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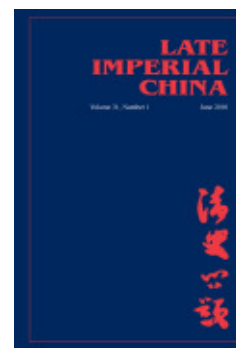
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WATER CALAMITIES AND DIKE MANAGEMENT IN THE JIANGHAN PLAIN IN THE QING AND THE REPUBLIC

Jiayan Zhang

The relationship between the state and water control has long been an important topic in Chinese studies. In the 1950s, Karl Wittfogel's theory of "oriental despotism," which considered the imperial state as having unlimited power over the development of the rural economy,¹ was very influential, though it is no longer convincing—it is simply not based on sound factual evidence.² By contrast, most scholars, especially in China and Japan, tend to lay the blame for water calamities at the doorstep of the Qing government. The government, they argue, was incompetent in managing water control and in fact in the end it abandoned efforts at water control. This interpretation dominates recent scholarship on the middle Yangzi River valley—mainly the Jianghan plain and the Lake Dongting plain—an area rich in hydraulic problems since late imperial times (particularly in the late Qing).

Morita Akira first advanced this view critical of the Qing authorities. Based on his comprehensive studies of the development of the dike systems and irrigation in both Hunan and Hubei—including the formation, size, role, and management of dikes, landlord-tenant relations within *yuan* (polders), and

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The Jianghan plain roughly encompasses what in the late Qing dynasty were the prefectures of Jingzhou (excluding Yidu), Hanyang (excluding Huangpi), Anlu, the department of Jingmen (excluding Yuan'an), and Jiangxia in the prefecture of Wuchang. Throughout the article, all the names of counties (and departments and prefectures as well) except Honghu (which was established as a county in 1951) are those used during the Qing and the Republic, not those that are currently used, since their names have changed frequently since 1949.

¹ Wittfogel 1957.

² Elvin 1975: 82, Perdue 1987: 2–7, Rowe 1988. Based on a case involving the Fankou dam controversy (1876–1883), William Rowe argued that Chinese politics was really a pluralist system that was "almost precisely the opposite of despotism" (Rowe 1988: 354). Fankou is a small town not far away from Hankou.

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the relationship between state power and dikes, particularly the management of the Wancheng dike and the Han River dikes in Hubei—he argued that in the late nineteenth century, the Qing government had withdrawn from control over local water conservancy and turned leadership over to local gentry.³ Although he cited many original Chinese sources that touched upon almost every aspect of dike management, he rarely provided analysis beyond introducing the sources.⁴ Also, he did not make clear the great difference between official dikes and people's dikes, nor between river dikes and *yuan* dikes. Since the role of government and local people in dike management always varied, his argument about the shift of dike management from the government to civilians (the gentry) is open to question. In the late Qing, the government in fact became more involved in dike management, though its effectiveness did not increase accordingly. Moreover, Morita did not analyze the relationship between frequent water calamities and the dike systems.

The most notable of the few English-language works dealing specifically with hydraulic issues on the Jiangnan plain during the Qing are those of Ts'ui-jung Liu (1970) and Pierre-Etienne Will (1985).⁵ Ts'ui-jung Liu, based on a reading of one part of a late Qing gazetteer, provided a general description of dike construction in Jingzhou (on the Jiangnan plain). Most of her description repeated what Morita had said earlier (1960), but she made it clear that in the late Qing the dike management was supervised by local officials but undertaken by the local people,⁶ though she still neglected the relationship between the dike systems and frequent inundation. Pierre-Etienne Will discussed the role of the state apparatus in the construction and administration of hydraulic installations in the Hubei basin during the Qing. He argued that in the early Qing the state still functioned as mediator in local conflicts over water control, but in the middle and late Qing the state was overcome by the difficulties in this area due to the increase of environmental degradation caused by flooding and the conflicts between the state and local society.⁷ However, in his discussion of governmental personnel he excluded runners and he did not discuss the role of the locals in dike management.

Chinese researchers have studied wider subjects and also contributed more penetrating analyses, particularly on the relationship between the dike systems

³ Morita 1960, 1971, 1974 (chap. 1–3, conclusion).

⁴ Elvin 1975: 84.

⁵ The work of Peter Perdue, though focused on Hunan (the Lake Dongting plain), also cited sources from Hubei (the Jiangnan plain), particularly on water control in Jingzhou. But he did not pay much attention to the difference between flood control and annual repair in Hubei (Perdue 1982, 1987). Plus, the *yuan* dikes were the primary dikes in the Lake Dongting plain, while both the river dikes and the *yuan* dikes were important in the Jiangnan plain.

⁶ Liu 1970.

⁷ Will 1985.

and frequent inundation. The major reasons they have given for the frequent inundation include the over-reclamation of upstream mountains under population pressure, which caused eroded silt to build up in the middle Yangzi River valley and the lower Han River valley; the never-ending enclosure of *yuan* in the Jiangnan plain, which shrank the high water discharge areas; the blockage of outlets of the Yangzi River and the Han River, which created problems for high water discharge; and the incompetence of the Qing government in dike management, particularly corruption and a lack of cooperation and coordination.⁸

These general reasons are convincing but require elaboration. In regard to population pressure, the population on the Jiangnan plain more than doubled in the last half of the twentieth century. Moreover, silting and enclosure during this period were even more extensive than during the late Qing: measured by surface area, more than half of Jiangnan's lakes were transformed into land. But since 1955 there has been no serious inundation or catastrophic break in the major dikes in the Jiangnan plain. This suggests that although the silting up of the riverbeds and the enclosure of the discharge areas are major contributing factors in the frequent inundation on the Jiangnan plain in the late Qing and the Republic, they are not the most important ones. Rather, in the long run, the weakness of dike management—including corruption, incompetence, and particularly inefficiency—might be a more important cause (although certainly not the *only* one). As the locals said, the frequent dike ruptures and floods “though attributed to nature, actually are man-made.”⁹

However, there is no doubt that, in both the Qing dynasty and the Republican era, since no primary local officials wanted the dike systems under their jurisdiction to decline, they would theoretically do whatever to protect dikes, and at times their management was indeed effective.¹⁰ Simply put, the major dikes did not rupture every year. But why from the early Qing onward, even though more people became involved in dike management, did dike ruptures and inundations become more frequent, particularly in the Han River valley and on *yuan* dikes? Is the management of the Yangzi River dikes the same as

⁸ For example, Zhang Guoxiong 1989, 1994; Zhang Jianmin 1987, 1990; Peng and Zhang 1993: 184–268.

⁹ Hu 1999: 157.

¹⁰ According to one Jianli gazetteer, dike safety was such an important issue that no responsible person dared not to take it very seriously and carefully (*Jianli xian zhi*, 1872, vol. 3: 5b). Lin Zexu, for instance, had witnessed that the then second class assistant department magistrate of Mianyang even stood in water taking charge of a dike emergency, and all the responsible personnel carefully watched over dikes through the Jiangnan area (Lin, 1935: 140). Officials who had good reputations for effective dike management under their jurisdiction included Shu Chenglong (magistrate of Jingmen in the 1740s), Wang Zhiyi (governor-general of Huguang in the 1800s) (Will, 1985: 315 [note 43], 342), and Ni Weiwen (the prefect of Jingzhou in the 1870s–80s) (Xu Hui 1898, vol.61: 29a).

the management of the Han River dikes? What is the difference between the management of dikes along the rivers and the management of dikes encircling *yuan*?

Unlike the Yellow River dike systems and the Grand Canal that were controlled and directly managed by the central government,¹¹ during the Qing most of the dikes on the Jiangnan plain did not belong to the category of “governmental work” (*guangong*).¹² Consequently, it is not enough simply to attribute all problems to some presumed mismanagement by a powerful but corrupt Qing government—particularly the central government—as Chinese scholars have tended to do. As we will see, although in theory officials should have been responsible for all dikes and the local government¹³ did in fact manage parts of the dikes, the majority of the dikes were managed by the local people, in other words, by non-governmental personnel. It is important therefore to analyze the responsibility and authority of all of the different parties, including the different levels of government, the rural gentry,¹⁴ and the common villagers, with an emphasis on the local people. The important role of the local people in dike management of the Jiangnan plain, however, has been generally overlooked by past scholarship.¹⁵

This article, therefore, focuses on the role of different parties in dike management, particularly in the mobilization and organization of the local people in the construction, repair, and maintenance of the dike systems on the Jiangnan plain in the Qing and the Republican eras. In addition to analyzing conflict and cooperation over dike management, I will show how the problems of dike management contributed to frequent inundation. Finally, I will discuss how understanding the role of different parties in dike management on the Jiangnan

¹¹ For a detailed and vivid description on how the central government controlled and managed them, see Randall Dodgen (2001) (on the Yellow River) and Jane Kate Leonard (1996) (on the Grand Canal).

¹² In the original Qing sources, *guangong* had two meanings. One is a dike the annual repair of which the state supported; this can be translated as “governmental dike” or “governmental work.” The second meaning is any dike or dike project that was managed or supervised by the officials or whose repair was once funded by the government, but the basic funding came from the local people. This can be translated as an “official dike” or “official work,” though they in fact were people’s dikes. In the original sources, the distinction between the two is not clear.

¹³ In this article I take “local” to mean the prefecture (*fu*) or lower level.

¹⁴ Joseph Esherick and Mary Rankin have suggested the use of the term “elite,” not gentry, to describe the top group of people in the local social structure, since only part of them were degree-holders and since the gentry was only one group among the elite (Esherick and Rankin 1990: 12). This is a good distinction. Considering the frequent use of the word “*shen*” in the original sources, which did not mean that the people referred to were necessarily degree-holders, however, I will still use “gentry” to refer to these people.

¹⁵ Although Liu Ts’ui-jung briefly mentioned the role of the local people in dike management, she studied only a part of the Jiangnan plain in the late Qing (Liu 1970). Zhang Jianmin also discussed the role of the local people, but he dealt with both the Jiangnan plain and the Lake Dongting plain. Moreover, he did not pay much attention to the changes in their role (Zhang Jianmin 1990, Peng and Zhang 1993: 184–268). Neither Liu nor Zhang discussed dike management in the Republic.

plain can contribute to our knowledge of Chinese rural society in general, and the role of the state in local society as well.

The dike systems in the Jiangnan plain

The Jiangnan plain (*Jiang nan ping yuan*), lies between the Yangzi River (*Changjiang*, or *Jiang*) and its largest tributary, the Han River (*Hanshui*, or *Han*), in the central basin of Hubei province, and is formed by the alluvial soils of the Yangzi River and the Han River and the sludge of the lakes in the area.¹⁶ Physical conditions, annual high waters of both the Yangzi River and the Han River, and the complex river-lake relationship in the Jiangnan plain made the dike systems there important for relatively stable farming. These dikes ranged in size from the major levees along the Yangzi River and the Han River and their major tributaries to the minor dikes that protected the myriad *yuan*.¹⁷

The major or river dikes

The major or river dikes were usually built of earth, reinforced with stone in some important sections, and contained sluices for high water discharge and for irrigation. The most important among them is the *Jingjiang dadi* (the Jingjiang Great Dike), which is located on the northern bank of the Yangzi River in Jiangling county and protects a large part of the Jiangnan plain, a dike claimed to be the second most important dike in Republican China (the most important being the Yellow River dike).¹⁸

The *Jingjiang dadi* was first built in the Eastern Jin dynasty (317–420) and was extended in the Song (960–1279) and the Ming (1368–1644), and became an uninterrupted dike in 1542, with a length of 124 km after the last northern outlet of the Yangzi River was closed. The dike was made higher and wider in the Qing and longer in the Republic, and finally was extended to Jianli county in 1954, with a total length of 182.35 km. It was called the *Wancheng di* (Wancheng dike) before its name was changed to the *Jingjiang dadi* in 1918. In terms of size, its typical cross section in 1685 was 11.2 meters wide at the top, 48 meters wide at the bottom, and 5.12 meters in height. By 1733 these dimensions had grown to 12.8, 51.2, and 5.44 meters respectively; by 1788 they ranged from 19.2 to 25.6 meters, 48 to 54.4 meters, and 4.8 to

¹⁶ *Jingjiang dadi zhi* 1989: 15–16.

¹⁷ Liu Ts'ui-jung called all the dikes along the Yangzi River and its tributaries major dikes and the dikes surrounded *yuan* smaller dikes (Liu 1970: 2–3). Pierre-Etienne Will categorized them as long dikes and circular dikes respectively (Will 1985: 298). I will use major and minor dikes, or river and *yuan* dikes, throughout this article.

¹⁸ Cao 1937, vol. 4: 28.

7.36 meters. After more reconstruction, all of these dimensions were greatly increased until 1985.¹⁹

The dikes along the Han River were first built in the Five Dynasties (907–960) by a local general for military defense.²⁰ They were greatly extended in the Ming and gradually united in the Qing. In 1985, the dike on the east bank of the Han River was 368.49 km in length and 358.44 km on the west bank, for a total of 726.93 km.²¹ The first part of the Dongjing River (a tributary of the Han River) dike was built in 1753 along the river's upper reaches. In the late Qing, some of the *yuan* along this river were gradually merged and their dikes linked together (partly to function as river dikes). After the closing of some outlets of the Dongjing River, in the late Qing part of the dikes on both sides were joined; and they were usually 2 to 3 meters wide at the top and 4 to 5 meters in height in 1950.²² Before 1949, however, there was no uninterrupted dike on this river's lower valley where floods were an almost annual occurrence. The dikes were finally connected into uninterrupted ones and linked with the Yangzi River dike and the Han River dike in 1955²³ (Map 1).

Thus the rivers in the Jiangnan plain were gradually restrained between long dikes. In the long-term fight against floods, the dikes on both sides of the Yangzi River and the Han River kept being raised, and at the same time deposit of silt carried by rivers raised the riverbed. Though the silt load of the Yangzi River was far less than that of the Yellow River, it was nevertheless still large due to the huge volume of water carried by the Yangzi River.²⁴ As a result, the riverbed and the area adjacent to the river got higher and higher. Thus, in the Jiangnan plain, the new dike was higher than the old dike and the dike along the river was higher in altitude than the inland dike. In the end, the high water level of the Yangzi River and the Han River was higher than the ground inside the dikes. Therefore once there was a dike rupture, a disastrous flood would immediately follow.

The minor or *yuan* dikes

In addition to the major or river dikes, the other type of dikes in the Jiangnan plain in the Qing and the Republic consisted of numerous *yuan* dikes. These

¹⁹ Along the major river dikes, people would also build moon-like or moon-shape dikes on the interior side of an important section in order to support it. Liu categorized moon-like dikes as major dikes (Liu 1970: 2–3). Or after a rupture, the old dike was too weak to be reliable, a moon-like dike was built to block the openness, which became a normal annual repair project in the Qing (*Jianli difang zhi*, 1991: 74). As the name suggests, a moon-shape dike usually curves like a crescent moon.

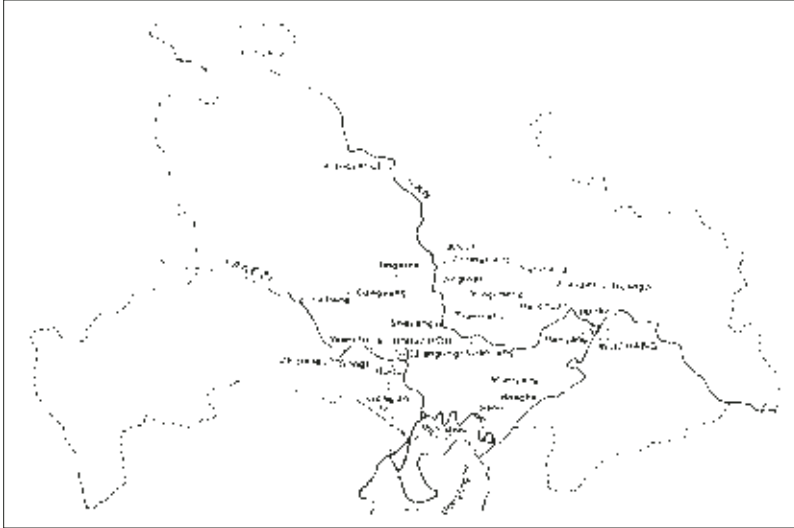
²⁰ Will 1985: 300–1.

²¹ *Hubei sheng zhi shuili*, 1995: 223.

²² *Dongjinghe defang zhi*, 1994: 78.

²³ *Jingzhou diqu zhi*, 1996: 74, 126.

²⁴ *Jingzhou diqu zhi*, 1996: 73–74, *Hubei sheng zhi dili*, 1997: 539.



Map 1. Hubei province in the Qing dynasty (Will, 1985: 296) [added Jingmen, Dangyang, and Honghu]

dikes were also built of earth but were usually smaller than river dikes. The dikes of the 56 *yuan* in Xiaogan county in the early Qing, for example, were about 5 *chi* (1 Qing *chi* = 32 cm) wide at the top and 10 *chi* in height,²⁵ and the dike of Diaocha *yuan* in Hanchuan county in the mid-eighteenth century was about 2 to 5 *chi* wide at the top and 3 to 6 *chi* in height,²⁶ while the height of *yuan* dikes in Dangyang in the Republic ranged from 2 to 3 meters.²⁷ These *yuan* dikes were as important as the river dikes in protecting against annual high water. Some *yuan* were encircled by a single dike, but others shared part of their dikes. In the places that lacked river dikes, many *yuan* dikes were sometimes linked together and functioned as river dikes as well, or eventually turned to river dikes.²⁸ In other places, the only function of *yuan* dikes was to protect *yuan* against floodwater once the river dike had broken.²⁹

The area surrounded by *yuan* dikes is called *yuan*³⁰ (or *wei* in some counties, in which case the dike surrounding it is called a *wei* dike). The majority

²⁵ *Hanyang fu zhi*, 1747, vol. 15: 25b.

²⁶ *Xu xing shui jin jian*, vol. 153: 27a.

²⁷ *Dangyang xian zhi*, 1992: 244.

²⁸ *Jianli defang zhi*, 1991: 72, 80.

²⁹ *Dangyang xian zhi* 1992: 244.

³⁰ *Yuan* could be translated diked lands (or diked fields), embanked fields, polders, or enclosures. I prefer to use *yuan* without translation.

of land inside a *yuan* consists of paddy fields, with dry land second in area. In the Qing, these *yuan* ranged from less than 1,000 *mu* (1 *mu* = 0.164 acre) to more than 100,000 *mu*,³¹ with large *yuan* sometimes containing several small *yuan*. The length of the dikes that encircled *yuan* also varied according to the area of the *yuan*.³² The typical *yuan* was shaped like a dish. They were packed among rivers and lakes whose high density gave them the appearance of a honeycomb.³³

According to their legal status, there were three kinds of *yuan*: official *yuan* (*guanyuan*), people's *yuan* (or civilian *yuan*) (*minyuan*), and private *yuan* (*siyuan*, which were illegal). The difference lay mainly in their source of funding. Those built with funds from the government were official *yuan*, and they were considered legal and were registered with the government; while those built by the locals' funds were people's *yuan*. The latter were also legal, but were not reported to the government. The illegal private *yuan* were built outside the major dikes and were not supposed to exist and did not appear on the land tax registers.³⁴ Those *yuan* reclaimed from the river beach or sand bars, locally called "*tan yuan*" (beach *yuan*) or "*zhou yuan*" (sand bar *yuan*), were also illegal private *yuan* and were popular along the Yangzi River in the Qing and the Republic.³⁵

The role of different parties in the management of the dike systems

According to Philip Huang, rural China's political system in late imperial times involved a triangular relationship between the state, the gentry, and the village, as opposed to a dualistic structure consisting of the state and the gentry.³⁶ In fact, this three-way relationship was also reflected in dike management on the Jiangnan plain. Dike work on the Jiangnan plain can be divided

³¹ Zhang Jiayan 2001: 137.

³² It could be as short as a couple of *li* (1 *li* = 0.576 km) and as long as 200 *li*. The Tongzhen *yuan* in Mianyang, for example, had a circumference of 200 *li*, and included 72 small *yuan* (Shuili dianli bu 1991: 460).

³³ Morita 1974: 27–8, Xu and Yang 1986: 72–74.

³⁴ See Morita 1974: 3–39; Will 1985: 332, note 86; Peng and Zhang, 1993: 209–210, Zhang Guoxiong 1989. But Zhang Xiugui disagrees with the view that private *yuan* were not subject to the land tax and were illegal. He argues that this was only the case after the reign of Yongzheng (1723–1735), because all people's *yuan* were not subject to the land tax at the very beginning of enclosure. They were illegal because under the situation of increasing water calamities, the Qing government wanted to return some farmland to lakes and thus disallowed *yuan* enclosure in order to have enough space to discharge floodwater. Thus he thinks that in the late Ming and the early Qing, there were only two kinds of *yuan*: official *yuan* built by the locals but supervised by the government, and the people's *yuan* or private *yuan* that were constructed without governmental involvement (Zhang and Zuo 2001: 394, note 2).

³⁵ Mei, Zhang and Yan 1995: 120, 200; Cao, 1937, vol.4: 10.

³⁶ Huang 1985: 219.

into three types during the Qing based on funding sources and the responsible people or institutions. The first type was *guan zheng guan xiu* (the government in charge of fund collection and dike work), which applied usually to very important sections of the major dikes. The second type was *guan zheng min xiu* (the government in charge of fund collection, but only functioning in a supervisory role on dike work with non-government personnel actually undertaking the work) or *guan du min xiu* (the government supervises and people repair), which usually applied to other dikes along the Yangzi and the Han and their major tributaries. The third type was *min zheng min xiu* (no governmental personnel involved in either fund collection or dike work), which usually applied to minor dikes or *yuan* dikes or to repairs of minor damage to the major dikes. In all three of these types, *guan* refers to the government and its personnel, and *min* refers to the rural gentry and common villagers. The following sections will discuss their different roles in dike management.

The role of governmental personnel³⁷

Water control, particularly ensuring the integrity of the dike systems, was of utmost importance to the main officials of local government. Not surprisingly then, an early Qing magistrate thought that the magistrates of the counties and departments located in the Han River valley should devote 60–70% of their energy or attention (*jingshen*) to dike affairs.³⁸ In the mid-Qing, the prefect of Anlu said that “in the counties of Zhongxiang, Jingshan, Tianmen, and Qianjiang, the dike work is the most important of [administrative] affairs.”³⁹ In the late Qing, the prefect of Jingzhou went even further declaring that “in my prefecture, since the annual repair [of dikes] is closely related to the people’s welfare, it is really the number one priority in governing.”⁴⁰ This means that dealing with dike affairs was even more important than tax collection and maintaining social order, two traditional major responsibilities of local officials. In fact, the security of the dikes was a prerequisite for timely tax collection and a stable social order; in case of inundation, it would be hard or impossible to collect taxes on time, and frequent inundation would engender disputes over water control.

Thus the local officials in theory should have been responsible for the construction and maintenance of all dikes on the Jiangnan plain in order to

³⁷ In this article, “governmental personnel” includes anyone who served in the governmental system, such as formal officials (magistrate, prefect, etc.), informal officials (*yamen* clerks, runners, etc.), and members of the military.

³⁸ *Mu ling shu*, vol. 9a: 41a.

³⁹ *Jingshan xian zhi*, 1882, vol. 4: 6a.

⁴⁰ Ni 1885, vol. 6, jinfei I: 5b.

ensure their integrity. But in fact they only assumed responsibility for the major dikes within the area under their jurisdiction, and on different dikes or dike sections the responsible institutions and people were different. In 1674, the Kangxi emperor issued an edict assigning some officials the special task of taking charge of the dike systems on the Jiangnan plain; all of them (except for the prefect of Hanyang) were low-level officials, that is, officials below the level of prefect and county magistrate. Their responsibilities included leading the local people in high water control during the summer-autumn season and rebuilding or repairing dikes during the winter-spring season.⁴¹

After a terrible flood in 1788,⁴² the ranks of officials responsible for some dikes were raised. The official responsible for the Wancheng dike, the most important dike of all on the Jiangnan plain, for example, was changed from the magistrate of Jiangling to the *Jingzhou shuili tongzhi* (the sub-prefect in charge of water conservancy in Jingzhou). At the same time, the Emperor ordered the governor-general of Huguang and the governor of Hubei to go to Jingzhou in person each year to supervise high water control during the high water season. If they were too busy to go, they were to ask the *daoyuan* (circuit intendant) or *zhifu* (prefect) to serve as their representatives, but this first had to be approved by the Emperor. After 1832, the Jingzhou prefect assumed direct responsibility for the Wancheng dike, because the *Jingzhou shuili tongzhi* was not of a sufficient high rank in order to marshal the necessary financial resources for dike works and supervise other local officials.⁴³

Because major dikes—particularly those along the Han River—may have crossed several counties, responsibility for managing the dikes was divided up among the various county magistrates: each magistrate was responsible for dikes within his county. Important dikes that were located within one county

⁴¹ They were the *zhifu* (prefect) in Hanyang; *tongzhi* (sub-prefect) in Wuchang, Jingzhou, Anlu and De'an; *xiancheng* (assistant county magistrate) in Jiangxia, Zhongxiang, Jingshan, Tianmen, Jiangling, Gong'an, Shishou, and Jianli; *zhubo* (second deputy magistrate) in Qianjiang; *zhoutong* (first class assistant department magistrate) in Mianyang and Jingmen; and *dianshi* (district police chief) in Hanyang, Hanchuan, Dangyang, and Shongzi (*Qing hui dian shi li*, vol. 931: 688). The translations of official titles in this note and note 17 are mostly from Liu (1970) and Will (1985).

⁴² It broke the Wancheng dike in 22 places, the floodwater flowed into Jingzhou city through two of its gates and destroyed almost all houses inside, and ten thousand or so soldiers and common people died (*Jingjiang dadi zhi* 1989: 62). In addition to poor annual repairs, later it was found that another major reason was that a Xiao family used Jiaojin islet, which was located in the middle of the Yangzi across the city of Jingzhou, to grow reeds for profit. Because reeds have a very strong root system and could fix sand, it caused more and more sands to silt around this islet. It gradually grew to more than 10 *li* in length and more than 5 *li* in width, and eventually occupied 60-70 percent of the river course of the Yangzi River. Thus, in 1788, when an unusually big flood came, the pressure from the floodwater, which could not freely get through the narrow river course, broke the Wancheng dike and inundated the city of Jingzhou (*Shuili dian li bu*, 1991: 483; see also Perdue 1982: 757-761).

⁴³ Liu 1970.

could be divided into different sections and managed by different officials. For instance, the Wancheng dike was divided into three sections after 1788, with different sub-county officials assuming responsibility for each section.⁴⁴

Moreover, after 1788, a small group of troops (*Jingzhou shuishi ying*, the marine battalion in Jingzhou) was assigned to take care of the most vital part of the Wancheng dike. Almost a century later, in 1869, this job was taken over by the *Changjiang shuishi ying* (marine battalion of the Yangzi River). After 1876 the marine battalion was abolished and replaced by a *Difangying* (dike protection battalion), which recruited new members from local peasants.⁴⁵

In fact, the military was involved in the management of not only the Wancheng dike, but other dikes as well. An 1883 report of dike repairs was co-signed by a military officer (*zongbing*) and the magistrate of Tianmen. This report mentioned that some soldiers, led by local officials, supervised laborers, while others were ordered to help the laborers build dikes if necessary. This *zongbing* also functioned as one of the major supervisors.⁴⁶ Sometimes a military force was also engaged in suppressing conflict arising from control over the dike systems.⁴⁷

According to Qing regulations, if a certain dike was not built solidly enough and subsequently caused inundation, the officials responsible for that dike would be punished. After 1788, the officials in charge of repairs to the Wancheng dike (and repair projects on any other important dike that cost more than 500 taels) were requested to send a report to the Board of Works and had to guarantee the integrity of the dike for a period of ten years (*baogu shinian*). If the dike held during this period, the responsible official would be rewarded with such things as a promotion; if the target dike broke within this period, the original responsible official had to pay part or even all of the cost of rebuilding it.⁴⁸ He would also lose his position, or, depending on the seri-

⁴⁴ They were the *Jiangling xiancheng* (the assistant magistrate of Jiangling), *Shashi xunjian* (the sub-county magistrate at Shashi) and *Haoxue xunjian* (the sub-county magistrate at Haoxue). The local assistant officials in charge of different sections of dikes in Jianli county were the *Yaoqi xunjian* (the sub-county magistrate of Yaoqi), *Zhuhe zhubo* (second deputy magistrate of Zhuhe), and *Bailuo xunjian* (the sub-county magistrate of Bailuo). In Tianmen county, the *xiancheng* was in charge of the Han River dike; the *xunjian* was in charge of the dikes along the tributaries of the Han River; and the *dianshi* (district police-chief) was in charge of the city dike (*huchengdi*, the dike protecting the city) (*Xiang di cheng an*, vol. 1: 249b–250a). In Mianyang, the *shuili zhoutong* (the first class assistant department magistrate in charge of water conservancy) was in charge of the dikes on the eastern, western, and southern sides of that department, and the *zhoupan* (the second class assistant department magistrate) was in charge of the dike on the northern side of Mianyang. His office was located in Xiantao township (*Qing hui dian shi li*, vol. 931: 690).

⁴⁵ Liu 1970.

⁴⁶ *Zai xu xing shui jin jian*, vol. 18: 481-2.

⁴⁷ *Zai xu xing shui jin jian*, vol. 17: 471; *Hubei sheng zhi shuili*, 1995: 10.

⁴⁸ If a dike were to break within this ten-year term but the original responsible official had moved to another position, both he and his successor would be fined. The ratio of the fine was 7: 3—the original official paid 70%, and the current official paid 30% (*Zai xu xing shui jin jian*, vol. 4: 120).

ousness of the inundation, even be imprisoned, or beheaded. The purpose of punishment clearly was to force the responsible officials to pay close attention to the dikes under their purview. After 1840, the government also required that any dike work, regardless of whether it involved building a new dike or repairing an existing dike, be good for three to ten years.⁴⁹ The responsibility of the major officials in local government was also increased; a prefect of Jingzhou in the 1870s declared that the annual repair of the dikes was his number one priority.⁵⁰ After 1883, ensuring the integrity of dikes became a mandatory official duty for local officials. This duty was considered such an essential and routine part of their job that they would not be rewarded for simply doing that job.⁵¹

The role of the local people

Officials functioned as leaders or supervisors of dike work, while the local people contributed almost all of the physical labor.⁵² The latter consisted of two general groups: the gentry who functioned as sub-leaders, and the common villagers who undertook the actual labor. The maintenance of the dike systems actually included two jobs, that is, high water control and annual repairs. The purpose of high water control was to prevent the dikes from rupturing during high water seasons in summer and autumn. The responsible parties were to patrol the dikes day and night in order to find and remedy any dangerous conditions. The task of annual repairs included repairing broken dikes, building up the height of the old dike, strengthening the weak parts of any dike, and constructing new dikes. This work usually took place in the dry season, that is, winter and spring. Beginning in the late Qing, the annual repairs became more important than high water control.⁵³

The earliest organization for high water control and annual repairs in Jingzhou had been established in 1566 by the prefect Zhao Xian under the name

⁴⁹ For any newly built dike, whether an official dike or a people's dike, a period of ten "safe" years (that is, years without serious problems) was required. If the cost for reconstruction or annual repairs was over 500 taels, the safety period was three years. If an official dike broke, the punishment was the same as that on the Wancheng dike. For annual repairs of people's dikes, the responsible local official would be stripped of his position. Both this official and the one who undertook and led the project each had to pay 40% of the cost, and the official who checked the project had to pay the remaining 20% of the cost (*Qing hui dian shi li*, vol. 929: 675-6).

⁵⁰ Ni 1885, vol. 6, jinfei I: 5b.

⁵¹ *Zai xu xing shui jin jian*, vol. 19: 509.

⁵² Generally, the majority of the labor force consisted of local villagers; in very rare cases, some hired laborers were brought in from outside. For example, in the late Qing *e* workers (*e fu*) (laborers who were good at ramming or tamping earth rocks) from Hunan were hired to repair the Wancheng dike (Liu 1970: 15), and in the Republic laborers from Henan were hired to realign the course of the Han River (*Wuhan shi zhi* 1989: 155).

⁵³ Xu Hui 1896, vol. 6, jingfei II: 4b.

of *dijiafa* (the dike tithing system). According to this system, every 1,000 *zhang* (1 Qing *zhang* = 3.2 meters) of dike had a *dilao* (dike elder), every 500 *zhang* had a *dijia* (head of the dike), every 100 *zhang* had a *dizhang* (dike administrator), and every ten *zhang* of dike had a *fu* (laborer).⁵⁴ After 1788, the Wancheng dike was divided into 67 sections (500 *zhang* per section). Each section had one *dilao*, five *dijia*, and twenty-five *fu*, all of whom lived close to the dike and were appointed for one year, during which time they were exempted from miscellaneous corvée.⁵⁵

In fact, in the Qing there was a great variety of such organizations in different counties and/or *yuan*. In general, there were two types of organizations responsible for the major dikes and the minor dikes. Their responsibilities might overlap and not every *yuan* had these two organizations at the same time. The organization responsible for the major dikes usually consisted of a head and a few assistants. The head was known by various titles including *ditou* (dike head), *weizhang* (*wei* chief), *dizhang*, *celao* (elder in charge of records), and *zongwei* (head of dike affairs). He could be a relatively well-off member of the rural gentry or a common villager, and was either chosen by his peers or assumed the position in turn. The assistants were known by such titles as *weijia* (head of *wei*), *weilao* (elder of *wei*) and *futou* (laborer head). Assistants tended to be less well-to-do members of rural gentry or common villagers; they usually served by rotation. Under them were specially assigned common villagers such as *youfu* (roving laborer),⁵⁶ *weiyi* (*wei* laborer), and *fu*.⁵⁷ These different titles suggest that not every village household was involved in this organization at the same time.⁵⁸ This organization usually undertook both high water control and annual repairs. In some counties, such as Songzi, however, the organization for annual repairs was separate from the organization for

⁵⁴ The popularity and fate of this organization was unclear during the transition to the Qing. According to a late Qing Jianli gazetteer, in Jianli it was destroyed at the end of the Ming dynasty (*Jianli xian zhi* 1872, vol. 3: 10a). In the lower Han River valley, this system either did not exist in the early Qing or was destroyed during the fighting that accompanied the dynastic transition and had to be reestablished (*Mu ling shu*, vol. 9a: 40a). Even if it still existed in the early Qing, its organization remained unclear.

⁵⁵ *Jingjiang dadi zhi*, 1989: 264.

⁵⁶ But one source recorded that the so-called *youfu* were “evil persons” who used high water control as a pretext for trouble making (Hu, 1999: 194).

⁵⁷ In Jiangling, there were laborers called *yanfu* (smoke workers) assigned to high water control of the Wancheng dike. Their tasks include preparing “earth oxen” (*tuniu*, earth piled for high water control) and planting trees along the dike. They were chosen by rotation from among those who lived close to the Wancheng dike to serve a one-year term (*Jiangling xian zhi* 1876, vol.8: 50a-51b).

⁵⁸ *Zai xu xing shui jin jian*, vol. 1: 6; *Qianjiang xian zhi*, 1879, vol. 10: 35b; *Zhijiang xian zhi*, 1866, vol. 3: 2b. But as a multi-village organization, it remains unclear how many villages were involved in one organization.

high water control. But as in other counties, it also consisted of a head, some assistants, and some assigned laborers.⁵⁹

The organization responsible for *yuan* dikes consisted of a head, his assistants, and the rest of the common villagers in related villages or *yuan* or lineage. The heads were called *yuanzhong* or *yuanzhang* (*yuan* chief), *weizhang* or *weitou* (*wei* chief). Heads were either relatively rich gentry, or were “chosen” by their peers, but in any case they usually came from a powerful lineage in the community. Therefore, the position of head was probably passed down through this lineage. In some places the locals took these positions in turn or were assigned to them according to the amount of land they owned.⁶⁰ The assistants were known by such titles as *weijia* (head of *wei*), *yuanfu* (*yuan* laborer), *weiyi* (*wei* laborer), *yuetou* (head laborer), and *weiyue* (*wei* laborer).⁶¹ They may have been gentry or common villagers, and they served in turn or were assigned by the head. Each assistant was in charge of several individual households.⁶²

All the various Qing dike management organizations continued into the early Republic, but some changes occurred. The state-making of the 1930s, for example, was also reflected in dike management. Water conservancy commissions or bureaus for repair and high water control were established at the county level to take care of official dikes and important people’s dikes (*mindì* or non-official dikes). Above the county level, some special organizations, such as *Jingjiang digong ju* (the Bureau of Dike Work on the Yangzi River) and *Jiangnan gongcheng ju* (the Bureau of Engineering Work on the Yangzi River and the Han River) were established to take care of individual dikes.⁶³

⁵⁹ Their titles were *zongju* (heads of the bureau), *zongjian* (general supervisor), and *sanjian* (secondary supervisor), respectively (*Songzi xian zhi*, 1869, vol. 4: 12ab).

⁶⁰ Hu 1999: 184.

⁶¹ I would surmise that “*yue*” meant “*yi*” in the local dialect. Thus, “*yuetou*” would be “*yitou*,” head laborer, and “*weiyue*” would be “*weiyi*,” *wei* laborer.

⁶² See *Xiang di cheng an*, vol. 1: 250a; *Qianjiang xian zhi*, 1879, vol. 10: 67a; *Jiangling xian zhi*, 1794, vol. 8: 10b; Peng and Zhang 1993: 207. The relationship between such organizations and the rural administrative system is interesting. Japanese scholars have made a rich contribution on the topic, particularly the so-called water-control community. Morita, for example, insisted that a rural administrative system was a precondition of the organization of water control (1974: 409). But some scholars have questioned this (Elvin 1975: 91). In some places on the Jiangnan plain, it seems that these organizations were independent from the rural administrative system, but in other places they overlapped with it. For example, in Jiangling, sometimes the *lizhang* (the headman of a *li*—a village unit) were also in charge of recruiting laborers for dike work (*Qing jing shi wen bian* 1889, vol. 117: 6a); and some *baozheng* (the headman of a *bao*—administrative unit of 100 households) were also in charge of collecting dike fees (Ni 1876, vol. 61: 10b). Whether they paralleled or overlapped with the rural administrative systems, it is clear that these organizations were deeply rooted in rural society and functioned as the basic organization of common villagers.

⁶³ *Jianli defang zhi*, 1991: 298.

Each organization had full-time clerks. *Yuan* dikes, however, continued to be managed by local villagers and headed by local gentry.⁶⁴

In general, in the Jiangnan plain in the Qing and the Republic, both the involvement of officials in charge of the management of the major dikes, and responsibility for dike management, increased. On the other hand, the local people remained in charge of the management of minor or *yuan* dikes. Local management organizations varied somewhat from county to county and *yuan* to *yuan*, but in general the gentry played a leading role in these organizations.

The origins of funds for the management of the dike systems

In addition to the different responsibilities of governmental personnel and the local people in dike management, there are also differences in how funds for dike work were raised. These funds included money from the government or raised by the officials as well as money collected from local residents, mostly villagers.

Although during the Qing most of the major dikes in the Jiangnan plain, even the all-important Wancheng dike, never belonged to the category of “governmental works,”⁶⁵ under special conditions such as catastrophic flooding and subsequently lean harvests, the government did allocate money to rebuild or repair the dikes in the areas affected. The largest sum of government funds used on the dikes in the Jiangnan plain was allocated in 1788, when the destructive flood inundated Jingzhou city. Two million taels of silver were allocated to rebuild the Wancheng dike that year.

But this kind of *ad hoc* funding from the state treasury was rare, and local officials therefore had to raise dike funds by themselves, via any available means, particularly in the middle and late Qing. The sources of these funds included interest (from special funds that had been set up to pay for annual repairs), donations (or contributions) and fines from officials, and various kinds of loans. Most of these loans had to be paid back by the local people—the

⁶⁴ Although it is unclear how many of these gentry were resident or absent, it is certain that they had as strong and direct an authority over village affairs as the gentry-landlords in the North China plain, and even more power than their Yangzi delta counterparts. The local strongmen in rural North China plain had no interest in the position of *bao* head, but instead preferred to control the *bao* from behind the scenes (Huang 1985: 227–8), while the gentry-landlords in the Yangzi delta usually lived in market towns and kept their distance from daily village affairs (though they had indirect power).

⁶⁵ Since “governmental work” refers to the dike construction or work that was funded by the government, while the money for the annual maintenance of the Wancheng dike was paid by the people of Jiangling on a prorated basis, it was not a governmental work. Nonetheless, it was changed to an official dike after 1788 (because the government issued money to reconstruct it).

repayment period could be as long as 8 years⁶⁶—and some of these loans could be in kind, such as grain, rather than in cash.⁶⁷

Beginning in the reign of Daoguang (1821–1850), borrowing money from the government to fund dike work became increasingly common; it occurred in nearly every country.⁶⁸ These funds fell into different categories, including money borrowed from the commercial tax (*shangshui*), customs duty (*haiguanshui*), salt tax (*yanshui*), land-and-labor-service tax (*didingyin*),⁶⁹ and commercial transit tax (*lijin*)⁷⁰. Since the *lijin* was originally levied for the purpose of funding military expenditures, using it for dike work was one of the most significant changes in the source of funding of dike work.⁷¹ The government also collected special taxes, such as a boat tax (*chuanjuan/chuanli*),⁷² for dike work; it sometimes even sent troops to repair dikes, in order to save money.⁷³ All this demonstrates the deepening involvement of government in dike management.

Donations (or contributions) were another source of dike funds. An 1827 case revealed that officials were asked to “donate,” that is, they were forced to contribute, rather than doing it of their own accord. The memorial explained that one reason for the shortage of money for dike projects was that “donations” from officials were not deducted (from their salary) on time.⁷⁴ In order to raise more funds for dike projects, voluntary donations from officials were always encouraged. For example, in 1889, an official of Hanyang was permitted to build a memorial archway for his parents since he had donated to dike building.⁷⁵

⁶⁶ *Zai xu xing shui jin jian*, vol. 2: 63.

⁶⁷ In 1745, for example, 100,000 *shi* (1 *shi* = 1 hectolitre) of grain was requested to deposit in the *Changping cang* (ever-normal granary) in prefectures and counties located along the Yangzi River and the Han River, under the title of *Jiangfang cang gu* (stored grain for river protection). In case of inundation, the grain was to be lent to poor peasants called to work on dike rebuilding (*Xu xing shui jin jian*, vol. 153: 13b; Will, 1985: 317, note 49).

⁶⁸ Dike repair was a very urgent task. If the needed funds could not be collected from the local people on time and the government (regardless of level) had no funds for it, the lower level government unit had to ask the upper level unit to divert any available funds to repair the dike. The local people had to repay it later. Because this money had to be returned, it was “borrowed.” Sometimes local governments thus even borrowed money from local merchants (Xu Hui, 1896, vol. 6II: 5b).

⁶⁹ *Zai xu xing shui jin jian*, vol. 11: 316–7.

⁷⁰ For example, Ni Wenwei, a capable prefect of Jingzhou, once asked to borrow 40,000 *chuan* of *lijin* to repair the Wancheng dike in 1871; he was criticized for frequently borrowing *lijin* by the upper level official and eventually only received 20,000 *chuan* (*Zai xu xing shui jin jian*, vol. 13: 359–360).

⁷¹ Peng and Zhang 1993: 218.

⁷² In and after the Taiping Rebellion, both the government and the locals were short of money. Thereafter, after 1858, the boat tax was collected in Zhongxiang as one kind of regular taxation, and was used as a fund for annual repairs on the Han River dike in this county after 1874. For detailed discussion of boat taxes, see Morita 1971, 1974: 83–114.

⁷³ *Zai xu xing shui jin jian*, vol. 19: 517.

⁷⁴ *Zai xu xing shui jin jian*, vol. 2: 63.

⁷⁵ *Zai xu xing shui jin jian*, vol. 20: 546.

After a flood, the late Qing government (as well as the Republican government) also used relief funds to hire the local people to repair dikes (*yi gong dai zhen*—providing work as a form of relief). Both the duration of the relief period and the amount of relief funds expended in the Jiangnan plain increased in the late Qing.⁷⁶ Although no single expenditure of these funds exceeded 2 million taels, the types of official funds for dike repairs increased in the late nineteenth century, and there was increasing resort to such funds.

When official funds were allocated in the form of loans, the locals were responsible for repayment. In fact, these funds came from the local society: they were in a sense contributed by the local people.⁷⁷ Therefore, the locals were actually the major contributors of dike funds. The most important source of such funds was the “earth fee” (*tufei*). In theory, anyone who had farmland protected by a dike had to pay the earth fee—except for some charitable land, such as school land.⁷⁸ According to the specific situation of different counties, the earth fee could be collected annually, or it could be collected only once and the interest it earned used to fund future annual repairs, or it could be collected only if and when there was a dike rupture.

The personnel and organizations responsible for the collection of the earth fee varied considerably from place to place, and moreover changed over time. In Jiangling for example, the dike fee for the Wancheng dike in the first instance was collected by a *jingshu* (accountant), who led a *gunshou* (head of payment) to each household to collect the fee. After the responsibility for the Wancheng dike was shifted to the prefect of Jingzhou in 1832, *tuju* (earth bureaus) were set up in both city and country to collect the earth fee.⁷⁹ The reason for the establishment of *tuju* in Jianli, however, was different. In Jianli, the earth fee was collected by the *dilao* (dike elder, later called *dongshi* [gentry director]) long before 1835, but if the *dilao* failed to collect the earth fee on time, they had to pay it themselves. This bankrupted many *dilao* and made it hard to fill the position. Thus a *tuju* was established in 1835 to collect the earth fee. The head of the *tuju* was known as the *jushou* (head of bureau); the people who took the *tuquan* (earth tickets)⁸⁰ and collected the earth fee were known as *tuzhang* (collectors of the earth fee).⁸¹

⁷⁶ Song 1989.

⁷⁷ Liu 1970, Morita 1974: 66; Peng and Zhang 1993: 210.

⁷⁸ Xu Hui 1896, vol. 6, jinfei II: 30b.

⁷⁹ Ni 1885, vol. 6, jinfei I: 2b.

⁸⁰ The *tuquan* was a special paper that recorded the name of the head of the household and amount of the earth fee for which the household was responsible. The process of issuing *tuquan* was: “[after the earth fee has been paid]...[the government] immediately gives the payee a *tuquan*, [and] stamps the prefect’s seal over the seal of county magistrate.... The name of the *lijia*, head of household, the amount of the earth fee, year, and the word ‘completed’ are recorded on the paper. The household sticks this paper on its door frame to show that it has paid last year’s earth fee. If there is no such paper on its door frame, then that household is resisting paying the earth fee, in which case the head is to be immediately arrested and fined double the earth fee as a warning to others” (Ni 1876, vol. 6, jinfei I: 6a).

⁸¹ *Jianli xian zhi* 1872, vol. 3: 10b-11a.

These earth fees usually went to the cost of maintaining river dikes. The dike fees for maintaining *yuan* dikes of course were also born by the locals. This included the money for annual repairs and high water control and for the construction of new dikes. The levy for annual repairs and high water control was usually prorated by the people of one *yuan* or a neighboring *yuan* that benefited from the same *yuan* dike.⁸² As for the money used for new dike construction, a Qing regulation warned that “any person in a *yuan* who does not abide by the law and collects a fee in the name of new dike construction will be punished for disobeying an imperial decree.”⁸³ Here the dikes in question were private (*si*, or illegal) *yuan* dikes. This implies that the money for the construction of new *yuan* dikes was also prorated by the local people.

However, not everyone on the Jiangnan plain lived in a *yuan*. Some people lived outside the *yuan* and their farmland was not protected by a *yuan* dike.⁸⁴ Such people thus should only have had to pay the earth fee for the major dike systems. Those who lived within a *yuan*, on the other hand, were required to contribute their share of labor and money to *yuan* dike works as well. But the local people did not, or could not, always pay the earth fee on time, especially in post-flood years or years of lean harvest. Thus, agents were assigned to “urge” them to pay. In Songzi these agents were called *cui fu* (fee expeditors/prompters). They delivered an earth bill (*tudan*, which contained a list of payers) to the *danshou* (head of the bill), the person who paid the largest amount of the fee (or perhaps the richest person) on the list. The *danshou* was made responsible for the collection of the earth fee from each individual household (*sanhu*) on his “bill.”⁸⁵

In Tianmen, the local people were not required to pay the earth fee each year. Instead, if the *yuan* dikes were threatened or required important repairs, some members of the gentry in the *yuan* were selected to organize a bureau to collect the earth fee according to the amount of land and to assign laborers according to the agricultural tax. If the money collected and laborers recruited were insufficient, neighboring *yuan* that benefited from this *yuan* were to pay their share. After that, if the money and labor were still insufficient, the local government would provide support. The bureau that handled this would be abolished after the work was done.⁸⁶

In addition to the earth fee, the local people—including gentry, merchants, and peasants—also donated to some small dike projects. This included single donations (that is, donation made individually) and collective donations (where everyone in a village or a *yuan* contributed a share). Among them, the gentry

⁸² *Hubei an xiang yun dao shui li ji an*, II: 2b.

⁸³ Ni 1885, vol. 8: 21b.

⁸⁴ *Xiang di cheng an*, vol. 1: 8a.

⁸⁵ *Jingzhou fu zhi*, 1880, vol. 19: 22b.

⁸⁶ *Xiang di cheng an*, vol. 1: 250a-b.

usually acted either as the single donor for a special dike work⁸⁷ or the initiator of a donation for a *yuan* dike.⁸⁸ Some of the many market towns located along the banks of the Yangzi and Han Rivers required merchants to share in funding the dike work (especially in case of an emergency) under the title of commercial tax, groceries tax, and rent. For example, merchants of Shashi were frequently called upon by the local officials to contribute money to local dike work.⁸⁹ In 1880, in the town of Yuekou in Tianmen county, merchants who dealt in daily necessities were required to “donate” [contribute] one *wen* (a cash) from each *chuan* (string of coins) they traded, and merchants who sold medicine were required to “donate” [contribute] two *wen*.⁹⁰

Just as the organization of the dike management underwent changes in the Republic, so too did the sources of the dike fees. After 1920, the salt tax was partly used for dike works;⁹¹ after 1926, all imports and exports of Hunan, Hubei, and Jiangxi were charged 1% special tax used on Hubei dikes.⁹² In the 1930s, Hubei began to collect a dike-tax in all dike-related counties. The revenue from this tax was delivered to the provincial government to be used on major dikes along the Yangzi and Han Rivers. But the Dongjing River dike was still a people’s dike, and the fee for people’s dikes and *yuan* dikes was still collected from the local people in the area that benefited from the dike, according to the amount of land owned.⁹³ Although in theory everyone should have paid a share of dike fees, in fact it was the poor peasants who bore the largest share of this burden,⁹⁴ the same as in the late Qing.

During the Qing, therefore, the dike fees on the Jiangnan plain came from both the government and local society. Both the amount and type of funds from the government increased in the late Qing, though many of the funds had to be paid back later by the locals.⁹⁵ In the Republic, except for some major dikes that depended on the new dike-tax, the construction and maintenance of most dikes still depended on funds collected from the local inhabitants.

⁸⁷ In 1759, the gentry were encouraged to donate money to water conservancy projects. The rewards differed depending on the amount of donation (*Qing hui dian shi li*, vol. 929: 673).

⁸⁸ *Xiakou xian zhi*, 1920, vol.5: 10ab.

⁸⁹ Liu 1970: 11.

⁹⁰ *Xiang di cheng an*, vol. 1: 250b.

⁹¹ *Jingjiang dadi zhi* 1989: 276.

⁹² He 1984: 53.

⁹³ *Jianli difang zhi*, 1991: 356-7.

⁹⁴ *Honghu xian zhi*, 1992: 101; *Hangyang xianzhi chugao*, 1960: 34.

⁹⁵ Zhang Jianmin divided them into five types: that is, money contributed by the locals, governmental funds, donations, interest from special funds, and the *lijin*. But, as he argued, these funds in fact came either from the government or from the local people in a general sense (Zhang Jianmin 1990: 71).

Cooperation and conflict in the management of the dike systems

No matter who the responsible people were, or where the dike fees came from, the task of dike work was usually carried out within a particular unit, such as a prefecture, a county, or a *yuan* (which comprised one or more villages). Dike projects can be divided into two kinds according to the number of administrative units involved: single construction, which involved only one unit, and co-construction, which involved two or more units. The latter can be further divided into co-construction but single repair and co-construction and co-repair.

Because most of the major dikes along the Yangzi River were located in Jingzhou prefecture, naturally the construction and repair of major dikes was usually carried out within this prefecture. Each county of Jingzhou was responsible for its own dikes; some counties cooperated with one another to construct or repair the dikes located along county boundaries.⁹⁶ The prefecture of Jingzhou also cooperated with neighboring prefectures on some special dike projects.⁹⁷

In these kinds of cooperative efforts, the units involved were responsible for their agreed-upon share. For instance, in Qianjiang, during the early Qing, five administrative units contributed the necessary manpower for a cooperative project to build two dike sections: Qianjiang 45%, Jingmen 15%, Jiangling 17%, Jianli 17%, and Jingwei (a grain transport station in Jingzhou) 6%.⁹⁸

Qianjiang was a county along the Han River. The above-mentioned cooperative project reveals some differences between the Yangzi River dikes and the Han River dikes. The Wancheng dike along the Yangzi River, for example, was managed by one county; in contrast, there were five prefectures, two *zhou*, and three *wei* (grain transport stations) involved in the management of the Han River dike. In addition to this, there were some other differences in the Han River dike itself. First, the riverbed of the Han River easily silted up due to the river's high sand content. Thus the job of raising the Han River dikes had to keep up with the rise of the Han riverbed. Second, the river course of the Han River grew increasingly narrow from Zhongxiang (where it was a couple of thousand meters in width) to Hankou (where it was less than 1,000 meters in width); this placed greater pressure on the lower valley dikes. Third, the earth along the Han River contained a high ratio of sand, making it hard to build sturdy dikes. Fourth, unlike the Yangzi River dikes, the Han River dike was thin and low and was poorly maintained.⁹⁹ Thus inundation occurred

⁹⁶ *Zai xu xing shui jin jian*, vol. 10: 282-283.

⁹⁷ *Zai xu xing shui jin jian*, vol. 13: 363-364.

⁹⁸ *Qianjiang xian zhi*, 1879, vol.10: 38a.

⁹⁹ *Zai xu xing shui jin jian*, vol.6: 182; Zeng 1898: 3ab.

easily in the Han River valley and conflicts were much more common within its lower basin. If the dike in a county in the upper reaches broke, it may have caused little damage to that county, but it could wreak havoc in the lower valley counties.

Therefore, the management of the Han River dikes was not the responsibility of one county. In fact, as early as in the Ming, the lower valley counties had to share the responsibility for providing the funds and laborers necessary for the upkeep of the upstream dikes. The responsibility was prorated as follows: Zhongxiang 40%, Jingshan 25%, Tianmen 25%, Qianjiang 13%, Jingyou wei and Anlu wei 4%, and Wuchang wei 3%.¹⁰⁰ During the early Qing, however, the residents of the lower valley counties grew angry about having to repair “other counties’ dikes” every year.¹⁰¹ They successfully petitioned the Kangxi Emperor to ban dike co-construction. After that, no matter who asked the lower valley people to take on their burden of rebuilding or repairing the upstream dikes, they refused. As the residents of Tianmen said, they “prefer to suffer natural disasters rather than suffer man-made disasters” (*ning shou tianzai, bu shou renhuo*).¹⁰²

Later, however, the rise of the Han riverbed and the blockage of its tributaries made inundation more frequent and the damage more severe. During the first stage of the Taiping Rebellion, the lower valley counties such as Tianmen agreed to co-repair the upstream dikes on one condition: they would never be asked again to help. The Zhongxiang dike broke in 1852, and remained un-repaired for six years due to war. When the war ended, the residents of the lower valley were eager to repair the broken dike. They were even willing to offer a very small amount of their relief money, ten plus *wen* of money and a pinch of rice per person, to repair Zhongxiang’s dike in order to prevent it from frequently breaking in the future.¹⁰³ At the end of the nineteenth century, inundation was so frequent and the damage so severe that the lower valley counties wanted to provide their share, but they were unable to do so. At that time, repairs of the damaged dikes had to depend on emergency support from the government (if available) or on funds raised by the magistrate (Table 1).

¹⁰⁰ See *Zhongxiang xian zhi*, 1937, vol. 3: 15b. In total it was 110%, although it should be 100%.

¹⁰¹ Wang Youdan, a magistrate of Qianjiang, once concluded that there were five disadvantages in co-repair of dikes. First, since the lower valley people had to travel a few hundred *li* away from home to build dikes, they had to bring their own tools and food (and sleep outside). Some of them died due to cold and hunger. Second, since runners (or petty officials) were involved, extortion was unavoidable. Third, it was unfair to expect the lower valley people to rebuild or repair “other people’s dikes” and abandon the maintenance of their own dikes. Fourth, in cases where silver instead of labor was used to meet one’s share, the officials who handled the money would pocket a share. Fifth, the exchange of official documents (in dealing with the dispute) would need time and cause inefficiency (*Qianjiang xian zhi*, 1879, vol. 10: 48b).

¹⁰² *Xiang di cheng an*, vol. 1: 56b.

¹⁰³ *Xiang di cheng an*, vol. 1: 119ab, 163a-164b.

Table 1: A brief repair history of the Han River dike in Zhongxiang

Year-of- break	Method of repair	Year-of- break	Method of repair
1658	Co-repair with 7 units	1826	Governmental funding
1662	Co-repair with 7 units	1832	Magistrate raised funds
1676	Co-repair with 7 units	1835	Governmental funding
1691	Co-repair with 7 units	1836	Responsible officials' fund, donation
1706	Repaired by local laborers	1840	Governmental funding
1724	Repaired by local laborers	1841	Loan
1728	Governmental funding	1858	Boat tax, officials' donation, co-repair with three counties
1740	Repaired by local laborers	1862	Co-repair with four countries
1779	Repaired by local laborers	1863	Co-repair with four countries
1781	Repaired by local laborers	1864	Co-repair with four countries
1794	Governmental funding	1865	Co-repair with four countries
1802	n.a.	1867	Magistrate raised funds
1811	n.a.	1874	n.a.
1822	n.a.	1875	Magistrate raised funds
1823	n.a.	1889	Governmental funding
		1895	n.a.

Source: *Zhongxiang xian zhi*, 1937, vol. 3: 19a–21a.

The Han River dikes in Zhongxiang were of great importance to the counties on the lower reaches, but the people of Zhongxiang thought that the dikes “have one hundred disadvantages but no single advantage” for their county.¹⁰⁴ Because the interests of the different parties varied, conflicts over dike affairs became more common than cooperation. Furthermore, these conflicts usually occurred in zero-sum conditions. For example, the opening of a silted upstream tributary as an outlet may have been good for nearby residents, whose burden of coping with high water would have been lightened, but it would have been a catastrophe for lower valley residents who would then suffer horrendous inundation. The latter would be absolutely against reopening the silted tributary to serve as an outlet. Conflict was thus unavoidable.

Conflicts occurred not only between people on the upper reaches and those on the lower reaches, but also between people on different sides of the same section of the river. Regardless of which section of the Han River on the Jianghan plain one considers, if the dike on one side were to break, the integrity of the dike on the opposite side would automatically be guaranteed. During the post-flood season, the people who lived on the unbroken side would oppose repairing the broken dike on the opposite side for the simple reason that the

¹⁰⁴ *Zhongxiang xian zhi*, 1937, vol.3: 14b, 30a.

broken side now served as an outlet, assuring that the dike on their side would not break any time soon.¹⁰⁵

For this reason, the people on the northern bank of the Han River and the people on its southern bank had sued each other and fought over the opening/blockage of the Zekou for a century.¹⁰⁶ In the late Qing, other court battles included fighting among Penggong *yuan* along the boundary of Tianmen, Mianyang, and Hanchuan and 72 *yuan* in Mianyang.¹⁰⁷ As a result, in the Qing residents along the Han River were considered litigious, and filing lawsuits over water control became one of the most notorious local customs of Hubei province.

Lawsuits took time and often failed to resolve problems. More often the locals were directly involved in finding a solution themselves by fighting each other. The residents of Qianjiang, for example, fought frequently with their neighbors in Mianyang and Jianli during the Qing.¹⁰⁸ In Mianyang itself, the Upper *Yuan* and the Lower *Yuan* fought for 40 years in the mid-Qing over control of drainage.¹⁰⁹ In Jianli, several *yuan* along the Lao Linchang River battled for control over a single dike section for centuries. The upper *yuan* wanted to break this dike to drain their *yuan* water, the lower *yuan* wanted to preserve dike to protect their *yuan* from floods. They even used military weapons in fighting, many people were killed, and upper *yuan* residents and lower *yuan* residents hated each other as enemies.¹¹⁰ Sometimes thousands of people joined such feuds and many died. Battles between fully armed residents of Jianli and Mianyang in 1881 reportedly caused thousands of deaths.¹¹¹ In all of these conflicts, the local gentry played an important role—they were leaders of feuding militia, composers of appeals to the upper level government, and negotiators among different parties.¹¹²

Conflict also occurred between local governments and the central government. Few magistrates dared to act openly against the interests of their assigned counties, even if it meant going against the wishes of upper-level jurisdictions. Their attitude on the banning of private *yuan* provides a good example. Despite

¹⁰⁵ Residents of neighboring *yuan*, in both the Yangzi River valley and the Han River valley, also would intentionally open up other people's dikes in order to safeguard their own *yuan* without thinking of the plight those places would face once they were inundated (*Zai xu xing shui jin jian*, vol. 11: 305-309, *Dongjinghe di fang zhi*, 1994: 4); or they opened a dike to drain their *yuan* water, but inundated other *yuan* (*Jianli xian zhi*, 1959: 120).

¹⁰⁶ *Dongjinghe difang zhi*, 1994: 2.

¹⁰⁷ *Hubei sheng zhi shuili*, 1995: 8.

¹⁰⁸ Peng and Zhang 1993: 222.

¹⁰⁹ *Shuili dianli bu* 1991: 583.

¹¹⁰ *Jianli xian zhi*, 1959: 120.

¹¹¹ Peng and Zhang 1993: 225.

¹¹² *Xiang di cheng an*, *passim*.

a prohibition, more and more private *yuan* were enclosed year after year.¹¹³ One of the main reasons was support from the local government. From the point of view of the central and provincial governments, private *yuan* were not supposed to exist; but for the local government, private *yuan* were a source of tax revenue. Thus, magistrates were reluctant to prohibit them. During the reign of Daoguang, there were so many private *yuan* that the emperor ended up tacitly consenting to the *status quo*. In 1833, he did not ask local officials to destroy the existing private *yuan*, but only asked them to prohibit the opening of any new ones.¹¹⁴ The magistrate of Shishou in the 1860s even led the local people in building “private” *yuan*.¹¹⁵ The Republican government, like its imperial predecessor, issued orders banning private *yuan*,¹¹⁶ which of course means that the enclosure of private *yuan* was still a problem in the Republic.

There was also conflict between officials and villagers. In many cases, angry villagers went to a certain dike section to block an opened outlet or to reopen a blocked outlet themselves, without the involvement of local officials. In some cases, once local officials got involved, the villagers would express their grievances to officials who stood on the opposite side, both literally and figuratively. Thus, some villagers of Jianli once attacked the prefect of Jingzhou who went to investigate the situation, on the assumption he opposed the blocking of an outlet.¹¹⁷ Unlike peasants who rebelled against exorbitant taxes and levies, when it came to dike management these villagers struggled simply to protect their livelihood and to resist officials who had different views. In 1881, some residents of Qianjiang, led by “evil” gentry of Mianyang, even dared to resist troops that were sent to ban their illegal dam building.¹¹⁸

Even within the same *yuan*, people’s attitudes towards working on the dikes differed depending on the distance of their property from the dike. Those who lived on high places and far from the dikes were reluctant to go to work on the *yuan* dike and also often refused to pay their share of the earth fee. But those who lived near the *yuan* dike had neither sufficient money nor laborers to maintain the dike in good condition on their own. Moreover, some local powerful individuals refused to work on the dike, paying their tenants to take

¹¹³ Ni recorded how the locals deliberately built private dikes. They usually built private *yuan* under the pretext of building a road. If someone investigated, they would say that what they had built was a road, not a dike. If no official discovered the truth, the locals would heighten it year by year until it became a private dike (Ni 1876, vol. 8: 26a).

¹¹⁴ *Zai xu xing shui jin jian*, vol. 1: 101–102.

¹¹⁵ In 1867, the magistrate of Shishou turned a deaf ear to the banning of private *yuan*. Instead, he led the local people in reinforcing some private *yuan* that should have not been built and recorded them in the new gazetteer to ensure their legal status (*Zai xu xing shui jin jian*, vol. 11: 321).

¹¹⁶ Cao 1937, vol. 4: 6.

¹¹⁷ *Zai xu xing shui jin jian*, vol. 2: 388–9.

¹¹⁸ Shuili dianli bu, 1991: 988.

their place instead.¹¹⁹ Because of the lack of cooperation on dike repairs and high water control, some *yuan* in Qianjiang, Mianyang, and Tianmen simply separated into two or three individual *yuan*.¹²⁰

Thus, although the gentry played an important role in dike management, the lack of cooperation and conflicts among the locals still led to the unavoidable deterioration of their dikes. Such conflicts over dikes not only continued in the Republican era, but they got worse. A survey conducted in Gong'an county contained a detailed description of such conflicts:

The territory of Gong'an is low, and the dikes are essential to the life of the residents. There are about 80 *yuan*, large and small. There is no unified method of apportioning earth and fees—each *yuan* decides on that. Although the managers of *yuan* dikes are chosen by the villagers in the *yuan*, almost all of [the managers] are despotic gentry and rich households. Although the apportionment of the earth fee must be approved by the *yuan* assembly, this is only a formality. Although the controller (*jiancha*) has cleared the account [of the earth fee], it is usual to give inflated figures in the report and to squander the funds. Therefore, the files of the disputes regarding dike affairs each winter stand in piles many feet high and there are countless lawsuits—no magistrate has a solution. Because the size of the various *yuan* differs, the number of households of each *yuan* differs too; the fertility of *yuan* land varies; some dike projects are easy while others are difficult; and the work required varies year by year. Thus it is exceptionally difficult to [find] a unified [way of apportioning] the earth fee. This is the first reason. According to local customs regarding *yuan*, the earth fee is usually collected after the autumn harvest, while all dike projects are carried out early in the spring. The funds needed for these projects are paid in advance by managers and rich households in the *yuan*, and therefore no households other than those of despotic gentry and rich families can assume the position of managers. The spring dike projects could not be carried out if the system of managers were abolished. This is the second reason. Due to these two factors, the burden of the earth fee will not be apportioned equally until it is unified; the corrupt practices of the system of managers cannot be reduced unless the system itself is abolished. But in practice it is difficult to unify the earth fee and to abolish the system of manag-

¹¹⁹ *Jiangling xian zhi*, 1794, vol. 8: 10b.

¹²⁰ Peng and Zhang 1993: 211.

ers. That is why the [problem of] dike-related disputes has not been thoroughly resolved.¹²¹

Thus, from the Qing to the Republic, there were more and more conflicts over the Jiangnan plain dikes. These conflicts were caused by the changing and unstable environment, and in turn further damaged that environment. Clearly, if these conflicts were intelligently settled, both parties benefited. But if they were inappropriately dealt with, the result was often not only wrangling, but also never-ending inundation. Thus not only would neither party benefit, but local society and the state would suffer as well.

The decline of the management of the dike systems

The increasing conflict over the dike systems also partly reflected the serious problems with dike management, which became increasingly ineffective during the late Qing and the Republic. By the mid-Qing, with the expansion of the dike system, especially with the increasing enclosure of *yuan*, most of the tributaries of both the Yangzi River and the Han River and many lakes between these two rivers had become silted up. Furthermore, islets and shoals became densely distributed outside the river dikes. Both officials and the local people knew where the former high water discharge areas were, but they were unable to restore them because many of these areas had already been turned into villages and farmland.

It is true that the shrinking of floodwater discharge area and the increasing disorder of waterways did contribute to frequent inundation, but that should not downplay the importance of dike management in dike safety. Overall, dike breaks were rarely caused by really huge floods.¹²² That means, frequent inundation might not be eliminated, but could be reduced. Thus, in the long run, aside from the increasing disorder of waterways, a more important major cause of the more frequent inundation was the decline in the effectiveness of dike management, including the abovementioned increase of conflicts over water control.

As mentioned earlier, most of the major dikes along the Yangzi and Han Rivers in the Jiangnan plain were people's dikes. These can be traced back to the early Qing. In a 1715 edict, the Kangxi Emperor argued that "The Yangzi River does not change its course [as the Yellow River course does], so [the central government] hands it over to local governments to take care of it."¹²³

¹²¹ *Hubei xian zheng gai kuang*, 1934: 1004.

¹²² Studies have found that, in the late Qing, solar activities became weaker and annual rainfall decreased, which were favorable for the reduction of inundations. But by contrast, inundations in the Jiangnan plain in this period became more and more frequent (Qiao 1963; Mei, Zhang, and Yan 1995: 202).

¹²³ *Qing hui dian shi li*, vol. 931: 688–9.

In a 1727 edict, the Yongzheng Emperor allowed the river dikes of Jingzhou to remain as people's dikes. He thought that if these dikes were made *qindi* (imperial dikes), the local people would not dare to take the necessary measures to maintain them once they had problems, thus causing negligence, or they would relax their vigilance and rely on the central government to maintain the dikes. Therefore, he decided that although the government would sometimes finance these dikes, their classification as people's dikes would not be changed.¹²⁴ Their decisions placed government personnel in a supervisory role in dike management, while the locals had to bear the burden of providing both funds and labor power. It also shows that from the view of the central government, the river dikes in the Jiangnan area were far less important than the Yellow River dike.¹²⁵ Thus, although the Wancheng dike was nominally made an official dike after 1788, it was still a non-governmental work since the fees for its annual repair still came from the local society.

When the government funded a dike project, however, the officials in charge of that project usually asked for more money than was really needed, and they pocketed the difference. A report delivered to the Board of Works in 1780 stated that the total expenditure for repairs on the dikes of Hubei amounted to 78,500 taels. Later it was discovered that the figure had been inflated by 19,600 taels. This so enraged the Qianlong emperor that he confiscated the difference and used it to fund future dike work.¹²⁶ In the edict dealing with this report, the emperor said that it would have been "reasonable" if the total had been inflated by "only" a couple of thousand taels. He was angered not over the fact that the report was distorted, but over the extraordinary amount that was siphoned off. This suggests that even at that time "false reports" and the corruption of governmental personnel was widespread and tolerated even by the emperor.

By the late Qing, corruption had become a widely spread and stubborn disease among officialdom;¹²⁷ dike management was hardly immune from this malady. Lin Zexu had found that in some large counties on the Jiangnan

¹²⁴ *Jingzhou fu zhi*, 1880, vol. 17: 1a–b.

¹²⁵ But the Yangzi River in the Jiangnan plain, particularly its first section from Zhijiang to Honghu, in fact was very unstable; the central government therefore should have appointed an *ad hoc* official to take care of it (as it did for the Yellow River dike [usually regarded as *hegong*] and the Grand Canal). This is not to argue that if the major dikes in the Jiangnan plain had been directly controlled and managed by the central government they would have been more effective, since the management of the Yellow River dike under the control of the central government was still problematic and ineffective in the Qing (Dodgen 1991). Rather, a distinction of the role of central government and local government in dike management needs to be made.

¹²⁶ *Xu xing shui jin jian*, vol. 154: 5a.

¹²⁷ In fact, it has been argued that corruption had become a built-in problem of Qing government as early as the eighteenth century (Park 1997: 996–999).

plain there were thousands of fraudulent runners—similar to *baiyi* (unregistered runners)—who collected fraudulent taxes and fees from villagers,¹²⁸ and many of these runners worked on dike affairs. Actually, a special class that depended on the dike fees for survival gradually emerged among governmental personnel. For instance, in Mianyang, “in each *yuan*, . . . there are several kinds of persons who specialize in embezzling dike fees. They are called *jushen* (bureau gentry). There are fewer than seven or eight thousand of them in the whole department, and all of them are connected with the city and collude with each other.”¹²⁹ The clerks and runners of the Bureau of Dikes (*diju*) in Tianmen, Jingshan, and Qianjiang in the 1870s completely controlled the collection of dike fees and frequently overcharged and extorted from villagers whom had no means of livelihood.¹³⁰ In Jiangling in the late Qing, being an accountant for a dike bureau “has almost become a hereditary position. [They] smoke foreign cigarettes, make friends, and enrich their family [with embezzled dike fees], [and they] are accustomed to taking [money] from the treasury and enjoying themselves.”¹³¹ It must have been remarkably easy for them to embezzle dike fees.

Some capable and honest high ranking officials such as Lin Zexu attempted to ban runners from involvement in earth fee collection, and the locals were asked to carefully select “experienced, upright, and honest” local gentry to collect and manage the earth fee.¹³² Unfortunately, some of the gentry were as dishonest as the runners. Sometimes they overcharged the earth fee, or cooperated with runners to delay the completion of dike projects. In fact, as early as 1819, the magistrate of Tianmen banned the gentry members of every *yuan* from service as *weizhang*.¹³³ In 1858, the magistrate of Jiangling even refused to rely on the local gentry or the runners to collect the earth fee, and instead sent his relatives and personal secretaries (*muyou*) to deal with it.¹³⁴ Later the prefect of Jingzhou found that the corruption of the gentry exceeded even that of the runners, and the corruption of the runners exceeded even that of the local officials, since the runners could be punished by the local government once their corruption had come to light.¹³⁵

In most cases, however, the involvement of government personnel was unavoidable, no matter how the dike fee was collected or used. Thus it was

¹²⁸ *Zai xu xing shui jin jian*, vol. 6: 179.

¹²⁹ Peng and Zhang 1993: 230.

¹³⁰ *Zai xu xing shui jin jian*, vol. 18: 487.

¹³¹ Ni 1885, vol. 6, jinfei I: 13b.

¹³² Lin, 1935: 106; Hu, 1999: 199.

¹³³ Wang, vol. 2: 62a.

¹³⁴ *Zai xu xing shui jin jian*, vol. 9: 266.

¹³⁵ Ni 1885, vol. 6, jinfei I: 1b.

difficult to curb corrupt practices such as inflating reports (*fubao*), jerry-building (*toujian*), extorting (*xusuo*), and tax farming (*baolan*).¹³⁶ Whenever a new regulation was issued, the responsible people would as a rule begin work promptly, but it changed soon. Even capable and honest officials could not do everything themselves and had to assign runners as their representatives. After 1788, the governor, prefects, and even the magistrates sometimes sent assistants to supervise dike work (particularly high water control). These representatives, however, needed transportation and meal allowances, as well as money to cover the costs involved in investigating, checking, and supervising dike work.¹³⁷ This actually increased the burden of the earth fee and the chances of corruption. Counties along the lower Han River had special petty officials (*xunyu*) in charge of dike work; they might actually go to the dike, but paid no attention to repair work after receiving bribes (called *guili* [normal gifts]) from *ditou* and *weizhang*, and they too neglected the rise of high water and did not supervise the local people to patrol the dikes during high water seasons.¹³⁸ Furthermore, even funds collected from the local people were subject to speculation. It was found in late Qing Jiangling that the runners in charge of collecting the earth fees pocketed 60 to 70 percent of them and falsely reported that the locals had not paid.¹³⁹ When one *futou* got a sum of earth fee funds for dike work, there were more than twenty charges corruptly deducted from that fund.¹⁴⁰

In theory, the fact that so many institutions and officials were involved in dike management might have been an indication that the dike system was receiving careful attention. But in practice, as we have seen, things often went awry. The greater the number of people who were involved in dike management, the greater the expenditure on management.¹⁴¹ And the establishment of new organizations for management in fact offered more chances for more people to embezzle dike fees. As a result, the money that could have been used on the dikes was significantly reduced. It was said that in some *yuan* of Hanchuan in the late Qing less than half of the earth fees was actually spent

¹³⁶ Wang, vol. 1: 12b–13a.

¹³⁷ *Zai xu xing shui jin jian*, vol. 30: 795.

¹³⁸ *Zai xu xing shui jin jian*, vol. 1: 6.

¹³⁹ Ni 1885, vol. 6, jingfei I: 6b.

¹⁴⁰ Ni 1885, vol. 6, jingfei II: 2b–3a.

¹⁴¹ The increasing burden of the dike fee in Jianli, for example, was partly a result of the enlargement of the earth bureau in this county. In 1834, Jianli set up a county-level earth bureau to collect the earth fee. There were eight *shoushi* (chief directors) in this bureau, and each was paid 400 *wen* a day for meals. The next year, five sub-county branches of the earth bureau were established in the countryside; each branch had three *shoushi*, and each *shoushi* received 400 *wen* per day for meals. In total there were 23 *shoushi*, who were paid 9,200 *wen* per day for meals. Lin Zexu thought that this was just a waste of money. He ordered the branches to be abolished and the meal fee to be reduced to 300 *wen* per day per *shoushi* (Lin 1935: 101–106).

on the dikes,¹⁴² and in late Qing Mianyang, only 20–30 % of the earth fees were used on dike projects.¹⁴³ Thus, even though we should not assume that all officials were corrupt, as Wang Fengsheng¹⁴⁴ concluded, a mere handful of honest officials could not change long-standing corrupt practices.¹⁴⁵ In the Republic, even official reports revealed that at most only 60% or so of the dike-tax collected from various sources was used on dike work, and 30% or so was spent on other uses.¹⁴⁶

The management of *yuan* dikes, as we have noted, was also subject to problems. In Jiangling, for example, the post of head of the *yuan* was usually passed down through a single lineage. Over time, work on the dike became more and more careless and both powerful households and households that lived far from the *yuan* dike became reluctant to help repair and maintain it. The result was increasingly frequent floods. But, in contrast, in Baiju *yuan* and Hulu *yuan*, the people had cooperated effectively in managing their *yuan* dike: the rich contributed money and the poor contributed labor. Thus even in the huge flood of 1788 the dikes in these two *yuan* did not break.¹⁴⁷ This is a positive example that demonstrates, again, the relationship between *yuan* dike security and its management.¹⁴⁸ In Jianli, there were three different organizations responsible for annual repair, water control, and dike fee collection respectively, but most of them declined or were abolished in the late Qing.¹⁴⁹

Compared to government-managed dike work, work run by the local people had several intrinsic weaknesses. First, because no responsible officials were involved, there was no guarantee of quality. Second, since there was no re-

¹⁴² *Hanchuan xian zhi*, 1873, vol. 9: 29b.

¹⁴³ See Peng and Zhang 1993: 237. Dodgen argued that the critics largely exaggerated the corruption of the river bureaucracy (of the Grand Canal) in the early nineteenth century (Dodgen 2001: 37-38). That is possible, but local records show that the corruption of the dike fees in the Jiangnan area in the nineteenth century was indeed a very serious problem.

¹⁴⁴ Wang Fengsheng, a former salt controller for the Liang-huai region, was appointed by the central government as a special official (his title is unclear) in charge of the whole dike work of Hubei province after a massive flood in 1829 [Will thinks it should be 1832 (Will, 1985: 342, not 117)]. But he did not accept the position, pleading illness, since he thought the problems were unsolvable (*Zai xu xing shui jin jian*, vol. 32: 848).

¹⁴⁵ Wang, vol. 1: 13a.

¹⁴⁶ *Qingli baogao shu*, attached chart.

¹⁴⁷ *Jingzhou fu zhi*, 1880, vol. 20: 2a.

¹⁴⁸ Although in principle the method for maintaining *yuan* dikes was to share the responsibility evenly among the people who benefited from the dike, in practice it varied. There were three different ways in practice. First, several *yuan* that benefitted from the same dike shared responsibility for its maintenance. Second, one *yuan* assumed responsibility for a *yuan* dike and all *yuan* residents worked together. Third, one *yuan* took responsibility for a *yuan* dike, but each individual *yuan* resident was responsible for one share (*Hubei an xiang yun dao shui li ji an*, II: 3a). It is clear that the effectiveness of these methods tended to decrease as one moved from the first to the third method.

¹⁴⁹ *Jianli xian zhi*, 1872, vol.3: 10b–12a.

quirement for a “safety period,” if any section of these dikes broke, no one could be held responsible. Third, work on these dikes usually was not reported to the Board of Works, making it difficult for the government to assess actual condition in case of a break. For instance, Wang Zhiyi found that official dikes were usually more solidly built than people’s dikes. Most of the people’s dikes were short, thin, and easily broken.¹⁵⁰ Thus ruptures usually occurred on dikes run by the locals (but supervised by governmental personnel).¹⁵¹ Furthermore, there were differences in the people’s attitudes towards major dikes and minor dikes (*yuan* dikes). It seems they tended to pay less attention to the major dikes than to the minor ones, because the *yuan* dikes directly protected their land and property. This despite the fact that if a major dike broke, it was hard to ensure the integrity of the *yuan* dikes.

One of the most common problems in dike work was the jerry-building of dikes. This included using inferior materials such as sand instead of soil, reducing the time spent on ramming the earth, scraping the ground of the old dike and falsely claiming it as a new one, and removing the earth at the foot of the old dike but falsely claiming it as an increase in height.¹⁵² The height, length, and volume of dikes thus were not up to standard: frequently the result was inundation caused by water overflowing the undersize dikes. Moreover, the dimensions of each section of a dike (i.e., length, width, and height) were not very clear either; it was easy to falsify the dimensions when a break occurred. Therefore, although there was a very strict requirement that a dike be secure for a certain period of time, that was more or less only a formality, and most dike ruptures were caused by over-flooding.¹⁵³ At any rate, only dikes once funded by the government were subject to this requirement.¹⁵⁴ In some particularly vulnerable sections, stone was dumped into the water to protect the walls of the dike. But very commonly the amount of stone was less than what had been requested: “The amount of stone is less than half due to corruption among the stone boat [personnel].”¹⁵⁵

As a result, inundation in the Jiangnan plain became more frequent in the middle and late Qing. The Wancheng dike, for instance, broke on average every 5 years in the reign of Kangxi (1662–1722); every 2.5 years in the reign of Daoguang (1821–1850); and every 3.61 years in the reign of Xianfeng (1851–1861) (Table 2). In Mianyang, water calamities occurred on average

¹⁵⁰ *Xiang di cheng an*, vol. 2: 5b.

¹⁵¹ *Zai xu xing shui jin jian*, vol. 4: 125.

¹⁵² Wang, vol. 1: 13a; *Zai xu xing shui jin jian*, vol. 3: 124; Hu, 1999: 170–2.

¹⁵³ Wang, vol. 1: 13b, 15b.

¹⁵⁴ For example, in *Qing hui dian shi li* (edited in the reign of Guangxu), the safety requirement only applied to the Qiaomeiwan dike in Jiangxia county, the Wancheng dike in Jingzhou, and the dikes along the Yangzi River and the Han River in Hanyang prefecture (Peng and Zhang 1993: 206).

¹⁵⁵ Yu Changlie 1999: 138.

Table 2: The frequency of breaks on the Wancheng dike in the Qing dynasty

Periods	1644 -1661	1662 -1772	1723 -1735	1736 -1795	1796 -1820	1821 -1850	1851 -1861	1862 -1874	1875 -1908
Years	18	61	13	60	25	30	11	13	33
Breaks	4	12	2	6	5	18	3	2	3
Frequency	4.5	5.1	6.5	10	5	2.5	3.61	6.5	11

Source: *Jingjiang da di zhi*, 1989: 69–74. Frequency calculated by the author.
 Note: Frequency refers to average years between each occurrence.¹⁵⁶

Table 3: The frequency of water calamities in the Jiangnan plain in the Qing dynasty

Periods	1644 -1661	1662 -1772	1723 -1735	1736 -1795	1796 -1820	1821 -1850	1851 -1861	1862 -1874	1875 -1908	1909 -1911
Years	18	61	13	60	25	30	11	13	33	3
Times	6	21	4	21	3	22	7	12	19	2
Freq.	3	2.9	3.3	2.8	8.3	13	1.5	1	1.7	1.5
Counties	7.1	6.8	7.7	7.4	6.5	7.8	11.1	7	NA	NA

Source: Zhang Guoxing 1994: 143, table 3.
 Note: Times refers to years of water calamities.
 Frequency refers to average years between each occurrence.
 Counties refers to the average number of counties that suffered from water calamities.

every 2.88 years in the mid-Qing, and increased to every 1.44 years in the late Qing (Table 3).

The situation of dike management in the Republic was even worse. In the early Republic, even the *dilao* who were responsible for the daily maintenance of the Jingjiang Great Dike were driven off, and the locals were reluctant to take responsibility since now it belonged to the category of governmental dikes.¹⁵⁷ Furthermore, the people who were responsible for the collection of dike fees and the people who were in charge of dike work hardly cooperated at all. People were outraged that the dikes were even more poorly managed than in the late Qing.¹⁵⁸ In the 1930s, the engineers and technicians responsible for the annual repair of major, government-managed dikes and the local

¹⁵⁶ Table 2 shows that the Wancheng dike suffered only a few breaks after the 1870s. One of the major reasons was the formation of an outlet in Ouchi in the 1850s and another in Songzi in the 1870s that discharged high water into Lake Dongting and reduced the pressure on the Wancheng dike. The dike enjoyed a period of about 60 years without major break until a massive inundation in 1931 (*Jingjiang dadi zhi*, 1989: 36–39; Cheng Pengju 1990).

¹⁵⁷ This is exactly what emperor Yongzheng had worried about two hundred years earlier.

¹⁵⁸ Cao 1937, vol. 2: 67, vol. 4: 20.

officials who were responsible for high water control generally did not cooperate effectively either: the engineers had no authority to recruit peasants even in emergency situations, while the local officials had no interest in dike projects and had no idea whether a project was solid or not.¹⁵⁹ There were some temporary official organizations responsible for high water control in summer, but nobody in charge of daily maintenance after that; the neglect of daily maintenance therefore was the main reason for frequent dike ruptures.¹⁶⁰ And very often dike fees were diverted to other uses such as paying the local warlords' troops, or were stolen by responsible parties, or were used to buy inferior material (such as reeds) in replace of standard material (such as stone) for dike construction and repair.¹⁶¹ A Republican report rated the dike fees as one of the major origins of official corruptions in Hubei.¹⁶²

Regarding people's dikes, it appears that it was landowners who had to bear the burden of the dike fee. But in practice, landlords passed the fee on to their tenants, or the fee was apportioned among the locals according to the number of members in each household.¹⁶³ Moreover, landlords usually supervised dike work; at the same time, it was not unusual for the local government to extort extra money from the villagers in the name of dike fees.¹⁶⁴

In the end, then, an increase in the institutions and personnel responsible for dike management in the late Qing did not reduce the frequency of inundation but paradoxically contributed to the declining effectiveness of dike management. This was because of a lack of cooperation among the various parties and because of institutional corruption. In the Republic, the separation of the responsibilities of high water control and annual repair only increased the difficulty of cooperation and thus made things even worse.

Conclusion

Although the increasing frequency of water calamities in the Jiangnan plain in the Qing and the Republic could be attributed to the over-reclamation of upstream mountains, which caused eroded silt to raise riverbeds in the lower reaches, and to the over-enclosure of *yuan*, which shrank high water discharge areas, the more important reason was the mismanagement of the dike systems,

¹⁵⁹ *Hubei sheng zhi shuili*, 1995: 22.

¹⁶⁰ *Qingli baogao shu*, 4.

¹⁶¹ *Jianli difang zhi*, 1991: 358; *Jingjiang dadi zhi*, 1989: 323; *Wuhan shi zhi*, 1989: 155. Another problem in the Republic was the use of dikes as defense works, particularly against the Japanese invaders, which seriously damaged the dike system (*Jianli difang zhi*, 1991: 74-75).

¹⁶² *Qingli baogao shu*, 1.

¹⁶³ *Honghu xian zhi*, 1992: 101.

¹⁶⁴ *Hanyang xianzhi cuogao*, 1960: 34.

particularly when this occurred simultaneously with deteriorated environment and financial difficulties.¹⁶⁵

Over the course of the Qing and the Republic, the deteriorating environment in the Jiangnan plain led more to conflict than to cooperation in dike management.¹⁶⁶ Problems grew even bigger and became harder to solve. Both government and the local people had to pay more attention to and expend more funds and manpower on high water control and annual repairs. In the long run, as we have noted, the Qing government became more deeply involved in dike management. Even in the late Qing, when the government was faced with a financial crisis, it increased, albeit reluctantly, its involvement in dike management. In fact, on the Jiangnan plain dike management became the major administrative task of magistrates and prefects. The Republican government even established special institutions to manage some major dikes that were more advanced (at least in their organization) than late Qing institutions.

Despite the proliferation of dike management institutions and the increasing number of personnel assigned to dike management, state involvement in dike systems was still insufficient. First, the Qing central government refused to take full responsibility for the major dikes in the Jiangnan plain; it usually only issued financial aid in cases of emergency. Therefore, blaming the Qing state for its incompetence at water control does not reveal the full picture, for the central state in fact left dike management to local government and the local people. Second, in addition to widespread (and well-known) corruption in dike management throughout the Qing and the Republic, local governments in the Qing did not cooperate well with each other nor with the local people on dike management (particularly for the Han River dikes), and professional dike management institutions in the Republic failed to cooperate with local governments. Although the state promulgated regulations to guide dike man-

¹⁶⁵ Here I do not emphasize the role of technology in the maintenance of the dike systems. That does not mean that technology is unimportant, but that the dike-related technology changed little in the past few centuries. Someone has found that Ming methods of dike construction and key points of high water control were still treated as the gold standard in the 1990s: the only difference is an improvement in materials. That is to say, dike technology was already very advanced in the Ming (Zhang and Zuo 2001: 396). Manpower served as the sole power for dike work until 1950; only occasionally were some simple machines used (*Jingjiang dadi zhi*, 1989: 126). Probably for the same reason, past scholarship did not pay much attention to the role of technology in the control of frequent inundation. In the Republic (after the 1930s), the management of major dikes in Hubei was taken over by the *Jiangnan gongcheng ju*, a professional institution armed with powerful and advanced technology, but its effectiveness was very limited because it failed to mobilize the local people (*Hubei sheng zhi shuili*, 1995: 22). At the end of the Qing and in the early Republic, Hunan also tried to use new technology to dredge Lake Dongting, but in vain because of a shortage of funds and weak management (Perdue 1987: 232, 246). These experiences again offer evidence that management is more important than technology in overcoming dike-related water calamities.

¹⁶⁶ Deteriorated environment might not directly cause corruption in dike management, or vice versa. But corruption inevitably caused the decline of dike management and consequently the increase of dike ruptures and inundations.

agement, they generally did not work well. And third, although the number of institutions and personnel responsible for dike management increased through the late Qing, overall the effectiveness of government management did not increase. Instead, money was wasted on a top-heavy, inefficient, and corrupt bureaucracy. In the Republic, the separation of technological organization from the administrative system made the upkeep of dikes even more difficult.

Of course, the officials responsible for dike management, especially the magistrates and prefects, did not want the dike systems to decline, and indeed did what they could to avoid dike rupture. But they were constrained in what they could do because of their limited power and because of inherent institutional corruption. Although the dike management was theoretically their most important duty, it was only one among many official duties. Inevitably, officials had to rely on their assistants to deal with many things. But if they relied on their clerks or the runners, these petty officials would more than likely engage in corruption and extortion, and pay insufficient attention to the quality of dike work. If they relied on the local gentry, some of them would also likely engage in corruption and extortion; it was hard for all of them always to be “just, experienced, and upright.” Non-governmental organizations, under the leadership of the local gentry, only sometimes were effective in managing dikes (particularly *yuan* dikes). Overall, in both the Qing dynasty and the Republic, dike breaks were rarely caused by really huge floods, but by poor repairs, poor cooperation, and mismanagement.

The local gentry played a unique and crucial role in dike management through the Qing and the Republic. They were the bridges between the state and rural society; they held most of the *yuanzhang* and *weizhang* positions due to their economic power and social status; they were usually the initiators and the primary funders of dike fee contributions. They collected and managed the dike fee, led and supervised dike work, mediated dike-related conflicts, reported the local people’s opinions to the government, and commanded the local people in fights with opposing interests. Under these circumstances, it is safe to conclude that the fortunes of any rural community on the Jiangnan plain partly depended on the conscientiousness of its local gentry.

All these should lead us to reconsider the role of the state in rural China. According to Michael Mann, traditional Chinese society was characterized by a high degree of despotic power but low infrastructural power; that is, traditional China had a very high level of centralized state power, but the capacity of the state to actually penetrate local society was very weak.¹⁶⁷ Before 1949, the Chinese government mainly relied on informal officials and the gentry to

¹⁶⁷ Mann 1984.

control rural society. This kind of indirect infrastructural power had usually worked in dealing with many things, such as the collection of taxes and the meditation of civil disputes.¹⁶⁸ But it failed to work well in dealing with conflicts and problems over water control, as in the Jiangnan plain in the Qing and the Republic. To resolve these kinds of conflicts and problems a high degree of infrastructural power was needed, and this the pro-1949 Chinese state did not provide.¹⁶⁹

Glossary

ban	班	daoguan	道官
baolan	漕船	dianshi	典史
ban	班	dahuyuan	大戶院
baoguo shimian	保國土田	dangying	當印
baokang	保工	dake	大業
changpingyuan	長平原	deqin	德勤
chao	潮	dun	墩
changyuan	長元	dun	墩
Changjiang sishuoyang	長江水利	duheng	度衡
cha	茶	dongshu	東書
chuan	船	er	二
chuanluo chuanluo	船戶 船戶	tu	土
chufu	輸夫	fubao	夫保
chushou	輸首	kanou	官

¹⁶⁸ Cbu 1962: 168–192.

¹⁶⁹ This high infrastructural power came into being in China after 1949. The Communist state, which has both a high degree of despotic power and a high degree of infrastructural power, has paid more attention to the maintenance of the dike system in the Jiangnan plain. The Chinese Communist Party's ability to mobilize labor for dike projects and to make each person accountable for each inch of the dikes (*Jingjiang dadi zhi*, 1989: 222-3) has ensured that the major dikes in the Jiangnan plain have had a safe history for half a century.

welü	隄甲	yuanfu	院夫
welou	隄頭	yuetou	約頭
wenzhou	隄首	yuanzhang	隄長
wen	隄	yuanzhong	隄總
wenzhai	隄宅	zhang	丈
wenzhang	隄長	zhifu	知府
wen	文	zhou	州
xiancheng	縣丞	zhuqian	州前
xunjian	巡檢	zhuobang	州榜
xusuo	需索	zhuqian	州前
xunyuan	汛員	zhu	州
yanfu	烟夫	zongheng	宗橫
yanshui	鹽稅	zongjian	宗建
yi gong dai zhen	以工代賑	zonggu	宗古
youfu	游夫	zongwei	宗偉
yuan	隄		

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