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The emergence of Metro Manila as a political unit is inextricably tied to its history as a flood-prone metropolis. A comparison of flood-control efforts in the 1970s with those that preceded it in 1909 and 1952 demonstrates that flood control in Metro Manila has been a deeply political issue. Opposition from local governments derailed plans, which gained traction only under Ferdinand Marcos, who starting in 1972 initiated large-scale projects and neutered local autonomy by creating the Metro Manila Commission. Marcos's flood-control program followed his regime's technocratic, high-modernist approach to disaster mitigation and centralized metropolitan governance, with slum dwellers living along the waterways bearing the brunt of his undemocratic disaster governance.

KEYWORDS: NATURAL DISASTERS · URBANIZATION · AUTHORITARIANISM · HIGH MODERNISM · TECHNOCRACY · URBAN POOR

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In the history of twentieth-century Metro Manila, no disaster has been more politically charged than flooding. Issues of governance, from the national down to the local government, rise to the surface every time the metropolis goes under water.

Scholars of late have dissected the dynamics between politics and disasters. Leading the charge is Greg Bankoff (1999, 2003a), whose essays and genre-defining book *Cultures of Disaster* (2003b) have alerted us to the socioeconomic and political dimensions of disasters. The impact of disasters is not only conditioned by social structures; disasters do impact social and governance structures as well (Bankoff 2003a, 107; Loh and Pante 2015). Other scholars have analyzed the artificiality of political boundaries vis-à-vis the geographical reach of disasters. In the case of floods in Metro Manila, Simeon Ilago (2000, 79) points to this reality by showing that "the effects of flood control and drainage structures may extend beyond the boundaries of the districts and even the political boundaries of Metro Manila."

Recently, James Warren (2013) has explored the "link between politics and calamity" by analyzing the floods that crippled the capital during martial law. This article essentially follows up on Warren's work. It expounds on his critique of Pres. Ferdinand Marcos's high-modernist approach to flood control by elaborating on the administrative structures established during martial law.

The humanities and the social sciences often define modernism as the "visions and values" associated with the idea of humanity having the "power to change the world that is changing them," brought about by technological and scientific advancement of the industrial era (Berman 2010, 16). In contrast, high modernism, as defined by James Scott (1998), is the amplification of modernism's confidence in industrial progress to give order to society, and it operates at the level of the state. It refers to the firm conviction, especially from the state's perspective, in the use of capital-intensive, state-of-the-art technology to address social concerns. It regards communities and their environment as legible phenomena that can be standardized, quantified, and subjected to modifications (ibid., 89). It disregards informal epistemes and local conditions in favor of formal and technical knowledge, a bias that Scott sees as its fatal flaw. When applied to disaster research on the Philippines (Loh 2014; Loh and Pante 2015), the concept of high modernism illumines our understanding of flood-control efforts throughout the twentieth century: from the American colonial regime to the postwar era up to the martial law period, with the last one being the pinnacle of the state's high-modernist mindset.

I augment Warren's arguments on the politics of disasters by looking at the role of metropolitan governance. I bring into the discussion the literature on the history of metropolitan administration in Manila (Caoili 1999; van Naerssen et al. 1996) and fill in an important gap: the significance of disasters in the management of megacities. The need to analyze the specific vulnerability of cities in the developing world has been acknowledged in disaster research, an "urban turn" made more crucial because of the rapid population growth of Third World megacities, as exemplified by Mega Manila—an unofficial geographical designation that covers Metro Manila and adjacent towns in Bulacan, Rizal, Cavite, and Laguna. More importantly, Mark Pelling (2003) and James Mitchell (1999), echoing Scott, point to the inadequacy of technological quick fixes to urban disasters and the necessity of understanding the varying levels of social vulnerability in a city. As such, Pelling and Mitchell provide an implicit argument against high modernism. In particular, Pelling's work is a useful framework for analyzing Metro Manila's history of flooding because it sees urbanization and disaster risk as mutually reinforcing. Moreover, historicizing the coevolution of the two factors expose the link between social inequality and social vulnerability. This merging of urban history and disaster studies has proven its analytic significance in recent works on Southeast Asian cities (Douglass 2010; Loh 2013); this article seeks to do the same in the case of Metro Manila, as I show how the city's urbanization influenced the social vulnerability of its income-poor residents and how disasters further magnified social inequality.

The salience of authoritarianism and metropolitan politics in Marcos's flood-control program for Metro Manila comes to the fore when viewed historically. Unlike in Warren's essay, this article presents a chronology that begins with the early twentieth century in order to show both the disparity and the continuity in the periods before and during the Marcos regime. The years 1909, 1952, and 1972 mark the turning points of this narrative. It was in 1909 that a man-made, citywide drainage system was built in Manila for the first time. This system served the city for decades, but was scheduled to be overhauled and expanded in a plan completed in 1952. The plan languished until the declaration of martial law in 1972.

This article is thus mainly about politics and governance. It shows that the changing nature of the Philippine state—from the US colonial regime

to the early decades of independence up to the martial law period—affected how the government "managed" the environment to prevent and mitigate disasters. It demonstrates the importance of the dynamics between local and national governments in understanding the history of environmental management in the country in light of the perceived democracy-versus-efficiency dilemma (Laquian 1966, 52), a political conundrum in which efficiency in governance is inversely proportional to the centralization of power in government. Marcos's declaration of martial law in 1972 ostensibly sacrificed democracy in the name of efficiency, and flood control in Metro Manila became one important case study that demonstrated this crucial trade-off. However, despite the high economic and social costs of Marcos's flood-control program and despite Marcos's authoritarianism and metropolitan centralization giving way in 1986 to increased democratization and empowerment of local governments and urban poor communities, the problem of floods persists to this day. Its persistence is indeed a puzzle, but it is a burning question that is beyond the scope of this article.

Using official documents, speeches, and periodicals from the American colonial period up to the Marcos years, this article analyzes the technocratic, high-modernist rationale that was at the foundation of the regime's administrative reorganization and construction spree in Metro Manila. In doing so, it foregrounds the significance of floods in Marcos's consolidation of authoritarian rule. It also shows that two factors—technocratic, high modernism and metropolitan governance—conjoined disaster and dictatorship in the martial law period. Unfortunately, the thousands of slum dwellers living along Metro Manila's waterways were victimized twice over: by both the disastrous floods and Marcos's undemocratic mode of disaster governance.

Prewar-to-Postwar Continuities

One cannot overestimate the importance of Metro Manila's geography in understanding its frequent experience of flooding.[1] Two geographical features deserve special attention here. One is Manila's low elevation, with its central districts less than 2 meters (7 feet) above sea level (Huetz de Lemps 2001, 495). The other is the presence of various bodies of water: the Manila Bay to its west; the Pasig River, which bisects it and connects Manila Bay to the Laguna de Bay, a lake to the east of the city; and the numerous inland estuaries, known as *esteros*, that serve as the river's capillaries into the different areas of Manila. The Pasig River, to be more precise, is a river system connecting smaller rivers coming from adjacent provinces. An important feeder into this system is the Marikina River, which is the source of the Pasig River's waters. Other rivers in the network are the San Juan, Pateros, and Napindan rivers (MPCC 1954, 25, 34–35; Bankoff 2003a, 98). Given these physical features, strong rains and powerful tides often translate into a deluge.

In the Spanish colonial period, typhoons usually transformed Manila into a vast lake. The areas surrounding downtown Manila were equally vulnerable, and the rainy season often turned them into "aquatic suburbs" (Huetz de Lemps 2001, 495). An inadequate and polluted municipal drainage system compounded the problem. Of course, this situation was no preordained result of geography; urbanization was also a factor. The rapid increase in commercial activity, which began in the nineteenth century, had serious environmental repercussions. It led to the siltation and pollution of Manila's waterways and consequently to more frequent and ferocious incidents of inundation. The esteros were not only clogged but also became an eyesore and a source of disease (ibid., 488–98).

The Americans faced the same predicament when they supplanted the Spaniards as the new colonizers at the turn of the twentieth century (Mactal 2009, 156–57). Manila City Engineer Owen L. Ingalls (1905, 167–68), noting Manila's inadequate natural system of drainage, criticized the inefficient drainage infrastructure left by the former colonizers, which he described as unsanitary and restricted mostly to the older and more urbanized parts of the city. Acting on Ingalls's recommendations, Manila's municipal board began constructing a citywide sewerage and drainage system in the early twentieth century. On 25 May 1909 the city government inaugurated the system, which had separate disposal systems for run-off (i.e., rainwater) and household sewage that were both under municipal control. By 1 May 1910 the entire project was practically complete (Municipal Board of Manila 1910, 73). Although the system did not cover the entire city—Pandacan and Santa Ana were excluded for reasons the Municipal Board did not state (ibid., 78)—it was reputedly ranked "among the best installations in the Orient" (Mañosa 1947b, 182). However, towns outside Manila had to rely on natural drainage.

With a sewerage system running, Manila decommissioned in 1911 its barge, *Pluto*, that dispensed night soil into the Manila Bay (Pante 2016, 86);

at this point, sanitary pails were emptied directly into the sewers (Municipal Board of Manila 1910, 78).

Ingalls's denigration of Spanish-era municipal infrastructure and the completion of his project did not just give Manila a wastewater disposal system but also an ideological bastion. They lent credence to the Americans' depiction of Spanish rule as autocratic and backward vis-à-vis their supposedly enlightened and progressive colonialism (McCoy and Roces 1985, 66). Success in environmental management gave the Americans an "imperial positive feedback loop" (McNeill 2010, 475), as science and technology assured the sustainability of empire. Nevertheless, despite infrastructural improvements, the flood problem never left the city. Although the Americans upgraded Manila's sewers and waterworks, drainage remained inefficient due to the lack of drains, according to Manila City Engineer Santiago Artiaga (Harrison 1974, 23). In September 1914 Manila experienced one of the worst floods in the city's history. The city drainage could not even prevent flood waters from entering Malacañang (*Manila Times* 1914a, 1; 1914b, 1). By the 1920s flooding had become so ever-present that it "wasn't unusual to go to school in a bathing suit with your clothes and your books on your head and wade waist deep" (Netzorg 1988, 43). Clearly, despite its triumphalist, imperial underpinnings, colonial-era infrastructure in the capital city was far from flawless.

The problem persisted into the Commonwealth period. In response Pres. Manuel Quezon established a flood control commission. Speaking before the national legislature in 1938, he declared that his government had earmarked money for the improvement of Manila's drainage to avoid floods (Quezon 1939, 270–71). In the subsequent year, he allotted P4 million for flood-control projects in the city (Sayre 1943, 21). It was a modest amount if compared with the P92 million the state appropriated for public works in 1938 (Quezon 1939, 267).

Notwithstanding the destruction and economic disturbance caused by the Second World War, prewar initiatives continued in this period. In fact in 1943 the drainage master plan for Manila and its suburbs, such as Pasay, Quezon City, Mandaluyong, San Juan, and Makati, was completed. The catalyst behind it was a huge flood in November 1943. But as fate would have it, the documents and studies compiled for the plan were destroyed in the Battle of Manila in 1945 (Marcos 1976, 39–40; Black and Veatch 1969, 10–8).

Table 1. Population of Metro Manila's cities and municipalities, 1939, 1948, 1960, 1970, and 1975

CITY/MUNICIPALITY	1939	1948	1960	1970	1975
Manila	623,492	983,906	1,138,611	1,330,788	1,455,272
Caloocan City	38,820	54,729	145,523	274,453	393,251
Pasay City	55,161	88,728	132,673	206,283	225,963
Quezon City	39,103	111,165	397,990	754,452	960,341
Pasig	27,541	35,407	62,130	156,492	210,839
Las Piñas	6,822	9,280	16,093	45,732	83,703
Makati	33,530	41,335	114,540	264,918	331,613
Malabon	33,285	46,455	76,438	141,514	174,091
Mandaluyong	18,200	26,309	71,619	149,407	180,904
Marikina	15,166	23,644	40,455	113,400	165,266
Muntinlupa	9,288	18,444	21,893	65,057	91,909
Navotas	20,861	28,889	49,262	83,245	96,926
Parañaque	21,125	28,884	61,898	97,214	155,358
Pateros	7,160	8,380	13,173	25,468	32,765
San Juan	18,870	31,493	56,861	104,559	121,419
Tagig	12,087	15,340	21,856	55,257	73,650
Valenzuela	13,468	16,740	41,473	98,456	150,992
Total	**993,889**	**1,569,128**	**2,462,488**	**3,966,695**	**4,904,262**

Source: National Census and Statistics Office 1982, 1

Budgetary allocations and structural designs, of course, could not in themselves prevent floods. With flood-control plans unimplemented, the constant scourge of the metropolis lingered. Although the country enjoyed political independence starting in 1946, residents of Manila and its neighboring towns continued to suffer, given the city's obsolete drainage system which had remained unimproved since 1909. Postwar demographic increase exerted added pressure (table 1). The system was also hampered by the inefficient division of labor between Manila's city engineer, who handled drainage, and the Metropolitan Water District,[2] which oversaw sewerage. According to estimates made in the 1940s, half a million pesos were enough to solve the flood problem (Mañosa 1947b, 182–84). Yet all that the administration of Pres. Manuel Roxas could do was allot P30,000 for further studies, done mainly in the form of a topographical survey conducted from 1946 to 1948 (DPWC 1972, 2–3). The move was inadequate but understandable due to the loss of crucial data from prewar studies and postwar budgetary constraints.

The Roxas administration envisioned a project to control the flow of the Pasig River. However, planners realized eventually that the heavy runoff posed a more serious and urgent threat than the river's flow because of the former's frequency of occurrence (ibid., 8). Unfortunately, even before recommendations could be made, let alone implemented, one of the most destructive typhoons submerged Manila and its suburbs for days. Typhoon Gertrude hit the country in September 1948 and exposed the weakness of the state in dealing with disasters; in fact, the floods paralyzed even Malacañang. At the same time, it revealed the bickering between the local (especially Manila's city government) and national governments, as the former accused the latter of being remiss with its responsibilities and bragged about how it aimed to construct massive flood-control infrastructure without the help of Pres. Elpidio Quirino's administration (Loh and Pante 2015, 46–47).

Gertrude was a wake-up call not just to the Quirino administration but also to private entities that something structural must be done to address the problem of floods, especially because private property losses due to recent floods had been estimated to range from P600,000 to P1 million annually. In fact, "at the instigation of the Manila Realty Board," Public Works and Communications Undersecretary Vicente Orosa reactivated the Flood Control Commission and proposed the drafting of a master plan for the drainage not only of Manila but also of the Greater Manila Area (GMA). At this point GMA, a term that emerged in the prewar era, became a useful, albeit unofficial, geographical designation for Manila and its immediate suburbs, mainly Caloocan, Pasay, and Quezon City.[3] Planners saw that the problem went beyond Manila's formal boundaries. Antonio Villanueva, chief flood engineer, headed a special committee composed of state administrators and politicians to handle this matter. The committee completed its study and promulgated the resulting master plan in 1952 (Hoskins 1952, 219).

The 1952 master plan, contained in the two-volume "Plan for the Drainage of Manila and Suburbs" (BPW 1952a, 1952b), wanted a capital-intensive, infrastructure-driven solution to the flood problem. It aimed at the "control of the flood flow of the Pasig river" (Hoskins 1952, 219) by constructing river walls and floodgates along its banks and constructing channels to create a flow diversion from the Marikina River to Laguna de Bay (MPCC 1954). This scheme alone would cost around P5 million. One of the main components of the design was construction of the Blumentritt Intercepting Main (DPWC 1972, 4). A project under the control of Manila's city engineer, it was "designed to drain the water coming from Quezon City" (City of Manila 1955?, 15),[4] costing approximately P2 million. The entire project's anticipated cost was P68 million (Marcos 1976, 40). The project actually followed up on previous state-funded construction works that began in 1948. In fact, minor structures had been completed by 1952, all of them river-control works: the Makati–Santa Ana dike, the Santa Ana–Pandacan river wall, the Lamayan revetment, the NARIC–San Miguel river wall, the Santa Clara creek floodgate, and the Pandacan estero floodgate (Hoskins 1952, 219).

Quirino's flood-control program seemed seamless, but things had already begun to turn awry even before the proposal was finalized. The failure of Congress in 1949 and 1950 to pass a public works bill caused construction to stop on account of insufficient funds. Drainage expenditures for Manila dropped steadily: from P433,224.25 in fiscal year 1946–1947 to P313,717.93 in 1948–1949 and further down to P292,344.14 in 1950–1951. With no adequate internally generated revenue to turn to, the Flood Control Committee recommended that the Blumentritt Intercepting Main be financed by the US Mutual Security Agency (ibid.).

Given the lack of financial resources from the national government, Manila Mayor Arsenio Lacson, a noted political opponent of Quirino, used this situation as an opportunity to shame his nemesis. Echoing the high-modernist language of the Flood Control Committee, Lacson in a 3 January 1958 speech boasted his "gigantic project for the improvement of the Estero de Sampaloc as a main drainage facility" (City of Manila 1958, 5). According to him the city government had allotted "P800,000 as a counterpart fund and may have to appropriate more to fully cover up its allotted share of over one million pesos in this undertaking which is being pushed through by the National Government" (ibid., 6). The subtext of his message was that Manila was more financially stable than Malacañang, which at the time faced stiff opposition in Congress, the branch of government that had power over the purse.[5]

Although Lacson claimed that Manila's drainage improved under his watch (ibid., 17), the continuing problem of floods told a different story. Moreover, succeeding presidents after Quirino did not take the 1952 proposal seriously, despite actions that ostensibly showed their concern for this problem. Implementation was "painfully slow and piecemeal" (Abueva et al. 1972, 45). In 1956 Pres. Ramon Magsaysay approved the issuance of

bonds worth P1.2 million for the Manila flood-control project (Carlos 1956, 478). During his term the Bureau of Public Works (BPW) completed its flood-control scheme that was specific to the Marikina River area (MPCC 1954). In 1962 Pres. Diosdado Macapagal discussed the city's flood-control program with Manila Mayor Antonio Villegas, a fellow member of the Liberal Party who replaced Lacson as mayor after the latter's death in office. Afterwards, Macapagal organized a conference to discuss the said program (*Manila Bulletin* 1962, 1–2). But after everything was said and done, the 1952 master plan remained essentially unimplemented. By 1967, just 8.6 percent of the P178 million budget—substantially higher than the original P67.7 million budget (BPW 1952b, 256)—for the 1952 plan had been allocated and spent. The only structures completed were two partially equipped pump stations, five floodgate structures, and 8.6 km of flood walls and dikes along the Pasig River (Black and Veatch 1969, 10-8). Despite the fact that planners and politicians in the 1950s to the 1960s were aware that the problem of flooding necessitated a supralocal approach, nothing of such magnitude was accomplished in those decades.

High-Modernist Solutions and the Changing Metropolis

The high-modernist paradigm does not simply mean an overreliance on expensive cutting-edge technology. Part of this mindset is the centralization of authority to ensure efficiency, an aspect that was first broached in the 1952 plan, which included Pasay City, Quezon City, and Makati in its drainage scheme. As stated in the proposal, "The project will require a long-range financial program and possibly *a special governmental agency* to coordinate the financing and construction efforts of the City of Manila and the surrounding municipalities affected" (BPW 1952b, 255, italics added).[6] The 1952 plan, however, did not spell out how such an administrative structure should be set up.

By the 1950s the question of an efficient drainage system not only for the city but also for a greater metropolitan area had become more salient due to the new urban geography of Manila and its environs. Rising from the ashes of war, urbanization in the form of rural-to-urban migration and suburbanization had rapidly taken over the city and the nearby towns and further accelerated demographic growth (see table 1). Many of these migrants became informal settlers who had no place of refuge in Manila aside from its marginal spaces, such as estero banks (Jurado 1976b, 10–11).

Urbanization also meant the construction of more permanent structures along the waterways and more paved surfaces for thoroughfares. This combination reduced both the drainage capacity of waterways and the capability of urban land to absorb rainwater, ultimately leading to the increased frequency and ferocity of floods in the metropolis from the 1950s to the 1970s. Navotas, Malabon, Caloocan, Pasay, San Juan, and even parts of Quezon City were not spared (Zoleta-Nantes 2000, 43–44, 65–68; MPCC 1954, 22; Bankoff 2003a, 100–102). Still, despite the apparent relationship between flooding and urbanization, the latter continued unabated (Bankoff 2003a, 98).

The most badly hit during floods were the informal settlers that had mushroomed along the waterways of Manila and its suburbs, as exemplified by the disastrous floods of 28 May 1960 caused by Typhoon Lucille (Tutay 1960; Dwyer 1976, 139; Ramos 1961, 93). According to media reports, "nearly all the casualties were poor people who had to live as squatters on the banks of creeks and dry river beds because there was no other place for them to build their shanties" (Ty 1960, 77).

However, for local officials, slum dwellers were themselves a socioeconomic hazard "not only to morality but also to health and lives of the members of the community" (City of Manila 1958, 18). Their visibility and vulnerability made informal settlers the convenient scapegoat for the flood woes, their propensity to throw garbage in the esteros often highlighted (Laquian 1966, 63; City of Manila 1955?, 15). As such, Manila's drainage committee recommended the eviction of all estero squatters (Hoskins 1952, 219), without an accompanying framework to address or even look into the housing inequalities that are at the root of this situation. Such is the technocratic aspect of high modernism: the neglect of perspectives from the marginalized to avoid impediments to the decision-making process of experts and authorities.

Despite their marginalized position, it would be simplistic to regard the urban poor as merely a menace to the local governments of Manila and surrounding towns. It was a love–hate relationship: come election time, these communities became voting blocs that could make or break the careers of local politicians, not to mention the fact that they could be mobilized for national elections. One consequence of urbanization was the increased political clout of local governments, which were in charge of a growing population and commercial base.

In the postwar decades prior to martial law, the growing power of local governments in the GMA contributed to the tenuous relations between them and the national government. During this period, the notion of an "expanded Manila" became more widely accepted as state agencies began formulating their own definitions of this geographical concept. In 1960 the Bureau of the Census and Statistics (BCS) used "Metropolitan Manila" to refer to Manila, Quezon City, Caloocan, Pasay, Makati, San Juan, Parañaque, and Mandaluyong. Ten years later, it expanded the scope of the term to include Cavite City, Bacoor, Kawit, Noveleta, Rosario, Biñan, San Pedro, Sta. Rosa, Valenzuela, Meycauayan, Navotas, Malabon, Marikina, Cainta, Pasig, Pateros, Taguig, Taytay, Muntinlupa, and Las Piñas. Meanwhile, the Central Bank in 1960 used GMA as a term similar to the BCS's 1960 definition of Metropolitan Manila but with Navotas included instead of Parañaque. The Social Housing Committee of the Office of the President and the National Planning Commission also had their own versions of a delineated metropolitan agglomeration (Metro Manila Research Team 1973, 14–18, 58–62; cf. Abueva et al. 1972, 2–4). These varying conceptualizations betray the vagueness of what GMA or Metro Manila really meant. With no supralocal juridical entity to govern Manila and its suburbs, there was "no body to co-ordinate their often diverging interests and to make overall policy decisions for the urban area as a whole" (Dwyer 1976, 139). Moreover, the Local Autonomy Law of 1959 allowed local municipal boards and city councils to follow their own subdivision and zoning systems, with national agencies playing a mere consultative role (ibid., 140). The Quirino–Lacson rift discussed earlier best describes these national–local dynamics.

Autonomy also meant that local governments in the GMA usually ignored one another (Laquian 1966, 47). Despite the clamor for the political consolidation of its cities and towns, the GMA never became a juridical unit under the postwar regimes prior to martial law. While Magsaysay supposedly supported the proposed merger of Quezon City, Manila, and Pasay, this proposal died with him in 1957. The status quo persisted in the succeeding term of Pres. Carlos P. Garcia. Lacson supported the idea of a merger, arguing that many of Manila's problems went beyond the city borders and affected a much wider area. (Lacson did not explicitly mention flooding however.) In contrast, Quezon City Mayor Norberto Amoranto opposed it but did not elaborate why. Pasay City Mayor Pablo Cuneta did not comment on the issue, although he was reportedly opposed to the proposal (Rotea 1961, 10–14).

The succeeding years showed no progress, as local governments snubbed the issue or engaged in endless bickering. Either way the situation resulted in the inefficient delivery of basic services for urban residents (Laquian 1966, 47; Sicat 2014, 471; Ramos 1961, 116).

Nonetheless, despite the autonomy they enjoyed, local governments were powerless with regard to flooding. As stipulated in the 1952 plan, flood control fell under the jurisdiction of the BPW (IACMM 1973, 80). This arrangement, which left local governments with inadequate resources to respond immediately to floods or build their own flood-mitigating structures, was one reason why floods became more disastrous with the passage of time. By the 1970s, annual losses due to such disasters were assessed conservatively at P40 million (Marcos 1976, 41). In comparison, those that hit the country in 1947 and 1948 caused around P30.72 million and P37.60 million worth of damage, respectively, if we take Marcos's figures at face value. The September 1970 flood would top these numbers, with the amount of damage assessed at P43.60 million (ibid., 43). Definitely, the issue of local governance was just one among many. But then again, with President Marcos's declaration of martial law on 23 September 1972 (officially dated 21 September) things changed drastically in the GMA, with serious implications for the struggle against perennial deluges.

Fighting Floods with Marcosian Metro-politics

When Marcos first assumed the presidency in 1965, his response to flooding in Metro Manila appeared not to have deviated much from that of his predecessors. In fact, he wanted to sustain the 1952 plan, which had been "reviewed and favorably endorsed by the World Bank consultants in 1963" (ibid., 40). In July 1970 he created a presidential committee to study the 1952 master plan and formulate a corresponding strategy. The committee updated the design and proposed a fifteen-year timeline to implement the project, estimated to cost US$300 million. It recommended the creation of a "Flood Control and Drainage Commission" to implement the plan, as well as the floating (no pun intended) of a bond to finance the project. The approach continued to be high modernist (ibid.; Marcos [1973?], 45–46). By June 1971 the government had already spent P11,281,886 on drainage works and P2,097,446 on the dredging of esteros (Marcos 1976, 41).

And then the July–August 1972 floods happened. Typhoon Gloring (international name: Rita) caused a massive downpour, leading to a

catastrophe that crippled the GMA and Central Luzon for a prolonged period of time (Warren 2013; Marcos 1973). It left more than 600 dead and 370,647 homeless (Bankoff 2003b, 74). The "unprecedented damage" it dealt to Luzon was still felt the following year when rice supply fell to a critical level (Task Force on Human Settlements 1975, 1). Given the "intense and widespread clamor" (ibid., 14) for a definitive state response to flooding, Marcos declared a state of emergency (Marcos 1973, 21).

Interestingly, it was amid the flood crisis that Marcos, according to him, conceived of declaring martial law in response to a different kind of emergency. He claimed that in the middle of relief and inspection operations in Central Luzon he received intelligence reports about a conspiracy against him between the Communist Party of the Philippines and a leader of the oppositionist Liberal Party (ibid., 22–24; 1979, 228). As such, he began contemplating his response to the supposed conspiracy while attending to the flood-stricken areas in Central Luzon. In the following month Marcos declared martial law to combat an alleged left–right alliance against the government.

But while the connection between the rise of the Marcos dictatorship and flood control appears merely coincidental based on the above anecdote, the two are deeply intertwined. As I show in the succeeding paragraphs, authoritarian rule went hand-in-hand with Marcos's supposed concern for Metro Manila's constant scourge.

On 7 October 1972, a few weeks after declaring martial law, Marcos (1976, 41) issued PD 18, creating the Metropolitan Manila Flood Control and Drainage Council (MMFCDC).[7] The review of the 1952 plan that he commissioned in 1970 led to the creation of this council. Its jurisdiction covered the cities of Manila, Quezon, Pasay, and Caloocan, as well as the municipalities of Makati, Mandaluyong, San Juan, Las Piñas, Malabon, Navotas, Pasig, Pateros, Parañaque, Marikina, Muntinlupa, Taguig, and Valenzuela (ibid., 10). The Secretary of Public Works, Transportation, and Communications was the designated MMFCDC chair, who at the time was construction magnate David M. Consunji (Sicat 2014, 348–49).The mayors of the involved localities and the Director of Public Works comprised the council membership (IACMM 1973, 91). Programs for construction work and interim maintenance emanated from the Director of Public Works, subject to the council's approval (ibid., 92).

The MMFCDC, however, was in no position to accomplish one of Marcos's priorities upon the declaration of martial law: the reorganization of the GMA into a juridical unit. Hence, on 10 November 1972 he issued Memorandum Order 134, creating the Inter-Agency Committee on Metropolitan Manila (IACMM) to study the issue of metropolitan consolidation. The committee divided its work into seven panels, each focusing on a particular aspect of governance. One panel dealt with the issue of flooding: the Panel on Flood Control and Drainage, headed by both BPW Director Alejandro Deleña and Engr. Cesar E. Gonzales from the National Irrigation Administration (ibid., 1–2).

With power centralized and with World Bank funding, everything went smoothly for Marcos. The committee released its report and recommendations on 31 January 1973, less than three months after the issuance of Marcos's memorandum. In the opening statements of its report the committee gave a dire image of the metropolis should it fail to respond adequately to the problem of flooding. The committee concluded that the woes of Manila and its neighboring areas arose largely from the lack of a unified structure to deliver services and address concerns that were clearly metropolitan in scope. The problem of flooding was therefore due to the failure to implement previous plans because of the lack of coordination among different local governments and between local governments and the national government (ibid., 3, 8). The committee thus proposed the creation of a metropolitan government to address these weaknesses in governance. In the case of floods:

> For example, it matters not how successful Makati would be by walling itself against the yearly floods, granting it can really do so. This will not solve the general flood problem and its residents and officials will still have to come out to interact with the rest of the flood victims outside, if only to survive. Furthermore, by such measure, it is doubtful whether Makati will be able to assure itself of continual immunity from succeeding floods. The comprehensive nature of the problem itself, prevents one local government from making a decision that would absolve the entire metropolitan area from the problem. (ibid., 9–10)

When the IACMM was formed Marcos instructed its members to focus on the four cities of Manila, Quezon, Caloocan, and Pasay, and the municipalities of Makati, Mandaluyong, and San Juan probably because

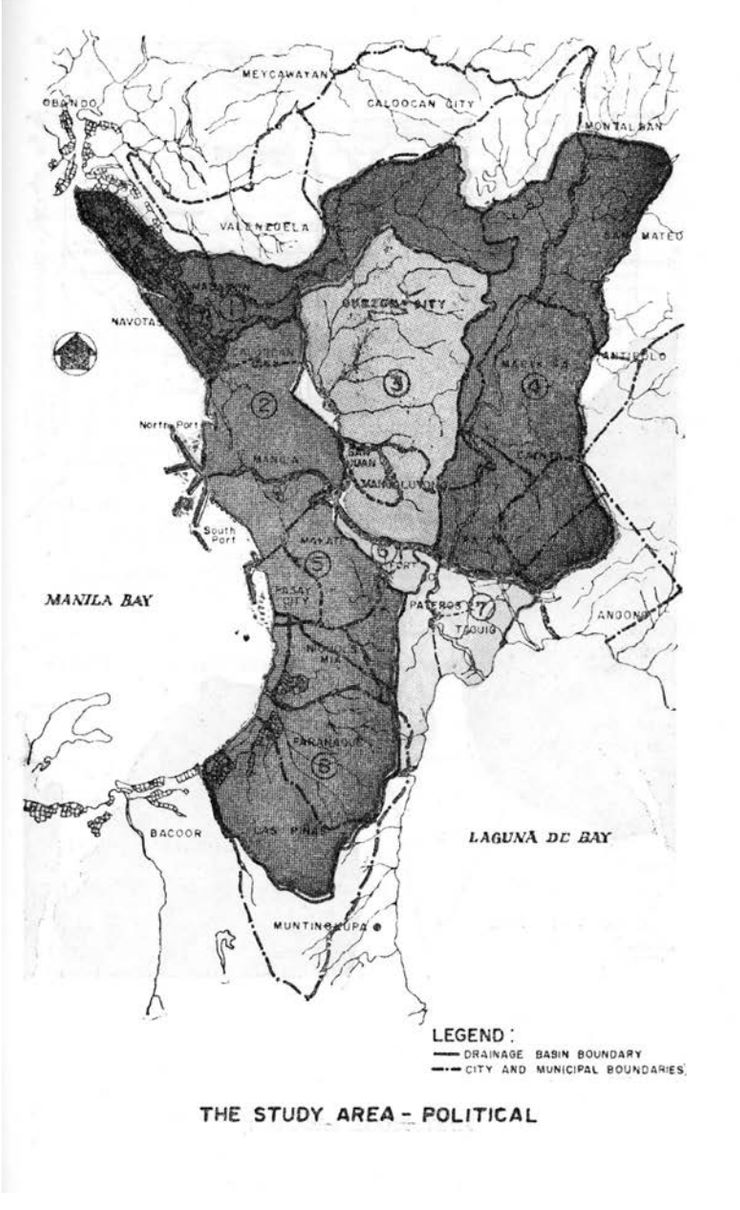


Fig. 1. Map of Metro Manila drainage basin boundary

Source: IACMM 1973, 115

these cities and towns were the most populous in the GMA. But in the course of its deliberations, the committee recommended the inclusion of Las Piñas, Parañaque, Malabon, Navotas, Pasig, Pateros, Marikina, Muntinlupa, Taguig, and Valenzuela, for a total of seventeen cities and municipalities. The rationale was that these localities comprised the jurisdiction of both the infamous anti-riot squad of the Philippine Constabulary, the Metropolitan Command (METROCOM), and the Panel on Flood Control and Drainage (ibid., 11–12). Although not explicitly stated in the committee report, it is highly probable that the panel decided to widen the spatial scope of its study so that it would match the geographical expanse of the MMFCDC (see fig. 1).

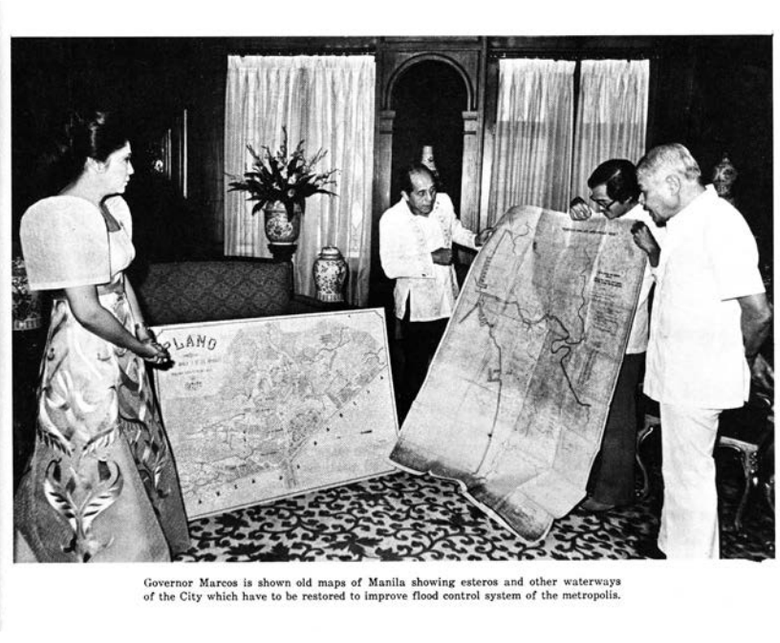
The IACMM Panel on Floods and Drainage enumerated the problems behind flooding in Metro Manila. Firstly, the panel believed that the 1952 plan was weak because the master plan had jurisdiction over a limited portion of the metropolis. The panel also lamented the lack of coordination between the national and local governments in implementing the plan. Furthermore, it noted the vague delineations of the roles and responsibilities of both sides in the MMFCDC. Finally, it cited the meager funding and the absence of a government agency that could address the problem of flooding (ibid., 80–81).

Given these concerns, the committee recommended that the MMFCDC be maintained and strengthened to serve as a system of national–local coordination to address flooding, and that its current geographical scope be expanded to cover the GMA and nearby areas. It suggested that the division of labor between the MMFCDC and the national government be more clearly defined. With regard to the last point, the committee recommended that the BPW be in charge of planning, budget preparation, and execution, in coordination with the MMFCDC. While the BPW would control the technical aspects of the program, the local governments would support and assist it through the use of police powers in implementing laws and ordinances against squatting and illegal garbage disposal (ibid., 81). The IACMM added that once the structures were completed, the local governments would assume responsibility over the management and improvement of these structures. As for funding, the committee called for retaining the Flood Control and Drainage Account Fund, with the Secretary of Public Works having control over disbursements. Lastly, the committee suggested the enactment of laws to protect rivers and waterways from pollution and illegal settlements and to facilitate squatters' relocation (ibid., 81–85).

On first day in office, Governor Imelda Marcos points to squatters along creek that hamper drainage of city. Slums have to be cleared to beautify Manila.

Fig. 2. Imelda Marcos inspecting slum areas along Manila's esteros

Source: Marcos 1976, 46



Governor Marcos is shown old maps of Manila showing esteros and other waterways of the City which have to be restored to improve flood control system of the metropolis.

Fig. 3. Imelda Marcos inspecting old Manila maps as part of the flood-control program

Source: Marcos 1976, 79

Among the IACMM's recommendations, the creation of a juridical metropolitan entity marked a critical departure from the flood-control programs of preceding administrations. Indeed, Marcos was unequivocal in seeking to create such a differentiation. Evidently, presenting this contrast also entailed exaggerations, whether in presenting Marcos in a positive light or in showing the weaknesses of past administrations (Marcos 1976, 40; Task Force on Human Settlements 1975, 14). Nonetheless, the proposed metropolitan entity did become reality under Marcos. Via a supposed referendum on 27 February 1975, GMA residents voted in favor of restructuring the four cities and thirteen municipalities, with the same geographical scope as that of the MMFCDC (Marcos 1976, 41), into an integrated unit based on guidelines to be set by the president (ibid., 8). On 7 November 1975, under PD 824, Marcos created the Metropolitan Manila Commission (MMC) (Caoili 1999, 145–52). The World Bank supported Marcos's move because having a centralized government would facilitate the large-scale projects that it favored (van Naerssen et al. 1996, 173). Obviously, one of the MMC's functions was to coordinate the metro-wide flood-control program (Marcos 1976, 11). As an apparent reminder of the MMC's importance to Marcos, he appointed his wife, Imelda, as the MMC governor.

As governor, Imelda made floods top priority (see figs. 2 and 3). For her Metro Manila had three problems that were "a matter of life-and-death" (Marcos 1978?, 7): floods, transport and traffic, and garbage collection (cf. Marcos 1978a, 260). The other problems of housing, health, and jobs "were just as grave [but] secondary" (Marcos 1978?, 7). Imelda's control over urban affairs expanded when she became Minister of Human Settlements (MHS), a position that Marcos created on 2 June 1978. Her role as MMC governor was officially subsumed to this higher administrative position (Marcos 1978b, 231). But Imelda's increasing arrogation of executive power put her in a collision course with Marcos's high-level technocrats, including Finance Minister, and eventually Prime Minister, Cesar Virata (Sicat 2014, 418–21, 462).

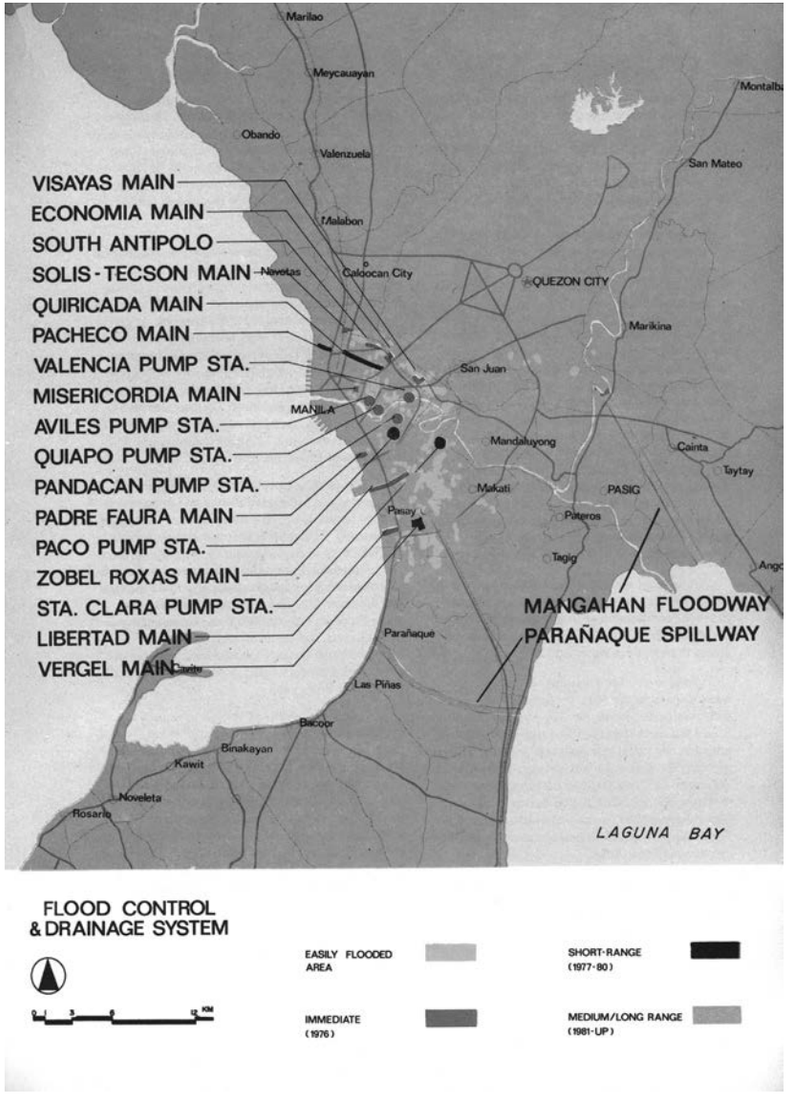


Fig. 4. A map of the major flood-control infrastructures in Metro Manila in the martial law period

Source: NMPC 1976, 49

Authoritarianism and High Modernism

Although Imelda often clashed with President Marcos's top technocrats, technocratic and high-modernist solutions still comprised the default mode of thinking throughout the martial law period (van Naerssen et al. 1996, 172). In fact, she shared with them a liking for such capital-intensive projects, "mega-dreams with mega-budgetary demands" (Sicat 417). Metro Manila's flood-control project was just one example among Marcos's numerous technocratic, high-modernist projects.

Marcos's flood-control program for Metro Manila was unambiguously technology- and infrastructure-driven. Its long-term goal was the construction of large engineering projects to alter river flows and enhance drainage, while in the short term it tried to minimize the interruptions that floods caused in the economic activities of the metropolis (Marcos 1976, 41–50). This dependence on technology was premised on the notion that nature is "tamable." As such, science could be deployed so that floodwaters could be "contained" (Antonio 1974, 24) and "tamed" (Jurado 1976a, 25) and typhoons subjected to "modification" (Juanico 1976) and "moderated" (Kintanar 1976, 2; cf. Warren 2013). As the program progressed, Marcos released huge sums of money for these capital-intensive works: more drainage mains, estero dredging, and pumping stations (Mangawang 1974, 7). The centerpiece of this building spree was an integrated flood-control system to facilitate the flow of floodwaters from Laguna de Bay straight to Manila Bay. This system relied on three gigantic engineering projects: the Manggahan Floodway in Pasig (with an initial estimated cost of P51 million in 1969 that ballooned to P180 million in 1985), the Napindan Hydraulic Control Structure in Taguig (estimated to cost $100 million, or around P600 million based on 1980 exchange rate), and the Parañaque Spillway along Manila Bay (with an estimated cost of P182.9 million). The first two structures diverted floodwaters to the Laguna de Bay, while the third one was planned to channel water from the said lake directly to Manila Bay (NMPC 1985, 49; 1976, 54–56; Marcos 1979, 107; 1980, 322). In the end Marcos's flood-control program was essentially a series of flood-mitigating structures placed in different parts of Metro Manila (see fig. 4).

Because of such dependency on technology and infrastructure, Marcos's flood-control program entailed a huge capital outlay from the government (Zoleta-Nantes 2000, 71). In contrast to what happened in the previous administrations, the MMFCDC clearly delineated funding for national-

and local-level components of the project. On the one hand, the national government was in charge of funding and repairing large infrastructures and projects, including drainage mains, estero dredging, river walls, and pumping stations. On the other hand, local governments had to finance minor construction works, like laterals connected to drainage mains, dikes, and open canals (Marcos 1976, 41–43). In October 1972 Marcos decreed the creation of a Greater Manila Metropolitan Area and Drainage Fund Account to fund the MMFCDC (IACMM 1973, 80). The MMFCDC was even treated as a special case in terms of disbursement: "To assure continuity of work, the release of funds by the National Treasurer should be only ministerial. The Secretary of Public Works can at any time order the release of funds" (ibid., 85). The entire program was projected to cost P2.35 billion initially, but with the inclusion of other municipalities in the project the amount eventually ballooned to P3.30 billion. Of this latter amount, the program allotted P2.35 billion to the national flood-control component, and the remaining P0.95 billion to the local component (Marcos 1976, 44).

But because of the high financial requirements of the endeavor, Marcos had to look for other sources of funding aside from internal revenue. Similar to his other high-modernist ventures, he turned to foreign capital as part of reassuring everyone that the endeavor was feasible fiscally. In early 1972 the flood-control project was already included in a list of national projects slated to be funded by a loan agreement with Japan (IACMM 1973, 84–85; Marcos 1972, 51). Japan's lending arm, the Overseas Economic Cooperation Fund (OECF), granted the loan request of P237.30 million for the flood-control project, but the amount covered national-level initiatives only. Upon receiving the money, the MMFCDC allocated it as follows: P218.53 million for drainage works, P8.98 million for downstream river control, and P9.78 million for services and contingencies (Marcos 1976, 44). In 1974 the Philippines and OECF signed another loan agreement. The two parties met in Tokyo, where "Filipino government engineers also witnessed . . . the bidding for the manufacture of pumps, the supply of accessories, and the construction of flood-gates for Greater Manila's four floodwater pumping stations" (*BT* 1974, 1). The government boasted how this loan would lead to the installation of fourteen "pumps, with a minimum diameter of one meter," in four strategic areas in Manila to improve the speed of drainage: "This means floodwaters caused by extraordinary storms would be drained in seven hours" (ibid., 16). The subsequent mega projects that were built were also financed by foreign sources. On 6–7 November 1975 the Philippine government negotiated a loan with the Asian Development Bank (ADB) for the design and construction of the Napindan Hydraulic Control Structure, which amounted to US$20.89 million (Marcos 1976, 77).

Martial law made it easy for Marcos to access these loans. Before martial law, Marcos was already being criticized by opponents in Congress for his proclivity to incur huge loans to finance questionable projects. To such criticisms the president had to respond:

> We are borrowing money for national electrification. We are borrowing money for Laguna de Bay development project. We are borrowing money for the flood control project in Manila, and I am willing to stand up before anyone and say, these are justified projects, and we will incur indebtedness for these projects because we can pay them back. Our ledger indicates that we are capable of meeting all the amortizations. (Marcos [1973?] 135)

But with Congress padlocked under martial law, Marcos had no need to make such defensive statements. Furthermore, during martial law Gov. Imelda Marcos manipulated for personal and political interests the use of a P500-million calamity fund that was supposed to aid the victims of the 1972 floods (Warren 2013). With no system for checks and balance in place, the flood of loans for capital-intensive projects, especially in Metro Manila, "gave corruption a free rein" (van Naerssen et al. 1996, 176).

But while national projects enjoyed funding from these loans, local flood-control initiatives had to rely on the internally generated revenue of the Drainage Fund Account. The account had three fund sources: (1) proceeds from a flood tax levied on admission tickets of movie houses in Metro Manila; (2) fund releases from appropriations of various public works acts; and (3) proceeds from additional real estate taxes in Metro Manila (IACMM 1973, 85). By June 1975, total revenue from cinema tax had amounted to P26.87 million, of which P16 million had been earmarked for the flood-control programs of Manila, Quezon City, Caloocan, Pasay, and Makati (Marcos 1976, 44). That these were the only local governments to have allocated a budget for local flood-control programs was not surprising, as these were the only areas in the metropolis that had a substantial number of cinemas due to the commercial activities in their localities. Municipalities

like Pasig, Taguig, and Marikina, which could not bank on the cinema taxes, thus became more financially vulnerable. As Imelda Marcos (ibid.) herself admitted, given the dearth of local sources of funding, by 1975, "no work has been started for the local components."

In 1974 alone Marcos released P50.6 million for Metro Manila's flood-control program, "as compared to a total release of only P21 million over the three decades preceding declaration of martial law" (Mangawang 1974, 7). By looking at the capital outlay, it would appear that the Marcos regime did something radically different from previous administrations. Imelda Marcos (1978a, 260) saw in the martial law regime a stark contrast to the so-called decades of bewilderment and neglect of the flood problem in past presidencies. But if one subjected the regime's achievements to closer scrutiny, it would appear that the Marcos regime did not offer anything substantially new. What set it apart was its ability to centralize and hold on to power for an extended period at both the national and local levels.

On the one hand, the execution of Marcos's flood-control program was predicated on martial law and thus the elimination of political opponents in Congress. In fact, the opening lines of PD 18 referred to how a bill to create an integrated flood-control program for the GMA was still pending in Congress when he decided to declare martial law. With the legislature padlocked, there was no one to criticize how he handled the issue or how he generated funding. On the other hand, the effectiveness of the flood-control measure was also guaranteed at the local level. This support at the local level was done by consolidating presidential control at the barangay level (van Naerssen et al 1996, 174–75) and removing the autonomy of local politicians. He even created "barangay disaster teams" that would be mobilized to deliver services during times of disasters (NMPC 1976, 38). President Marcos (1974, 19, 35–36) expanded the role of barangays during martial law because for him these political units were "vastly more representative than a national legislature consisting of a few score elected representatives who eventually become, in more senses than one, distant from their constituents" (ibid., 36). From a tactical perspective, Marcos relied on barangay officials because they were the ones who dealt regularly with ordinary people and income-poor communities, including estero settlements.

Notwithstanding the Marcoses' rhetoric about the integration of Metro Manila being an important catalyst in devolving decision making (Marcos 1976, 47–48), clearly metropolitanization buttressed further centralization. The BPW was in control, and the MMFCDC was more of a rubber-stamp agency. Furthermore, the budgetary system of the MMFCDC discouraged local initiatives because of the concentration of money in the "national component" of the flood-control program, while local governments had to rely on cinema taxes to finance the local components of the flood-control program under their respective jurisdictions. It appears then that at the metropolitan level Marcos simply defanged local opposition purportedly in the name of state efficiency.

In essence, mayors had surrendered their powers to two institutions: the MMFCDC and the MMC. Whoever held the public works portfolio in Marcos's cabinet chaired the MMFCDC. Marcos even gave considerable discretionary powers to the BPW in dealing with demolition of flood-hazard structures (IACMM 1973, 95, 99), which often meant violent evictions of slum dwellers. Meanwhile, the MMC was under Gov. Imelda Marcos, who also reported directly to the president. For the technocrat Gerardo Sicat (2014, 416), better coordination among the mayors enabled MMC governor Imelda to conduct an effective flood-control program, aside from undertaking other administrative improvements; but in reality, "coordination" was nothing but subservient compliance. When the IACMM (1973, 16) proposed that the MMC be placed under the Office of the President, it cited as an example the case of Bangkok, where the newly created position of Bangkok Governor was given the rank of minister and was thus part of the cabinet. That Thailand became the IACMM's inspiration is instructive because Bangkok's shift to metropolitan governance also took place in the context of an authoritarian government. On 13 December 1972 Thai dictator Thanom Kittikachorn created the Bangkok Metropolitan Administration, which was headed by an appointed governor, and in the process abolished local self-government to stifle urban-based dissent (Rüland 1996, 35). Although the position of the MMC governor did not get a cabinet rank, it made the first lady the "de facto vice president" (Seagrave 1988, 259).

Similar to what transpired in previous administrations, the flood-control program under martial law regarded slum communities living near the waterways as the "biggest obstacle" (Marcos 1976, 47) to state objectives rather than as victims of structural inequalities, let alone agents of change. The state viewed them as a nuisance because they polluted esteros. Consequently, state response, both at the national and local levels, consisted of slum clearance, "pursued with vigor and no let-up" (ibid., 49), and of finding ways to deter

illegal construction along the banks of rivers and esteros (ibid., 47). At the national level President Marcos created a Recovery Committee on 1 March 1976, via Letter of Instructions 376, chaired by Justice Secretary Vicente Abad Santos to "recover" waterways from illegal settlers, i.e., to facilitate evictions (*BT* 1976a, 5; Jurado 1976b, 11). The BPW was also involved. It spent P200,000 in fiscal year 1972–1973 for the relocation of squatters along Metro Manila's esteros. Moreover, it earmarked and spent money for slum removal in specific waterways: P100,000 to demolish shanties in three esteros in Manila—Estero de la Reina (P79,833); Estero de Alix (P4,407); Estero de San Miguel (P15,760)—and P50,000 for slums in Parañaque River (BPW 1973, 121–23). Imelda was in charge at the local level. Under her, more demolitions took place. To remove shanties along the Pasig River, she even had "armed forces ladies in the forefront of [her] beautification drive" (Office of the First Lady 1975, 19; cf. Jurado 1976a, 21). The state transferred evicted households to faraway relocation sites, such as Dasmariñas, Cavite, located 28 kilometers away from Manila (Jurado 1976b, 35), thus making it harder for them to find viable sources of livelihood.

Typhoons and floods in the martial law period became a convenient justification for further evictions. An illustrative case is Typhoon Didang (international name: Olga), which hit Metro Manila and Central Luzon in May 1976. Despite the implementation of a large-scale flood control system starting in 1972, the metropolis was submerged for days, forcing President Marcos to call for an investigation of "the drainage mess" (Mangawang 1976, 1). Clearly, Didang caught Marcos's public works engineers by surprise. As a result, the plan of putting walls along the Pasig River and installing four pumping stations in Manila (Pandacan, Aviles, Quiapo, and Valencia) became their top priority (Casayuran 1976, 1). At the same time, the devastating floods served as the rationale for the state to demolish estero settlements. In a 14 June 1976 meeting Metro Manila mayors agreed to target an average of 1,945 relocated families per day with varying dates of completion per city or municipality (Jurado 1976b, 35). The government executed the plan accordingly. Based on a report submitted to President Marcos by Gen. Gaudencio V. Tobias, General Manager of the National Housing Authority (NHA), Action Officer for housing of Metro Manila and former METROCOM commanding general (1968–69) (Soriano and Retizos 1981, 367), the government had already evacuated 11,300 families from estero banks in different parts of the metropolis in response to the typhoon.

Table 2. Number of families evicted by the NHA from thirteen esteros/waterways after Typhoon Didang, 22 June 1976

LOCATION	CITY/MUNICIPALITY	NUMBER OF EVICTED FAMILIES
Estero de Valencia	Manila	134
Estero de Sampaloc	Manila	197
Estero de San Miguel	Manila	82
Estero de Maypajo	Manila	350
Estero de Kabulusan	Manila	177
Estero de Sta. Clara	Makati and Manila	453
Estero de Quiapo	Manila	105
Navotas River	Navotas	183
Malabon River	Malabon	578
Salaysay Creek	Caloocan	82
Casile Creek	Caloocan	1,050
Parañaque River	Parañaque	36
Dilain Creek	Pasay	221

Source: *BT* 1976c, 12

The report identified thirteen esteros "slated for clearing . . . [and] considered 'critical' to the success of the Metro Manila flood control program" (*BT* 1976c, 1). From these thirteen esteros, 3,648 families were uprooted (table 2), although the government targeted 7,500 families (ibid., 12).[8] Quezon City's own government also conducted its post-Didang eviction scheme, with some "1,500 squatter families living along creeks, rivers, and other waterways . . . relocated temporarily on a government property in the outskirts of the city upon the approval of [the NHA]" (*BT* 1976b, 24). Ironically, even the state's resettlement site in Dasmariñas suffered from Typhoon Didang, hampering construction and relocation efforts (Jurado 1976b, 35).

In Orwellian fashion, the NHA and Imelda, as MMC governor and minister of human settlements, rendered thousands of metro residents homeless and effectively criminalized those who could not afford decent shelter. Imelda justified her actions thus:

> We had to move some of the squatters, which in some quarters is not a very popular decision; but then, is it fair that a few thousand should be privileged to usurp the esteros and inconvenience the lives of millions? It is not for lack of compassion that we are moving them, but out of compassion for the welfare of all. It is also compassion that

> moves us to effect their relocation in the most gentle way possible. But we have to act now, or perish. (Marcos 1978a, 260)

Imelda's efforts in flood control were done not so much out of her concern for the safety of estero-dwelling residents but out of her interest to beautify Metro Manila to attract foreign tourists and investments (Manapat 1991, 2; Office of the First Lady 1975, 19; Warren 2013). Her "beautification" program for the metropolis was thus nothing but a coordinated state-sponsored attack against the urban poor designed to remove "urban excess" (Tadiar 2004, 146–47). The greater tragedy in the treatment of slum dwellers lies in the fact that they were far from being parasitical to the city: "One may even assert that the massive construction projects launched by the Marcos government and the companies owned by Marcos's cronies during this period *required the existence of these urban slums* as a source of cheap labor" (Manapat 1991, 16–17).

While the flood-control program stipulated that evicted slum dwellers had to be relocated, it said nothing about how to sustain the relocation sites or to address the roots of why slum communities existed along waterways in the first place. Its only provision to approximate this concern was a proposal in the master plan to cover strips of suitable estero sections with wood of about 80 to 100 meters in width and convert the said spaces into housing units (Marcos 1976, 50)—a solution that could only compound the flooding problem. Moreover, although the MMFCDC recognized illegal encroachments by large residential buildings and businesses, which were "widespread and common," it seemed resigned to the state's helplessness and failure to propose a solution to address the situation: "To claim back these portions of esteros will certainly take much time and entail much frustrations for city and national authorities. If squatters can go to court and get restraining orders, moneyed individuals who are responsible for these encroachments can do so more easily" (ibid., 47). Apparently, Marcos's high modernism had its limits. The nonpoor who put up buildings on esteros and obliterated passageways were left undisturbed. Moreover, not all estero-dwelling communities were unorganized and easy to coerce. At the same time, Marcos's authoritarianism sought popular legitimacy and depended to an extent on populist platitudes; hence, the regime could not simply evict all communities and other obstructions along esteros. In many cases the regime's "strong arm and inhuman tactics" produced the opposite effect: urban poor communities organized themselves and created alliances with the religious, student, and other sectors to defend their rights (Ramos-Jimenez et al. 1986, 44)

Nevertheless, for the Marcoses and their technocrats, evicting slum dwellers paid off (Marcos 1978?, 7, 12; Mangawang 1974, 1): their self-assessment stated that the flood-control infrastructures, "which the Government is undertaking at a vastly accelerated pace, is a major stimulus to economic activity. It has both hastened the recovery from the disastrous floods in 1972 and spurred industrial growth, rural and urban development, land reform, tourism and employment" (BNFI 1975, 26). Still, despite the massive interventions and dislocations caused by Marcos's flood-control campaign, its success was partial at best. Metro-wide floods continued to plague Metro Manila during the martial law years. Moreover, Marcos limited his actions to relief and rescue efforts. In 1974 Marcos reported that the total damage of recent floods in the metropolis and Central Luzon had reached P68.17 million in infrastructure alone. Amid these flooding incidents, Marcos (1974, 22) could only point to the construction of flood-control structures as still ongoing. Typhoon Didang in May 1976 was déjà vu for Marcos and Manila's drenched and dog-tired residents (Warren 2013).

In Marcos's last decade in power (1976–1986), strong typhoons and floods continued to batter Manila periodically (ibid.), as Imelda remained persistent in removing estero communities.[9] By the time Marcos was ousted from Malacañang in 1986, the projected flood-control infrastructure was only partially finished. Metro Manila had at least nine operational pumping stations, thirteen floodgates, one revetment, an 11-kilometer gravity wall along the Pasig River, along with twenty-one improved esteros (36 kms) (NMPC 1985, 49). While the Napindan Hydraulic Control Structure was finished in 1983, the Manggahan Floodway was completed only in 1986, while the Parañaque Spillway, due to financial constraints, awaits to this day advancement beyond the blueprint stage (Mendez 2009).

Nevertheless, these incompletely implemented infrastructures could do nothing to prevent floods, which even became more ferocious in the postauthoritarian Philippines (Zoleta-Nantes 2000, 64)—the most telling evidence of failure in Marcos's technocratic approach. As Ricardo Manapat (1991, 2–3) put it, if ever the Marcoses achieved any measure of success in their flood-control efforts, it was "in clearing selected areas of Manila and its suburbs of several squatter communities which were not only eyesores for foreign visitors but were also an uneasy reminder to those who passed by

the slum areas in their air-conditioned cars that not all was well in the world which they lived."

Postscript for a Postauthoritarian Rethinking of High Modernism

The intertwining of politics and environmental management did not begin with Marcos. The introduction of a man-made drainage system in 1909 signaled the start of high-modernist state mechanisms to address flooding in Manila. Its implementation was part of an American colonial state ideology that sought to install modernity and thus project the stability of the US imperial project in the Philippines. When the country attained formal independence in 1946, flood control remained a politically sensitive issue. For example, the decentralized character of Philippine postwar politics manifested in how high-modernist state efforts to mitigate flooding were stalled for decades, notwithstanding the creation of a 1952 master plan. Local politicians, such as Lacson, were powerful enough to thwart the objectives of national officials, including the president himself. The linked issues of metropolitanization and informal settlements along esteros distinguished this period from the previous one. Although both issues were already apparent prior to the Second World War, during the postwar period these concerns became pressing.

The consolidation of power at both the national and local levels separated the Metro Manila flood-control programs in the pre-Marcos period from those in the Marcos period. Warren (2013) describes it cogently as the "vertical integration of the Marcos administration" in disaster response. Ostensibly, the martial law period presented a case study in the democracy-versus-efficiency dilemma (Laquian 1966, 52): that whereas in the pre–martial law period, democratic processes hindered the passage of critical bills and led to unproductive squabbles at the local level, it was only under Marcos's dictatorial rule that the 1952 plan was implemented fully and metropolitan mayors were unified. The Marcoses and their technocrats obviously held such a view. It was a paradigm that some academics criticized at the time, arguing as they did, for the "paradox of local autonomy and efficiency" (Abueva et al. 1972, 52).

Then again, the democracy-versus-efficiency dilemma that the Marcoses capitalized on was a false dichotomy: in spite of the centralization of power under their regime the administrative efficiency they brandished was but a mirage as seen in their failure to complete the project, remove all estero communities, and most importantly, prevent massive floods in the metro—a failure that remains apparent to this day. In fact, metropolitan centralization never improved the delivery of other social services (Rüland 1985). Perhaps it is best to reflect on this point by analyzing not the contrast but rather the continuity between the pre-Marcos and the martial law periods. Clearly, it was a continuity of the technocratic, high-modernist paradigm. All the hallmarks were there: from the dependence on capital-intensive solutions to combat the flood, the sources of funding, and the reliance on expert planning to the presence of a metropolitan structure of governance with no measure of grassroots participation. If anything, what Marcos accomplished was attenuating technocracy and high modernism and expanding their scope to all areas of governance. Yet, despite all these technological and administrative innovations, Manila could not escape from its conundrum. The reasons behind the failure to solve flooding are of course multifaceted. The irony, however, is that the state's high-modernist approach to give Metro Manila an urban facelift—from raising street levels as a remedy to floods to the reclamation of Metro Manila's foreshore areas—contributed to the very problem it tried to address (cf. Black and Veatch 1969, 10-1).

Marcos's failure seems more apparent if compared with the experience of Singapore under the authoritarian and high-modernist regime of Lee Kuan Yew's People's Action Party (PAP). However, a nuance to this stark contrast must be made, in view of how Singapore's recent floods have revealed the shortcomings of the PAP's flood-control program (Loh and Pante 2015, 51–52). If PAP's bureaucratic efficiency could not guarantee a flood-free future for a well-planned city-state, then Marcos's attempt to do the same for Metro Manila was bound to fail as well. High modernism coupled with corruption and the lack of checks and balances sealed the fate for the dictator's costly project.

Three decades have gone after the EDSA People Power, yet the technocratic, high-modernist solutions that characterized Marcos's regime persist in the postauthoritarian Philippines. Although the Corazon Aquino administration (1986–1992) reversed some of Marcos's decisions—most notably the transfer of the responsibility for flood control and the Flood Control and Drainage Fund Account from the Public Works department to the MMC (present-day Metropolitan Manila Development Authority [MMDA])—the metropolis still depends on the flood-control structures that

were built and formulated during the Marcos era (Aquino 1986). There is also a lingering fetishism for mega projects and the reformation of social behavior (Zoleta-Nantes 2000, 68–70). Moreover, slum demolitions in the metropolis have continued, especially in so-called danger zones that include estero banks (Ramos-Jimenez et al. 1986, 44).

Of course, floods cannot be addressed without drainage structures or the application of scientific knowledge. But as the history of twentieth-century Metro Manila shows us, overreliance on technology has not led to positive results. Worse, it has come at the expense of already vulnerable slum dwellers (Warren 2013). As the fall of the Marcoses signaled the emergence of an alternative disaster management framework, one that seeks to democratize decision making by looking at the community level as the locus of genuine participation, there is perhaps a new turning point in the continuing narrative. Indeed, what is now regarded as community-based disaster management was a reaction to the authoritarian methods of the previous regime (Loh and Pante 2015, 52). Rather than relying heavily on high-end technology and expertise, this new framework incorporates the "indigenous knowledge" of the victims themselves and considers the complexities and social dimensions of natural disasters. Indeed, the integration of "indigenous knowledge" into flood-control schemes has been seen in community-based disaster management. Although far from perfect, it is nonetheless promising given its slant for democratizing the decision-making process (Loh 2014). Whether this shift is strong enough to supplant the enduring bias for high modernism and solve flooding is something we still have to see.

Abbreviations Used

BCS	Bureau of the Census and Statistics
BNFI	Bureau of National and Foreign Information
BPW	Bureau of Public Works
DPWC	Department of Public Works and Communications
GMA	Greater Manila Area
IACMM	Inter-Agency Committee on Metropolitan Manila (est. 1972)
METROCOM	Metropolitan Command, Philippine Constabulary (est. 1967)
MHS	Ministry of Human Settlements (est. 1978)
MMC	Metropolitan Manila Commission (est. 1972)
MMDA	Metropolitan Manila Development Authority (est. 1995)
MMFCDC	Metropolitan Manila Flood Control and Drainage Committee (est. 1972)
MPCC	Marikina Project Coordinating Committee (est. 1954)
NMPC	National Media Production Center
NHA	National Housing Authority (est. 1975)
OECF	Overseas Economic Cooperation Fund, Japan
PAP	People's Action Party, Singapore
STII	Science and Technology Information Institute, Department of Science and Technology

Notes

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1 "Metro Manila" refers to the conurbation known as the National Capital Region, which is composed of sixteen cities and one municipality. "Manila" denotes the city of Manila, one of Metro Manila's cities.

2 The Metropolitan Water District was established in 1919 as a public corporation that supplied potable water to Manila and its neighboring areas, such as Quezon City and Makati (Mañosa 1947a, 142).

3 The "City of Greater Manila" became an official entity during the Second World War. In December 1941 Quezon enlarged the geographical scope of Manila to include Quezon City, Caloocan, San Juan, Mandaluyong, Makati, Parañaque, and Pasay and declared the newly created local unit an open city to prevent it from being destroyed by the Japanese occupation forces. It was dissolved after the Japanese occupation (Crisostomo 1971, 23).

4 This source has no pagination.

5 The Nacionalista Party swept Quirino's Liberal Party, 0–8, in the 1951 senatorial elections. Even Senate Pres. Mariano Cuenco, a Liberal Party candidate, lost his bid. Lacson was one of the main figures of the Nacionalista Party.

6 A geographical term used mainly by engineers and environmental planners, the Manila watershed "covers 5,840 hectares, approximately embracing the City of Manila, Pasay City, the Municipality of Makati, Rizal Province, and part of Quezon City" (DPWC 1972, 1).

7 The full texts of Presidential Decree (PD) 18 and the eventual amendments to it in PDs 18–A and 18–B can be found in IACMM 1973, 87–97.

8 The *Bulletin Today* article on which this table is based misspelled Estero de Kabulusan as "Estero de Kalubusan."

9 Ramos-Jimenez et al. (1986, 42) identify mid-1982 as the period of Imelda's "renewed and determined effort at slum clearance and relocation." The main targets were estero dwellers, who were dumped in undeveloped relocation sites (ibid., 55). Ramos-Jimenez et al., however, did not explain why mid-1982 saw heightened activity in terms of evictions.

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