortages by agreeing to the shipment of water by tanker from the Pearl River. The "water lift" from the Pearl River, 603 round trips to Guangzhou during the last six months of 1963, supplied nearly 1,900 million gallons, a third of consumption needs during that period.[72]

During 1963, half of Hong Kong's freshwater was derived from the Mainland. Hong Kong officials acknowledged in private that the Guangdong authorities had been "generous."[73] The UK trade commissioner in Hong Kong argued that the PRC had prevented a "disaster."[74] Governor Trench believed that the Shenzhen scheme had proven of "critical importance," a boost to "public confidence and morale," placing Hong Kong in a "position of dependence on the Chinese which was never envisaged" when the original agreement was drawn up.[75]

In short, the volume and value of Mainland water during the 1960s made regionalism an essential component of Hong Kong water management. As the final two sections describe, this calculation was not affected by the social and environmental costs of the trade.

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[68] Ho Pui-yin, *Water for a Barren Rock*, 217; Census and Statistics Department, Hong Kong, *Hong Kong Statistics*, 84.

[69] Great Britain, Colonial Office, Telegram from the Governor [Sir Robert Black] to the Secretary of State for the Colonies [Duncan Sandys], December 27, 1962, CO 1030/1281.

[70] Great Britain, Colonial Office, Reuters Cable 052740, May 1963, CO 1030/1654; DIB, October 17, 1963, CO 1030/1656.

[71] Liu Su, "Hong Kong's Water Resources Management," 22.

[72] Hong Kong Information Service, "Hong Kong and China Sign New Water Supply Agreement," April 22, 1964, HKRS 545/1/382/1.

[73] Great Britain, Colonial Office, Telegram from Hong Kong to the Secretary of State for the Colonies [Sandys], 912, October 25, 1963, CO 1030/1656.

[74] Great Britain, Colonial Office, Letter from Arthur Woller (UKTC) to M. S. Trenaman (BT), June 28, 1963, CO 1030/1655.

[75] Great Britain, Colonial Office, Telegram from Hong Kong to the Secretary of State for the Colonies [Sandys], 845, October 8, 1963, CO 1030/1656.

### Costs of Regionalism, I: Labor Conditions in Guangdong

The Shenzhen reservoir was built during the early years of the Great Leap Forward (GLF), a set of radical policies that contributed to a famine across the Mainland. The level of excess mortality varied from province to province. The degree of commitment by provincial administrations to the policies during the GLF also differed. For Guangdong, evidence suggests that the authorities were committed to the GLF, which made its people suffer. The amount of grain available per person in Guangdong fell in 1958, 1960, and 1961 due to crop failures and requisitioning, but Guangdong's rate of GLF-related mortality was only 1.7 percent, compared to a national average of 5 percent.[76]

A key aspect of the GLF is the mass mobilization of peasants for water conservancy.[77] Elsewhere in Mainland China, this activity contributed to famine conditions. Frank Dikötter has shown that water conservancy during the GLF reduced the amount of labor available for agricultural production and depleted the energy levels of construction workers, making them prone to malnutrition.[78] At least 6,000 people worked day and night for one hundred days on the reservoir at Shenzhen. They also worked twenty-four hours per day through the rainy season to lay pipes from this reservoir to the border.[79] Refugees from the famine-ravaged Mainland alleged that a considerable number of workers died during the construction of the dam.[80] This scheme certainly exploited laborers.[81] Nevertheless, it was small in scale compared to the vast schemes undertaken elsewhere on the Mainland. In Anhui, a province severely afflicted by famine, the PRC mobilized five million workers to construct gigantic projects to prevent floods and improve irrigation and transportation.[82]

### Costs of Regionalism, II: Long-Term Environment Damage

Hong Kong was no different from other global mega cities that, from the nineteenth century, drew water over ever-greater distances. New York, for example, now relies on the watershed of the Delaware River, 125 miles

[76] Yang Jisheng, *Tombstone*, 325, 334, 396; G. H. Chang and G. J. Wen, "Communal Dining and the Chinese Famine," 25.

[77] Judith Shapiro, *Mao's War against Nature*, 69–70.

[78] Frank Dikötter, *Mao's Great Famine*, 180.

[79] Great Britain, Colonial Office, Memorandum: Shum Chun Reservoir Water Supply, November 15, 1959, CO 1030/1280.

[80] Great Britain, Colonial Office, Extract from *The Evening Standard*, November 23, 1960, CO 1030/1280.

[81] Great Britain, Colonial Office, Extract from Hong Kong LIC Monthly Intelligence Report, December 1959, CO 1030/1280.

[82] Chen Yi, "Under the Same Maoist Sky," 205–206.

from the city, high in the Catskill mountain range. The problem for Hong Kong was that there was greater uncertainty about the credibility of its distant supplier—the provincial government of Guangdong. This bred a short-term outlook. The British colonial state, as Lee has shown, continued to invest, for political rather than economic or ecological reasons, in the local water infrastructure, including a failed experiment with desalination.[83] As this section documents, weak regional property rights also led to adverse technological choice and poor protection for the ecology of the region, problems that ultimately affected the quality of the water supplied from the Mainland to Hong Kong.

In 1964, the colonial administration wanted to install a pipeline to bring water from the East River through Guangdong to the border with Hong Kong.[84] Instead, the PRC constructed a pumping station to fetch water from the East River up one of its tributaries, the Stone Horse River (Shimahe 石馬河), and, via two other rivers and a new canal, into the Shenzhen reservoir. This open scheme reversed and widened natural river courses, created a network of 83 kilometers, and contained eight large pumping stations, six large dams, and 16 kilometers of canals.[85] The PRC had maximized labor inputs and minimized capital inputs, reflecting prevailing product scarcities in its command economy. It was an optimal solution for the PRC.[86] But during the 1980s, a period of rapid industrialization in Guangdong, the water carried by this open system became polluted.[87]

The contracts to supply water to Hong Kong in the 1960s were set up and run by the colony's technocrats peddling engineering fixes to complex problems. Although these agreements became more sophisticated in later decades, environmental considerations were never given primacy. In hindsight, there should have been a long-term deal that sought to protect the ecology of the regional water basin. In the 1990s, New York, instead of paying for an expensive new filtration plant, improved the forests and soil surrounding its reservoirs.[88] By contrast, there was a rush for growth in South China in the 1990s, causing pollution levels to rise and leading to a deterioration in water quality.

[83] Nelson K. Lee, "The Changing Nature of Border," 912–913, 916.

[84] Great Britain, Colonial Office, Telegram from Hong Kong (Black) to the Secretary of State for the Colonies [Sandys], 497, June 13, 1963, CO 1030/1654.

[85] Derek Davies, "The East River Scheme," 8–12.

[86] Kenneth Pomeranz, "The Transformation of China's Environment," 136–142.

[87] Liu Su, "Hong Kong's Water Resources Management," 32–33.

[88] James Salzman, *Drinking Water*, 57–69.

## Conclusions and Implications

As highlighted in Gary Chi-hung Luk's introduction and detailed in Leo F. Goodstadt's chapter, there was considerable socioeconomic interdependence between British Hong Kong and China. The post-WWII PRC sold essential commodities to Hong Kong at below international market rates in return for valuable foreign exchange. This unbalanced trade subsidized living standards in Hong Kong, and, by reducing the inflationary pressure for wage increases, sustained labor-intensive, export-orientated industrialization.[89] As demonstrated in this chapter, exports of water from Mainland China embedded mutual economic dependency during the 1960s and beyond.

As Carol A. G. Jones and Zardas Shuk-man Lee show in this volume, the Cold War had a profound effect on colonial state building. It created uncertainty about Hong Kong's future status, which had a significant effect on water management because the social returns on investment in the water infrastructure required secure long-term property rights. As this chapter has shown, the British government feared that the PRC would exploit Hong Kong's dependency on Mainland water to augment its symbolic power within the British colonial territory. But the colonial administration was far less concerned about these political consequences; it perceived negotiations with the PRC to secure water supplies from the Mainland as an absolute necessity.[90] This strategy, formulated autonomously in response to acute water stress in 1963, paid off: during the 1960s the PRC provided Hong Kong with cheap water at a low political cost at a time of considerable need.

These nascent exchange relations suffered a shock in 1967. The colonial state reacted to the crisis, most notably by commissioning a new reservoir, the High Island scheme. But 1967 was exceptional. Normally exchange relations were routine, and the day-to-day interactions between engineers and low-level officials built up trust. An implicit understanding emerged that Hong Kong could secure cheap, clean water from further up the water basin. These were the foundations for regionalism. Although competition for water that flows across borders is often predicted to become a source of international conflict, historically the type of cross-border cooperation described in this chapter has been the norm.[91]

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[89] For the first scholarly account of this trade, see J. R. Schiffer, "State Policy and Economic Growth."

[90] For the latest findings, see Ray Yep, *Negotiating Autonomy*.

[91] United Nations, *Human Development Report 2006*, 201–233; Steven Soloman, *Water*, 384–416.

The informal institutions that governed the Hong Kong–Guangdong cross-border trade, however, locked in suboptimal water management and led to environmental problems in South China. Hong Kong now needs local *and* regional institutions that create strong incentives for innovative human- *and* river-oriented strategies. The technologies of water management also need to change. The past provides an imperfect guide, but there are two, albeit general, lessons we can learn. Today, unlike in the past, institutions need to strengthen incentives to use low-carbon technologies in ways that will raise the "productivity" of rainwater and capture wastewaters. And whatever mix of technologies are tested (and these may include a return to rationing and desalination), the organizations governing entitlements to water today must, unlike in the past, be inclusive, representing all end users of water.

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