Waste Works

Vital Politics in Urban Ghana

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Preface

I did not initially intend to write a book about urban sanitation and the politics of human waste. I came to Ghana's city of Tema interested in infrastructure and the interplay of urban planning and governance in the lives of urban dwellers. As I investigated infrastructural form and functioning in this West African city famous for its planned communities, modernist architecture, parks, greenways, and expansive container port, waste emerged as a recurring theme. Debates about norms, responsibilities, and the very nature of human excreta as burden or asset rose to the fore. I realized Tema's wide-ranging sanitary infrastructures offered novel solutions to citywide dilemmas even as they sparked contestation. Indeed, rather than singularly reflecting the heavy hand of centralized planning for which the city was known, the arrangements I encountered are largely shaped by urban residents from across class strata.

From a study of infrastructure as a means of governance, my research shifted to waste and infrastructure as vibrant sites of political negotiation. The more I paid attention to the composition, operation, and design of sanitary infrastructure, the more I noticed that complicated the well-worn script of high modernity. The popularly devised excremental infrastructures I came upon in Tema offered grounds for collective and individual empowerment and recognition despite the convoluted inheritance of midcentury sanitary design. Though built on the body's most base condition, they enhanced human dignity and public good in the face of waning state capacity and inadequate international fixes.

Ghanaian society prides itself on tact and propriety, and conventionally shrouds intimate bodily functions. Bringing these issues to the fore is thus a delicate matter, exposing class, cultural, and generational divisions. I offer

my account with utmost respect for those who opened their infrastructural and experiential worlds to me. I hope these stories of urban problem solving do not provoke rancor or embarrassment. In sharing the details of urban practice, I stand in solidarity with urban residents who push the boundaries of urban planning and reveal the blind spots of received norms in order to serve pressing urban needs on their own terms.

I take inspiration from the growing ranks of Ghanaian artists, activists, and members of the urban underclass who speak directly to taboo topics in order to enable more effective and inclusive problem solving and social policy. In a cultural setting premised on hierarchy and deference, they expose entrenched norms and enforced silences on the subject of human excrement. These sentiments are evident, for instance, in David Comrade Sedi Agbeko's conceptual art, Henry Obimpeh's installations (pictured on the cover), and Wanlov Kubalor's popular music, and in community-led sanitation campaigns such as "Let's Talk Shit." This book contributes to these wider social and political projects through its frank discussion of human waste and waste politics across Ghana's city of Tema.

My goal is not to discredit Tema's standing as a model city typically celebrated for its efficient urban design, social mobility, and cosmopolitan outlooks. Rather, I draw attention to the hidden underpinnings of Tema's apparent elegance and efficiency. Forged largely by working-class residents as well as more prosperous citizenry, these interventions actively challenge the limits of inherited urban infrastructures and ideals. I argue that they are a formative arena of urban political imagination and mobilization. Resisting claims of success or failure based on abstract norms, the book examines the functional and expressive potential of these arrangements in situ.

I began research for this book in 2009 and continued through 2016, spending several weeks to several months a year in Ghana. After conducting several years of research in northern Ghana in the 1990s (see Chalfin 2004), I first visited Tema in 2000 in the course of a new project on sovereignty and border controls at the city's container port (see Chalfin 2010). When I passed through the city center on my way to the shipping harbor, the city struck me as quiet and contained in comparison with the dynamism of Ghana's capital, Accra, and the working-class Ga suburbs of Teshi and Nungua occupying the coastline between them. Once I turned my back on the port and took a hard look at the city in its own terms, Tema reemerged as a place of fascinating complexity with depth and creativity of its own despite the heavy hand of the city's planning authority.

I am indebted to Marina Ofei-Nkansah for enabling me to see Tema anew. A longtime resident, youth advocate, and former nurse in one of Tema's main clinics, and my primary research assistant, Ofei-Nkansah showed me the many sides of Tema well before the full contours of the project were clear. We walked through neighborhoods to survey midcentury architectural gems and capture the rhythms and layouts of Tema's carefully orchestrated urban scheme. Through Ofei-Nkansah, I learned about the city's double history as a place of middle-class upward mobility and as a site of displacement built on indigenous lands and the labors of an urban underclass.

Ofei-Nkansah brought me to Tema Manhean, where Tema's original residents were forcibly resettled to make way for the new city in the early years of Ghanaian independence. As we scoped out Manhean's subdivisions, rows of public shower houses marked by high walls and raised clusters of PVC pipe and spigots caught my eye. I soon learned that many contained public toilets. Unlike Tema's core communities, where the neatly built concrete-block flats and semidetached homes were equipped with piped water, electricity, and individual household toilets and bathrooms, only a tiny percentage of Manhean residents had toilets, baths, or working taps in their homes. Instead, public toilets remained from Tema's mid-twentieth-century founding, spaced at regular intervals across Manhean's streetscape. Through the counsel of Manhean toilet manager and community activist Solomon Tetteh, I became aware of the long-standing politics of public toilet operation and upkeep. Attracting the claims of political party activists and traditional and municipal authorities, and the counterclaims of residents, in these public spaces the violations of resettlement were subtly replayed.

Tetteh also shared news of a public toilet that was being resurrected decades after being abandoned by city authorities. Faint outlines of buried pipes and fixtures were visible beneath the dirt and rubble. This was the work of a fellow waste-entrepreneur and activist, Kwame Enyimayew. The worldly Enyimayew was one of the first children born in the new city, where he grew up before departing for university and the United Kingdom. Along with his abundant technical expertise, he voiced endless ideas of what the public toilets could be, from community centers to learning spaces and polling places. He also revealed his knowledge of the full gamut of waste infrastructure in and around Tema, including sewage treatment ponds under construction and the city's original sewage outfall at Paradise Beach. I realized this was the tip of a much larger, multilayered system, part functioning, part frozen in time. I began to see the logic of deciphering the city—its aspirations, in-

equities, and alternatives—through its sanitary underground. Crystalizing this sentiment, I visited Ziginshore, an informal settlement built upon the accumulated waste of Tema's industrial zone at the edge of Chemu Lagoon. Here, Enyimayew had constructed a massive public toilet complex for the transient populace who worked at the port and fishing harbor. He was building an adjoining hostel and had plans for a waste-fueled biodigester to provide power for the complex.

Attuned to the heavy hand of Ghanaian bureaucracy from my earlier research on Tema's seaport, alongside my introduction to the city through its infrastructural subterrain I sought to understand the official conventions and intentions of urban governance and public provisioning. I approached Tema's joint planning and governing body, the Tema Development Corporation (TDC). After approving of my credentials, the longtime public relations officer shared a pile of old photographs he had hastily gathered when the TDC's original office blocks were demolished. Attesting to the importance of Tema to Ghanaian nation-building, they included numerous images of Ghana's independence leader and first president, Dr. Kwame Nkrumah. A sign of Tema's international standing, there were images of African heads of state and a picture of Queen Elizabeth inspecting models of the city.

The following year I sorted through maps, blueprints, and drawings guided by the TDC's chief archivist. These were not PR images but the nuts and bolts of the city-building created by a new generation of technocrats—planners, draftsmen, architects, surveyors, typists, and health officers—in the early years of Ghana's independence. Most prominent was the imprint of Greek urban planning firm Doxiadis Associates displayed on report covers, serials, and rolls of crisp vellum. Although Tema was built by and for Ghanaians for the purpose of national development, design and construction specs were largely outsourced to Doxiadis's planning team, in residence at the TDC for much of the 1960s and 1970s.

The site maps and building plans in the TDC's collection, though in poor condition, provided an institutional bedrock across which I could trace links and layers. Sanitation was a persistent subtext connecting the different sections of the city and the past to processes still in train. I came upon contour maps of water courses and drawings intended to guide installation of drainage pipes. There were plumbing catalogs and studies to determine the ideal size and configuration of bathing areas and water closets. Visible as soon as one started to look for it, here was a point of entry that could be read across Tema's varied urban plans and scales. It was also unfolding around me as

I relocated from Accra to lodge in Tema's core. While I admired Tema's well-preserved midcentury architecture, it was not unusual to see sewage trucks siphoning spills from burst pipes or puddles left from overflowing manholes. Alleys surrounding Tema's main market were often blocked to permit replacement of spoiled underground pipes. Local blogs and news reports shared residents' complaints, spanning the gamut from open defecation to inoperable donor-built sewage treatment plants. Clearly, sanitation was a matter of concern to current residents, much as it had preoccupied planners and politicians in the wake of new nation-building.

I learned from residents the confusing terms of accountability and jurisdiction surrounding urban sanitation between the TDC and the city's administrative body, Tema Metropolitan Assembly (TMA). The director of waste management confirmed this point. On a tour of internationally funded sewage treatment ponds, he explained their demise and shared his own progressive vision of sanitation for the city, which posed waste less as scourge than as opportunity. Technicians invited me to join them on site visits and inspections. I shadowed engineers at Tema's main sewage pumping station. As they explained the system's operation, they articulated a sensorial sympathy with the materials under their control. Common among waste workers elsewhere in the world and indicative of the interplay of human and nonhuman agency in waste work, it spurred me to think about what I eventually came to call "infrastructural intimacy." This dynamic was also evident as I followed the trail of sewage complaints and tracked interactions among neighbors, repair crews, and local political representatives. Bringing to the fore the status of waste as an agent and object of political negotiation, even in the city's middle-class neighborhoods it became apparent that Tema's infrastructural underground was not an invisible media of interconnection but actively debated and recomposed by residents. Waste, in short, was a political object in its own right.

My research concerns shifted from waste management as means of political suppression to waste and waste infrastructure as sources of self-determination and collective claims making. It was apparent that sanitary infrastructures were not simply the ambit of technical experts. Large-scale solutions were being formulated from within Tema's urban communities, at once correcting, supplementing, and subverting received sanitary technologies and associated models of urban order. Alongside the tensions and overlaps of urban planning schemes and do-it-yourself urban survival strategies, metalevel questions about the place of private bodily processes in the

organization of public and collective life rose the fore. Evident in the unsettled terms of urban sanitation stemming from systems externally imposed without the full means to sustain them, the allocation of responsibility for bodily processes and outputs was perennially unresolved in the city.

While these ideas percolated, I had yet to come upon my final case study: Tema's satellite settlement of Ashaiman. I visited Ashaiman in the 1990s to see relatives of my host family in northern Ghana and was unaware it was founded in the 1950s as a labor reserve for the new city of Tema. Ashaiman gained standing as an autonomous municipality in 2008. Sanitation was a centerpiece of urban reform in Ashaiman, denied the infrastructural inputs of its sister city. With few government-provided facilities or a centralized sewage system, residents relied on hundreds of privately built public toilets located in or attached to residential space. Serving urban needs when the municipality could not, Ashaiman's case affirmed my hunch that waste and sanitation were leading vectors of urban political activism across Tema. A further indication of a new political and cultural economy of waste afoot, private commercial toilets in Ashaiman were associated with status attainment for customers and proprietors alike.

As I parsed the theoretical resonances of my findings in Tema, prevailing frameworks addressing the capacity of the modern liberal state to simultaneously harness and restrict the body as a political object offered important starting points. Yet they ultimately proved inadequate. The hard-won realities of Tema's citizen-driven infrastructural exceptions pointed to fissures in these much-replicated orders. Taken together, Hannah Arendt's discussions of bodily labor, Georges Bataille's ideas about power's heterogeneity, and Bruno Latour's conception of actor networks and nonhuman agency offered theoretical traction. Informing what I eventually came to term the "vital politics of infrastructure," the case of Tema revealed the never fully containable force of vital materials—human bodies and bodily excreta included—and associated infrastructures. Full of life and essential to it, they are doubly vital. Despite city founders' intention to use large-scale urban infrastructure to imprint individuals and constrain collectivity, the dynamic mix of human necessity and organic and inorganic forces renders these systems unstable. In turn, I realized, they are critical to crafting alternative infrastructural arrangements and enabling unscripted political outcomes.

My juxtaposition of social theory and the lived realities of urban sanitation in West Africa is both deliberate and jarring. I take inspiration from

feminist and antiracist scholars such as Carol Pateman and Charles Mills, who return to classic theoretical precepts in order to correct and confound their normative assumptions and deficits. An ethnographic account of the afterlives of postwar high-modernist infrastructure offers a window on the cracks, gaps, and lapses in the theoretical armature of modernity and an opening to see how people formulate infrastructure—and lives—within, around, and against its strictures and possibilities. Following Bruno Latour's methodological impulse to locate the political empirically, I argue that putting the base facts of life in the global South in conversation—not just contention—with social theory is an important step in advancing "theory from the South." Such a move avoids confusing "theory *from* the South" with assertions of "theory *for* the South" and the risk of theoretical-territorial essentialism tying theory—and people—to fixed locations. Challenging narrow understandings of theory's emplacement is part and parcel of recognizing Africans as actors in, not passive recipients of, modernity's inheritance, whether seamless citywide sewage systems or grand theories of human progress.

Alongside the social scientific claim that historical experience can be theorized is the companion point that theory has a history. That is, theoretical precepts emerge out of distinct historical junctures that transcend singular locales. The theorists I draw on in my analysis of late modern infrastructural exigencies in Ghana are part of the same world-historical shift of postwar modernization that resulted in rendering the city of Tema a paragon of African progress. Case in point, Arendt and Tema's founding figures Kwame Nkrumah and Greek urbanist Constantinos Doxiadis were all students of classical philosophy and deeply invested in rebuilding and making sense of the post–World War II world. Indeed, Tema residents, like Arendt, are heirs to postwar internationalism's paired projects of modern state-building and city-building. Other theoretical propositions I bring into the discussion of Ghana's postcolonial infrastructural experiments, namely those of Walter Benjamin and Georges Bataille, are likewise born from the same forces of radical displacement—from the disruptions of the Holocaust to the eruptions of the atomic bomb—that produced the city of Tema. Seventeenth-century Thomas Hobbes, whose *Leviathan* also provides a theoretical fulcrum for the text, is certainly a historical outlier in this regard. However, recognizing the diverse logics of nature encapsulated within the state form, Hobbes speaks to foundational modernist precepts—and tensions—long suppressed, which claim a durable presence in the course of urban restructuring in Tema.

Finally, historicizing theory requires situating my own perspectives and preoccupations. I completed this book amid the uncertainty and enforced stasis of the 2020–21 coronavirus pandemic. During that time a final conceptual frame emerged. What I gloss as "deep domesticity," it addresses the expansion and intensification of domestic functions when state and international institutions fail to provide or protect. In Tema, the process is evident in privately built public toilets that double as working-class community hubs, middle-class households' collective efforts to rebuild and safeguard shared sewage lines, and city engineers' self-conceptions as caretakers of public infrastructure. Enlarging the scope and reach of the privatized domestic realm and encompassing practices otherwise deemed government responsibility, I remain struck by their resonance with the recalibrations of daily life induced by COVID in the United States. Street-corner fridges and food banks, the personal sacrifices of essential workers to ensure the survival of others, and the overlay of work, school, and leisure in domestic space—all publicly exposed by private media infrastructure—these shifts gather people and basic life practices together in unexpected ways, not entirely different from arrangements evident in Tema.

These cases remind us that geographically distant corners of the world can be linked by shared structural conditions. They indicate, moreover, the ways cities in the global South map out historical trajectories overlooked in theories of urban life derived from the global North yet surprisingly relevant to them both. As long as humanity is on this planet, waste—including bodily waste—is not going away, regardless of one's geographic or class location. As recent works such as Chelsea Wald's *Pipe Dreams: The Urgent Global Quest to Transform the Toilet* (2021) and Catherine Coleman Flowers's *Waste: One Woman's Fight against America's Dirty Secret* (2020) likewise attest, if excrement is part of our shared human condition, inadequate and inefficient waste infrastructures are a global problem. It is thus critical to pay attention to the individuals and communities who forge workable alternatives to the received script of late modernity and the political as well as practical implications of their infrastructural solutions.

Excremental arrangements in Tema demonstrate that the orchestration of human waste in the city by the public and for the public offers an alternative to the social power of the state. Serving as an enduring basis of association and collective action by means of infrastructure, bodily waste's inevitable excesses and instabilities, both cultural and organic, are political resources in their own right and continuously harnessed to new ends.

Acknowledgments

This book is a product of the generosity of countless friends, colleagues, and acquaintances in Ghana across a decade of visits and returns. Most of all, I am indebted to residents of the city of Tema who generously shared their homes, workplaces, stories, and daily routines with me. I am grateful for the honesty, dignity, and conviction with which they made me aware of the challenges of urban sanitation and the hard-won solutions they devised in turn.

Although I was no stranger to Ghana, my presence as a white American female academic interested in the intimate details of household sanitation demanded explanation and the establishment of trust and personal credibility on my part. To understand these matters and to facilitate, Marina Ofei-Nkansah provided research assistance, friendship, and wise counsel drawing on her academic training, deep ties to Tema, and knack for connecting with people. A skilled fieldworker with a masters of philosophy from University of Ghana's Institute of African Studies, she carried out research with me and on her own in Tema Manhean, Ziginshore, and Tema's core, where she also aided with archival work at TDC. Mohammed Mustapha contributed substantial research assistance in Ashaiman and aided research in Ziginshore. Alhassan Bilal Yunis helped with research in Ashaiman.

At Tema Development Corporation, managing director Joe Abbey graciously approved my affiliation and provided permission for institutional research, as did architect and board member E. O. Adjetey. I was welcomed by TDC staff and provided with workspace thanks to communications director Dorothy Asare-Kumah. In return for access to the TDC Archives I assisted TDC archivist Cosmos Anane with cataloging and digitizing materials. Public relations assistant David Donya was ever ready to participate in document searches, digitization, and site visits across the city. Samuel Ye-

boah in the TDC Drawing Room was also a source of expertise and insight on the city's architectural history and design.

In Tema Manhean, Tema *mantse* Nii Adjei Kraku II enabled my request to conduct research in the community on public space and public goods, as did *wulomo* Nuumo Ashiboye Kofi II and chief fisherman *woleiatse* Nii Odametey II. The owners and operators of public toilets, water taps, and bathhouses in Manhean patiently cooperated with interviews and observational and participatory research. Local residents and political representatives also made themselves available for discussion. Following these preliminary walkabouts, in 2009 I met two individuals who would become guides, friends, and key informants in their own right: one, Solomon Tetteh, a toilet manager and community activist; the other, Kwame Enyimayew, a sanitation entrepreneur. Tetteh graciously introduced me to his extended family, putting me at ease in the courtyard of his family home and offering a convenient perch during my many visits to the public toilet he managed. Though the names of Manhean's public toilets and toilet franchise groups and leaders have been changed to preserve confidentiality, all were generous with time, access, and information.

In Ziginshore, Enyimayew taught me more than I ever imagined was possible about the uses and abuses of public sanitation and urban waste. His investment in the infrastructural and social transformation of Ziginshore's wastelands piqued my curiosity early on and continued to fascinate me during the prolonged process of constructing an off-grid toilet, bath, and waste recycling complex in this marginalized settlement. I appreciate the openness of staff members and residents to my presence and that of the larger research team. I acknowledge in particular cleaners, technicians, and attendants Mr. Montey, Nana Sam, Emissah, Steven, Enoch, Matthew, Augustine, Grace, Vida, Efua, and Kekey. Office managers Jennifer and Joshua were also of help. I am especially grateful to the residents of Ziginshore's adjoining hostel who took time to share their lives and experiences with us despite the demands of work, childcare, and precarity of livelihood and living conditions.

In pursuit of further information on Tema's development I visited London's Architectural Association School (AA), where Tema's early designers, Jane Drew and Maxwell Fry, founded the Department of Tropical Studies. Archivist Edward Bottoms connected me to Patrick Wakely at University College of London's Development Planning Unit. Wakely had worked in Ghana in the 1960s and more recently served as a development consultant in

Tema's satellite city of Ashaiman. Wakely told me about Ashaiman's unique sanitation solutions and its drive to become an autonomous municipality challenging the oversight of TDC. Wakely introduced me to his project partners in Ashaiman: Ibrahim Baidoo, Ashaiman assemblyman, activist, and eventual mayor, and urban planner and community organizer Erika Mamley Kisseih. Upon my return to Ghana, I sought their counsel. Both offered and have continued to provide in-depth understanding of Ashaiman's unique history, demographics, and politics, along with ongoing feedback on my research findings. Kisseih was among the first to read and comment on the manuscript in full.

My debts to those in Ashaiman span from city government to managers, attendants, and customers of the city's vast array of privately owned dwelling-based public toilets. Ashaiman's environmental sanitation officer, Eric Kartey, was a patient guide to the city and shared the details of national policy and waste management challenges and solutions in Ashaiman. With the help of Innocent Adamadu, in 2013 I conducted initial surveys of Ashaiman's sanitary landscape. The work was completed with the assistance of Mohammed Mustapha, then a masters of philosophy candidate in Archaeology and Heritage Studies at the University of Ghana, and later a doctoral student at the University of Florida. Mustapha's UG classmate and longtime Ashaiman resident Alhassan Bilal Yunis soon joined the Ashaiman research team. Bilal's home and his family, Fati Adam and Amina Alhassan, became my base in Ashaiman, offering a space of rest, refreshment, conversation, and support. Their own efforts to install private water closets and a small-scale sewage system in their house provided additional insight on the price and politics of sanitary upgrading in the city.

The owners and operators of Ashaiman's many dozens of private commercial toilets patiently responded to research questions and participated in site surveys as we sketched, measured, and mapped each installation. I thank Pius Opuku, Ali Imran, and Agnes Agirron and their families, staff, and customers, who contributed to the case studies featured in this book. Their kindness allowed me and my research team to feel at ease as we learned about the inner workings and social worlds of their facilities over numerous visits and conversations. I also thank customers, staff, and proprietors of the following commercial toilets in Ashaiman: Wisdom, Otumfo, Base 10, God's Way, Fine, Donkor, Taifa, 2010, and Shower House, among many others.

Personnel of Tema Metropolitan Assembly were instrumental to my research on urban sanitation in Tema's core neighborhoods of Communities

1 through 12. At TMA headquarters, I benefited from conversations with Emmanuel Avenogbor, Sevlo Adjei, and assemblyman Sumailah Issah. Officials and employees of Tema's Waste Management Department played an especially critical role in the research process. Waste management director Edward Mbah was exceptionally helpful as he mapped out the multiple models of waste management operating in the city. His successor, Jonas Dunnebon, was also a source of guidance. So too was James Lamina, another "brother" from northern Ghana and longtime leader of TMA's sewage repair squad. TMA engineers Adu Gyamfi, George McCarthy, and Emmanuel Mensah shared their expertise with the work of maintenance and repair. Manager Lucy Tetteh shared her expertise on liquid waste. George Ferguson, Henaku Joseph, and other administrative staff shared their extensive knowledge of the wider scope of system breakdown and rebuilding. In Tema's core middle-class communities, Community 1, Community 4, Community 5, and Community 7, I am grateful to the families and households who so frankly and graciously shared their experiences. I do not name them or TMA workers and use pseudonyms for the sake of confidentiality. Rev. E. A. Armah and Joseph Yedu Bannerman imparted extensive knowledge of the first decades of the new city's management and settlement.

Research outside of Ghana offered additional insight on Tema's infrastructural and political underpinnings. At Belgium's Catholic University of Leuven, I met urban studies scholar Viviana D'Auria, who conducted her PhD research on Ghana's Volta River Project and continues to research and publish on Tema along with a talented group of MA students. Attuned to Tema's program of incremental modification of dwelling units, D'Auria put Tema residents' do-it-yourself approach to large-scale infrastructure in new perspective, offering especially important insight into Tema Manhean. Travel to Greece brought me to the Constaninos A. Doxiadis Archives at the Benaki Museum in Athens, masterfully managed by Giota Pavlidou. Here I found personal correspondence between Nkrumah and Doxiadis attesting to shared ideas about the course of national development. I also came upon original photographs of the city under construction, including massive sewage mains that remain in use today.

A summer visit to Ghana in 2014 afforded the opportunity for follow-up. With support from the University of Florida, photographer/videographer Eva Egensteiner accompanied me to visually document the four communities that form the heart of this book. Building upon relationships forged by Ofei-Nkansah and ties to Enyimayew, staff, and hostel residents, Tetteh

and Mustapha joined the research team in Ziginshore, as did my son, Eliot Chalfin-Smith. We collected workers' and residents' occupational and geographic profiles and watched the waste complex expand before our eyes, with hand-dug wells, a biogas-powered café, and a homemade waste treatment plant. Besides tracing the site's overall infrastructural development, we paid close attention to the relationship between bodies and infrastructure, taking a phenomenological approach to the lifeworlds incited by waste.

Along with that of Tema residents and officials, the support of scholars and educational institutions in Ghana remains invaluable to my research endeavors. The Institute of African Studies at University of Ghana–Legon was my academic home away from home and offered research affiliation through the many phases of the project. The directors of IAS, initially Takyiwaah Manuh, and then Akosua Adamako Ampofo, warmly welcomed me. I benefited from the intellectual support of IAS faculty Richard Asante, Debrah Atobrah, and Albert Awedoba. My ties to Legon extend to Department of Archeology and Heritage Studies faculty Wazi Apoh and Kwadzo Gavuah. This is in addition to ongoing exchange with Akosuah Darkwah in Legon's Department of Sociology, who with Debrah Atobrah provided critical feedback on the manuscript.

At Commonwealth Hall, where my family and I resided in 2011 while on a Fulbright-Hays fellowship, we were aided by hall bursar, porters, and staff. Hall librarian Francis Atsu and family were also a source of advice and support, as were Legon Hospital transportation chief Sammy Dansoh and family. Fellow Fulbrighters Theresa Morrow and Bill Ristow shared their love of campus and spirit of adventure. The US Embassy Cultural Affairs unit also facilitated visas and other documents necessary for research and residence. Special thanks to Cultural Affairs officer Sarpei Nunoo.

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graduate of UF's architecture program, did the final maps and drawings that appear throughout the book, demonstrating creativity, efficiency, and skill.

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pha, initially in the capacity of fieldwork assistant, and later, UF graduate student, was readily available to offer feedback and bring his combined archaeological and ethnographic sensibility to bear.

A residential fellowship from Harvard University's Radcliffe Institute for Advanced Study in 2015–16 enabled me to focus exclusively on research and writing among a diverse group of scholars and artists in an atmosphere of openness and exchange cultivated by associate dean Judtih Visniak and dean Liz Cohen. In 2015–16 I took a first stab at pulling a book manuscript together thanks to a residential fellowship at Harvard University's Radcliffe Institute for Advanced Study. I profited from fruitful interaction with fellows Daniel Ziblatt, Bill Hurst, Mary Lewis, Lesley Sharpe, and Kris Manjarapa. I was fortunate to have access to the immense resources of Harvard University Libraries and the outstanding collection of the Graduate School of Design. Weekly workshops moderated by Jean and John Comaroff offered an engaged and well-informed Africanist community, including Emmanuel Acheampong, Lucie White, George Mieu, Suzanne Blier, and Delia Wendel. Added to this were the social and intellectual sustenance of Tarik Dahou, Helene Sow, Sue Cook, and Oteng Acheampong. Time at Cambridge was further sustained by the unfailing warmth and generosity of my sister, Sonia Chalfin, and brother-in-law, John Wakeley, and the willingness of my daughter, Safi Chalfin-Smith, to explore new urban horizons.

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A writing retreat at University of California Irvine Anza-Borrego Desert Research Center (DOI:10.21973/N3Q9F) in January 2020 organized by Kris Peterson and Elizabeth Chin pushed me to renew my focus on manuscript completion. Soon thereafter, when the rest of our work lives were thrown into disarray by the fears and uncertainties of COVID, participation in UF's Center for Humanities and Public Sphere Summer 2020 writing collective offering comradery and shared purpose. Denise Trunk Krigbaum assisted with copyediting. Check-ins with writing partner Leah Rosenberg along with the tool kit offered by the National Council for Faculty Diversity and Development were instrumental to completion of this work. Since our initial conversations in 2019, Elizabeth Ault, acquisitions editor at Duke University Press, has been a great source of encouragement and insight in shaping the manuscript for a broad audience.

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ethnographic sensibilities and ease in diverse settings. For three decades now my husband, Daniel A. Smith, has cultivated his own ties to Ghana and gained a shrewd awareness of the vagaries of anthropological research and publication. He has learned great patience in the process, evident in his support across the weeks of pandemic confinement that I devoted to writing, editing, and revision in 2020–21. This work is devoted to them. All errors are my own.

Introduction. Infrastructural Intimacies
The Vital Politics of Waste in Urban Ghana

Sɛbi taflatse (Ga, "I beg your pardon").

With all due respect to those in Ghana whose lives and experiences I touch on, this book probes the politics of human waste, *taifi* in Ga and Akan (Twi) languages.[1]

The stories I share are conveyed with utmost respect for the dignity and problem-solving capacities of urban residents and city officials navigating infrastructural decline in a city long considered a paragon of technical progress and socioeconomic attainment. The city is Tema, built under the aegis of Ghana's first president, Kwame Nkrumah.

After several months of extended visits to Tema's working-class neighborhoods, it was a change of pace to find myself in a cement-lined courtyard behind a three-bedroom home in Tema's well-laid-out residential core. I was following up with a retired accountant for one of the city's factories who had lodged a complaint at the municipal waste management authority about a burst sewage pipe flooding his home. He shared:

> The old pipes are broken and collect mud and sand and soil for that matter. It chokes the entrance of where it enters the main. When that happens, the toilet rises. You see it rising. The manhole, you can see the manhole increasing. The water level comes up from the sewage in the shower area. It comes up. Because the sewer is choked it comes up. The water comes up in the bathroom and you are standing in the water. It happens in these four [neighboring] houses: There was one day it came from the street. My whole yard was flooded with sewage with the *poos* in it. It was like that for three or four days. It affected the whole street. It was very disgusting.

Map I.1. Map of Ghana and Tema (Created by Kairon Aiken)

Figure I.1. Tema Development Corporation promotional materials, 2009

The response took me by surprise. Besides the frank description, I was caught unaware by the pervasive problems of breakdown and disrepair in the well-planned, well-kept, if sometimes timeworn middle-class neighborhoods that marked residence in Tema as a path to upward mobility. While infrastructural failure and inadequacy were clearly evident in the underserved working-class neighborhoods that sustained Tema, waste management issues were kept under wraps in more prosperous parts of the city. The more I paid attention, the more I noticed that breakdown of sanitary infrastructure was a common occurrence despite the neat homes, spacious apartments, and parks and greenways of the planned city. I soon realized that across Tema's varied communities, populations, and locations, residents—as well as waste workers and officials—were involved in complex problem solving and workarounds to ensure access to basic urban infrastructure. It also became clear that much more than waste was at stake. Most of all, the infrastructural solutions pursued by urban residents address broader issues of power and powerlessness in the city. By redistributing control over urban bodies and bodily outputs by means of urban infrastructure, they alter the terms of public and private life and counter inherited norms and associated claims of state ascendance.

Reversing expectations regarding access to the means of waste management and self-care, the greatest range of successful infrastructural innovation comes not from Tema's more prosperous core but from less resourced settlements in and around the city. Descendants of the city's original inhabitants, for instance, turn public toilets into vehicles of protest, self-determination, and revenue generation. Along the way, they challenge negative connotations of bodily waste that are the norm in Ghanaian society. Elsewhere in the city, on an unofficially claimed tract of urban wetland, a Tema native son back from abroad runs a massive public toilet–cum–residential complex for a transient urban underclass. Populist in spirit, though far from egalitarian, the apparatus functions as a means to both satisfy and influence customers' daily needs, aspirations, and loyalties. In turn, they garner a modicum of municipal recognition.

Back in the city's core, sanitary engineers inured to the harms of fecal materials and worn technologies invested themselves in system repair. Attributing system breakdown to the domestic ills of middle-class residents and mismanaged international fixes, they position themselves as protectors of national heritage. In a peri-urban working-class settlement at the city's edge, better-off households convert domestic space into public toilet facilities to fill the void of municipal incapacity and state exclusion. Turning excrement from a source of shame to gateway to influence and material gain, waste infrastructures reorganize status hierarchies and recode sources of social power. Democratizing urban infrastructure and broadening access to basic urban services, taken together these interventions rob the state of its professed control over the terms of public and private responsibility in this showcase West African city. Reworking inherited systems to novel ends, some intended, some unexpected, they seed an ongoing cycle of negotiation and recalibration.

On Excrement, Infrastructure, and Urban Politics

Succinctly put, in Tema, excrement and associated infrastructures are political matters bringing to the fore what in high-modernist cities is largely shrouded or suppressed. There is no shortage of literature on fecal matter from the perspective of medicine, public and environmental health, and psychology. The account shared here takes an entirely different tack and reveals the centrality of human waste and waste infrastructures to urban politics and public life. A close reading of the lifeworlds built around and

through waste and waste infrastructure offers a means to understand the fraught boundary between private interest and public good in the making of urban political order. Foremost, ethnographic investigations of the range of actually existing excremental solutions in Tema upend presumptions about human excreta as a singularly private concern and reveal the political significance of infrastructures that transform bodily waste from individual output to collective responsibility. While highlighting the experience of a single West African location, the argument is relevant to other spaces where state responsibility for essential public services is being rejected, withdrawn, or both, and alternative solutions to basic urban needs devised by urban residents rise to the fore.

A profound "politics from below," Tema's diverse waste management systems, and the social and material struggles they organize and express, push us to look beyond conventional arenas of political participation—parliaments, protests, voting booths, legal battles—to account for the quotidian spaces and processes through which the contemporary polis is forged. As noted by Bruno Latour (2005a, 4), "The time seems right to shift our attention to other ways of considering public matters." Bodily waste is an insistent locus for the negotiation of urban political order, whether state power is ascendant, as argued in Dominique Laporte's provocative *History of Shit* (2002), or on the wane, as described here.

Just as excreta is a source of emotional ambivalence per psychoanalytic theory (Freud [1905] 1947), and a site of semantic excess per cultural studies (Mbembe 2001; Stallybrass and White 1986), bodily waste is an enduring source of political contention. It is, in the political and material sense, "undecidable," at once irreducible, unresolvable, and impossible to escape, fully capture, or repress.[2] To paraphrase Sophia Stamatopoulou-Robbins on waste more generally (2019, 23), "Shit never truly disappears, it merely changes place and form." In any city for that matter, excrement is an enduring undercurrent of social and political life, sometimes erupting, sometimes hovering below the surface, yet ever present. As the proprietor of a public toilet complex in Tema's edge-city of Ashaiman puts it, "Stomach has no holiday."

Excrement's undecidability is a perennial problem not only for urban residents but also for the state authorities that seek to govern the city. Tapping into the defining dilemmas of urban existence—how do we, as embodied beings, live together—bodily waste and its manifold infrastructures are ever ready to surface in the tug-of-war between and among the agents and subjects of urban governance. Scholarly, technoscientific, and political in-

terventions regarding the proper management of human excreta abound. These conventions reinforce a decisively modernist script with excreta's management the arbiter of civility and incivility, the social and the primal, progress and stagnation. According to this widely accepted frame, the natural disorder of human waste is expected to give way to political administration and the sequestering of fecal matter as base substance and private act (Elias 1994; Laporte 2002; Morgan 2002). In a powerful sleight of hand interlinking the discipline of individual bodies and populations (Foucault 1979), such renderings naturalize the paired emergence of self-regulating private citizens and the overarching apparatus of the modern state (Laporte 2002). In turn, they underwrite what is taken to be the "modern infrastructural ideal" (Graham and Marvin 2001): centralized administration of urban infrastructural systems.

Despite its problematic assumptions about bodily discipline and responsibility, this model of human scatological organization, embodying what Bhaskar Mukhopadhyay (2006, 226) calls "the municipal-civic master discourse," remains an enduring preoccupation of urban planning, international development, and public health (Barton and Tsourou 2000; Melosi 2008; Osinde 2008; Rosen 1993; van der Geest and Obirih-Opareh 2008). When orchestrated by the state or its proxies, all pose the interiorization of sanitation and bodily waste as fundamental to individual well-being and a broader project of societal improvement (Anderson 2006; Corburn 2009; McFarlane 2008a, 2008b).[3] The World Bank's (2011) "No Open Defecation" scheme promoting private, in-home toilets across Africa and South Asia demonstrates the enduring hold of this widely accepted scatalogic. The United Nations Millennium Development Goals (2015) likewise promote private toilets for every household, branding public facilities as inadequate and undesirable. Evident in UNICEF's "Water, Sanitation and Hygiene" campaign for Ghana (UNICEF 2018; Baddoo 2019), the more recent UN global Sustainable Development agenda (UNDP 2019b) endorses the same position.

The story told here offers an alternative to this dominant sanitary thesis by putting infrastructure, theories of material agency, and, most of all, actually existing sanitary solutions devised by city residents at the fore. Evidence drawn from urban lives and localities demonstrates that it is misleading to look at sanitation in the global South through an overarching optic of inadequacy, whether lack of facilities, privacy, hygiene, or infrastructural capacity. This assumption not only denies the long historical legacy of sanitary provisioning within cities across the world (Appadurai 2002; Bouju 2008;

Figure I.2. "The Big Squat," 2013 (Photo by Brenda Chalfin)

Joshi et al. 2011; Molotch 2010; Mukhopadhyay 2006).[4] It equally obscures the vital engagement of social actors with waste and hygiene in organizing urban politics and public life in other than high-modernist terms, including in contexts of entrenched exclusion.

Notably, this book, rather than reproduce modernist suppositions by calling attention to their absence in spaces where they never materialized, probes the presumptions and contradictions of the modernist script by looking closely at the alternatives that emerge in its wake. Known as "defamiliarization," this is a classic strategy of anthropological critique (Marcus and Fischer 1986), putting what is presumed common, best, or inevitable in new light. It is also posed as a mode of political engagement in its own right. As Mukhopadhyay (2006, 226) notes, and I concur: "Putting shit and filth up for reconsideration does not mean a passive withdrawal from activism. On the contrary, it means engaging with popular or subaltern practices as ethico-political responses and reflecting on their sources of authority rather than simply denigrating them from the vantage point of some absolute wisdom."

Although Tema's excremental experiments are certainly replicable, the goal is not to pose them as ideal types but to historicize them as emanations of distinct political conjunctures. By fusing political analysis and excremental evidence from urban Ghana, the work resists the claim that political practice in Africa demands a special lens attuned to what Jean-François Bayart (1993) calls "belly-politics" or Achille Mbembe (2003) "necro-politics." Rather, consideration of urban politics through the lens of excrement, and excrement through the lens of urban politics, joins other challenges to the tunnel vision of political analysis around the institutional canon of elections, legislative bodies, law, and executive authority (see also Paller 2019). Left out is the broad spectrum of public life formative of urban political experience, what Asef Bayat (2013) calls "life as politics." A focus on formal institutional processes furthermore denies power's fundamental, indeed elemental, "heterogeneity," as Georges Bataille (1985) puts it. Made vivid in the account of excremental infrastructure, the substantive approach to urban politics proposed here is of broad relevance.[5] Certainly, shit is not going away. Indeed, at a planetary moment when the possibilities and limiting conditions of the material world are undeniable (Jobson 2020; Haraway 2016; Latour 2018; Moore 2015), the commingling of human and other-than-human agents, including bodily waste, in the orchestration of urban plurality is all the more consequential.

In sum, a series of core propositions drive this text. First, excrement is an essential element of urban politics and public life—that is, a political matter—due to its perennial presence, elemental vitality, and "undecidable" character as public or private, resource or risk, human or other than human.[6] Second, the political potentials and struggles surrounding bodily waste in urban settings are powerfully evident in the infrastructures used, designed, or avoided by urban residents to manage individual and collective excremental outputs. Third, these realities confound the received sanitary script of high modernity. They not only reveal viable solutions to urban sanitation otherwise ignored. Joining other recent interrogations of the politics of urban waste (Fredericks 2018; Millar 2018; Stamatopoulou-Robbins 2019), they bring to the fore a broad arena of urban collective action considered insignificant or deemed inscrutable.

Looking beyond examples of self-conscious urban protest around sanitation and the lack thereof, evidence from Ghana turns away from excremental activism per se (cf. Appadurai 2002; Jackson and Robins 2018; Robins 2014; Robins and Redfield 2016; von Schnitzler 2016). The work instead trains its

lens on infrastructural arrangements designed and modified by urban residents and treats them as a form of political action in their own right. In contrast to episodic expressions or reactions against received forms, the character of waste-based infrastructures affects urban routines, relationships, and the built and natural environment in enduring ways. While infrastructural interventions in Tema may provoke the attention of urban authorities, they are devised first and foremost for use, not demonstration effect (cf. Appadurai 2002). A "politics of the ordinary," to borrow from Steven Robins (2008), this is what I term deep urbanism at work. Indeed, because excremental infrastructures serve as a node of individual and collective well-being in the city, the effects of their revival and restructuring are multiplied across urban lives and the wider urban landscape.

The approach developed in this work differs from studies of infrastructure through the predominant lens of techno-politics and genealogy of Michel Foucault (cf. Anand 2017; Carse 2014; Chalfin 2010; Mains 2019; Mitchell 2002; von Schnitzler 2016). Notably, the book puts the vitality of things at the fore, specifically, the vitality of human waste and its associated infrastructures. Underwriting what I call the "vital politics of infrastructure," this vitality complicates and confounds the workings of techno-politics.[7] While the scatalogics of the postcolony have provoked substantial discussion attuned to "the aesthetics of vulgarity" (Esty 1999; Mbembe 2001), the discursive bias of these approaches sidesteps the vital materialities of human ordure and the natural and infrastructural systems sustaining them. These are matters Brian Larkin (2008) and Kerry Chance (2018) start to unpack elsewhere in Africa.[8] Larkin, focused on urban Nigeria, addresses the interplay of infrastructural functioning and breakdown. Chance, training her lens on urban South Africa, investigates how essential elements of urban survival, including their unpredictability, are repurposed for political ends.[9] Contributing to the dual focus pursued here, together they draw attention to the elemental vitality of bodily matters and the vitality of infrastructural things.

A point of crucial importance to my argument, sanitary infrastructures should not and cannot be understood solely through a biopolitical lens privileging discipline and domination (cf. Anderson 2006; Foucault 1979), even if they are a predominant legacy of colonial and national state-building. Driven by the vitality of things themselves—bodily cycles, bodily wastes, and the remains of earlier infrastructural orders—excremental arrangements can be the basis of solidarity, self-determination, and counterpolitics of all sorts (Aretxaga 1995; A. Feldman 1991).[10] Open to restructuring and reinvention,

Figure I.3. Tema's high modernity: high-rise built ca. 1967 (© Constantinos and Emma Doxiadis Foundation)

Figure I.4. Tema high-rise, ca. 2011 (Photo by Brenda Chalfin)

excremental infrastructures provide a formative arena for forging alternative political possibilities. Again, "undecidable," at once human and nonhuman, individual and collective, spent and ever active, intimate and foreign, these matters are impossible to fully suppress and ever ready to be politicized.

Ghana and the Sanitary-Political Paradox

Pushing us to think both politics and human waste anew, Ghana presents a profound sanitary-political paradox. The first African nation to achieve independence, in 1957, Ghana has long been considered a beacon of progress and prosperity on the African continent. It is touted for its political stability, history of democratic rule, and rising incomes and living standards (Adams and Asante 2020; Agyeman-Duah 2005; Gyimah-Boadi 2007; Nathan 2019; Paller 2019). Yet here, more than in any other country in the world, the urban populace relies on public toilet facilities outside of their homes for bodily relief (Appiah-Effah et al. 2019, 400; Ayee and Crook 2003; Crook and Ayee 2006; Oteng-Ababio 2011; Peprah et al. 2015; Thrift 2007; van der Geest and Obirih-Opareh 2008). Less than one-quarter of Ghana's populace has access to private toilets dedicated to the exclusive use of household residents. In terms of what the World Health Organization defines as "improved sanitation" based on private household facilities utilizing waterborne sewerage, the figure is cut in half again (Appiah-Effah et al. 2019, 399, 402). Instead, a preponderance of urban dwellers rely on shared toilets.[11] In-home toilets are lacking for middle-class and upwardly mobile urban residents as much as for their working-class neighbors. This remains the case in Ghana despite the country's standing as a rising middle-income nation meeting global development targets for clean water, basic education, and women's rights, with a more than twenty-year span of competitive elections and an upward trajectory of economic growth (UNDP 2019a). Is this an anomaly, a holdover of underdevelopment that detracts from Ghana's progress, or could it be part and parcel of Ghana's democratic, participatory dispensation? Both? Or something other?

Shedding light on this sanitary-political paradox, the city of Tema serves as the book's analytic focus. A space of vast infrastructural diversity, Tema has a rare citywide sewage system that was considered one of a kind in West Africa when this planned city was constructed circa 1960 as a model of industry-based high modernity for independent Africa. Despite Tema's continued standing as a bastion of upward mobility and middle-class attain-

ment marked by attractive flats and private homes, it is the very site where the sanitary alternatives described above have come to thrive. Here, the political undecidability of waste and waste infrastructures are on full display. Danny Hoffman (2017, 17) remarks, "Nowhere, perhaps, are the contradictory and confusing legacies of modern built forms more evident than in contemporary African cities," which he calls "laboratories of modernism's and modernity's successes and failures." This is fully evident in Tema, where the writing and rewriting of the high-modernist script and the transformative force of ordinary lives pursued among modernism's promises and remains can be read in the city's excremental infrastructural order.

Excremental Colonialism

Ghana has an early and uneven legacy of excremental intervention. In the annals of colonial hygiene, Ghana, like elsewhere in West Africa's tropics, did not fare well. Beginning in 1844, colonial occupation brought increased commerce and the concentration of subject populations (Parker 2000). Amid the salt ponds and lagoons of the West Atlantic littoral, Gold Coast settlements and growing urban zones lacked drains, septic systems, or easy access to fresh water for Europeans and Africans alike. Yet there was minimal investment in sanitation by the fledging colonial administration for the urban populace (Patterson 1979). Though sanitary reform swept the nineteenth-century British metropole (Melosi 2008; Wright 1980), sanitary infrastructural investment in West Africa remained out of the picture (Gale 1995, 187). The relocation of the colony's administrative capital to Accra in 1877 brought little change (Parker 2000). Urban planning revolved around a built environment in the service of rule: office blocks, housing, and leisure spaces for European administrative personnel, with limited regard for the living conditions of African urban dwellers (Freund 2007). Proponents of colonial hygiene in the Gold Coast were instead geared toward the protection of Europeans from tropical disease (Curtin 1985; Bashford 2004; Worboys 2000).

All of this was a prelude to an extended era of sanitary "indirect rule" not entirely different from broader administrative tactics imposed across the region in which residents were essentially commanded to "police" themselves (Killingray 1986; Mamdani 1996). Demonstrating the colonial regime's preoccupation with sanitation and hygiene as a prime logic of urban governance, what Warwick Anderson (1995) calls "excremental colonialism," there was no lack of rhetoric or policy on the matter (Bin-Kasim 2019). Once opened,

the gap between sanitary discourse, the actualities of rule, and the realities of excremental practice in the Gold Coast's urban centers continued to grow.[12] Sanitary servicing was made the founding responsibility of town councils (Gale 1995, 194). Commuting political inclusion into responsibility for one's own waste, early municipal ordinances demanded tax revenue from African residents to pay for sanitary schemes (Hess 2000, 39). Resistance to "taxation—and sanitary responsibilization—without representation" sparked protests across the colonial capital Accra (Gale 1995, 196; Patterson 1979, 252). Merchants and mining companies were left to fill the gap.[13] An early example of the privatization of waste management, commercial interests took charge, building sanitary facilities for their workers, and monitoring use and maintenance (Dumett 1968, 168; 1993, 217).[14]

The colonial government finally installed pan latrines in Accra at the turn of the century.[15] However, they refused to be held accountable for urban sanitary conditions, blaming "the lack of reliable water supplies" and "the filthy and lazy habits of the large majority of the native population" (Patterson 1979, 252). The lack of anything but the most rudimentary of infrastructural investments on the part of colonial authorities was no hindrance to the rise of waste- and infrastructure-centered institutions. Employing infrastructure as a means of social and spatial division, "slum clearance" involving demolition of urban African settlements and dwellings was at the heart of a growing Public Works Department mission carried out with the input of medical authorities (Dumett 1968, 196; Gale 1995; Simpson 1909). Bodily waste remained a "niche" matter. Scant effort was made to accommodate the waste flows of the expanding urban populace (Bin-Kasim 2019). Water-based toilets and sewage systems were deemed too expensive for urban Africans (Bohman 2010, 82; Patterson 1979, 254). In Accra, pan latrines persisted as the primary urban sanitary infrastructure well into the 1930s, while the number of structures and the nature of the facilities remained wholly inadequate to urban needs (Appiah-Effah et al. 2019, 403).[16]

In the process, pushing and pulling at the boundaries of the properly political through the play of regulatory intervention and infrastructural neglect, waste and sanitation had become a vibrant terrain of urban public life. Accra's latrines were deemed physically as well as spiritually unclean by residents. Administrative records indicate "[excremental] concealment matters not at all. . . . A walk around Accra in the evening will prove . . . that many prefer not to use a latrine" (Patterson 1979, 254). "Just as plans for collection of water rates aroused popular resentment, the lack of enough clean

latrines was a continuing public grievance" (255). All the while, the town council adamantly rejected pleas for intervention. Herein lies the festering root of Ghana's sanitary-political paradox: having become a source of governmental scrutiny and sanction, sanitation was deemed a public good yet was made a private responsibility heaped on urban residents by city authorities.

The Rise of Tema

The sanitary-infrastructural fabric of imperial rule would soon be disrupted by the sanitary designs of decolonization, complicating the sanitary-political paradox anew. These rearrangements found their most vivid expression not in the capital Accra, nor in any existing city, but in the newly imagined and yet-to-be-built city of Tema.[17] In 1949, the colonial government, on the heels of its departure, proposed constructing a massive hydroelectric dam on the Volta River to jump-start industry and maintain a hold on the economy (D'Auria 2014, 339; D. Hart 1980; Miescher 2012, 2014; Moxon 1969).[18] A new seaport to export the anticipated output was added to the plan (R. B. Davidson 1954; Hilling 1966, 113).[19] The elements of what was known as the Volta River Scheme formed West Africa's most ambitious industrial-infrastructural project to date (D'Auria 2010). A proposal for an industrial hub and residential zone adjacent to the port followed. The city of Tema was born, as was the nation-state of Ghana.

In 1951, the very year of Tema's founding, a new constitution stipulating the appointment of the African prime minister, African cabinet, and African legislative assembly was ratified by the Gold Coast legislature (Apter 1963; B. Davidson 1989). *Osagyefo* Dr. Kwame Nkrumah, a Pan-African statesman and visionary, was designated prime minister. With Tema and the Volta River Scheme at the fore, Ghana launched its first national development plan. Through government decree, a sixty-four-square-mile tract of land twenty miles east of Accra was acquired from customary authorities to site the port and city (Hilling 1966, 115). Considered an engine of Ghanaian and indeed African progress signaling Ghana's equivalence with other modern nation-states, the new city was to contain all the infrastructures of modern living. Described by Ghana's newly established Ministry of Information as "enjoying all the advantages of modern civilization" (Jopp 1961, 6), Tema was to be serviced with the full complement of infrastructural modernity, from power stations, phone lines, and an electrical grid to street drains, culverts and waterworks, and a hierarchy of roads, streets, and bridges designed exclusively for vehicular traffic.

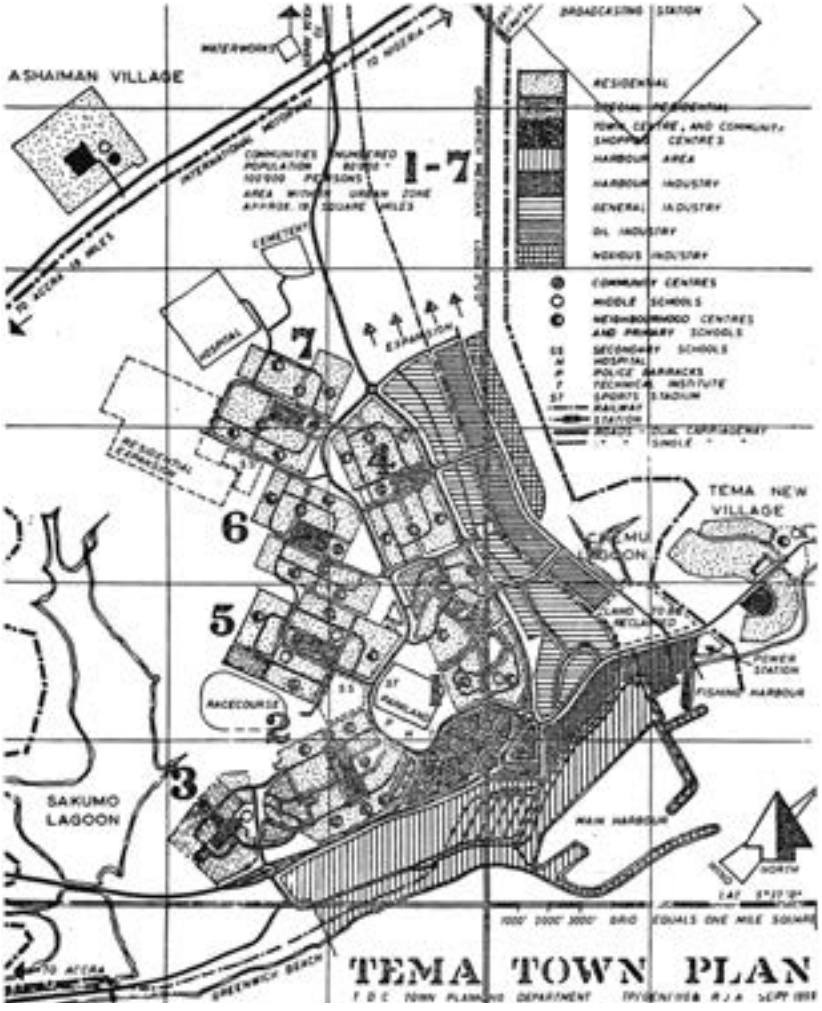


Figure I.5. Clerk, Alcock, and Robinson 1955 master plan for Tema (Alcock 1963)

Most important for the story told here, among Tema's many infrastructural firsts was an expansive, gravity-driven, subterranean sewerage system. It remains today the largest and most ambitious sanitary infrastructure in the subregion, linking individual homes and industrial installations to local trunk lines and sewage mains, and sewage mains to a series of citywide sewage pumping stations. Waste would be channeled to offshore outflows

Figure I.6. Tema tabula rasa, 1965 (© Constantinos and Emma Doxiadis Foundation)

Figure I.7. Sewage system sea outfall, 1959 (Ghana Information Services Division)

extending miles into the Atlantic. Thus, to the lore of Ghana's midcentury political and economic exceptionalism can be added the high-modernist city of Tema and the innovations of its waste management system.[20] Reports convey the alignment of Ghanaian progress with the new city, its sewage system included: "Tema is the first city in West Africa to be built with a waterborne sewerage and mains-water system serving each individual house irrespective of income group. Elimination of septic tanks and open-sewage ditches has removed the smell and risk of disease, and as the sewerage system is automatic, recurring costs are low. All grades of housing have flushing toilet, shower and kitchen-sink with mains water supply" (Alcock 1963, 3).

For architectural historians, Tema is regarded as an artifact of modernist internationalism virtually frozen in time (Jackson and Holland 2014). Read through the lens of its vital infrastructure however, Tema is a more lively form: dynamic, unsettled, and functionally de- and recomposed behind the façade of its master plan and cement-block buildings. Undermining the grand claims and infrastructural aspirations of new nation-building, a half century later, Tema's once idealized sewage system is in massive disrepair. Belying the neat appearance of Tema's homes and the calm ambiance of its residential streets and public thoroughfares compared to the hustle and bustle of nearby Accra, a different reality lies underground and inside the walled-off installations of the city's Waste Management Authority.[21] Across this diverse urban zone, the remains of the new city's original sanitary arrangements are supplemented and sustained by a wide range of excremental infrastructural alternatives forged by the residents themselves. Here again, we see the heavy hand—and contradictions—of state impositions regarding the disposition of urban waste. Despite the substantial investment in waste infrastructure in the name of national progress and public good, bodily waste turns into a realm of private responsibility, this time amid an already established expansive public system.

Evidence from locations across Tema reveals sanitation and sewerage to be substantially orchestrated by urban dwellers grappling with the remnants of the citywide system (see table I.1). Tema's infrastructural innovators include residents still dependent on household facilities left over from the city's founding, who actively monitor and modify the remains of the midcentury order to keep it operable. For the more than half of city residents currently untethered to the sewage system, public toilets are a predominant popular solution. Of households surveyed across the city, barely half still have access to a household-based water closet. Nearly one-third of residents uti-

lize public toilet facilities (Rohilla et al. 2018, 4). While some residents use government-built toilets reminiscent of the barely maintained installations of colonial-era Accra, these installations are overshadowed in number and popularity by public facilities largely devised, maintained, and managed by private persons, families, households, and community collectives. Flush, pit, septic tank, sit, and squat, found on street corners, in back alleys, on remote lots, and inside residential dwellings, toilet access is open to stranger, kin, resident, and transient alike for a nominal fee. All offer alternatives to open defecation and the deposition of fecal matter in plastic baggies before tossing them to the wind (Appiah-Effah et al. 2019, 406)—a practice referred to as "flying toilets"—scorned by public health experts and urban dwellers alike (*New Humanitarian* 2012). Rather than a source of shame or excremental last resort, a substantial proportion of Tema's public facilities are a source of comfort, dignity, and, for some, profit.

In this mix, Ghana's sanitary-political paradox takes a new turn. Bodily waste comes to the fore as an essential element of urban public life, again politically undecidable. What was decreed a private matter to be guaranteed by state authorities is turned back into a public issue to be managed by private persons. In these breakdowns and adjustments, the received script of sanitary and political modernity articulated by urban and political theorists alike is upended (pace Arendt 1958; Elias 1994; Mumford 1938). Excrement and its infrastructures, as Laporte (2002) reminds us, have a history. But rather than the straight line of excremental progress by way of suppression in the private realm and exclusion from the public, in Tema's diverse neighborhoods shit has resurfaced as a private responsibility and a public one in lieu of the state. In turn, individual bodily needs and outputs push into public space, and public needs and concerns push into the ostensibly private domain of the household. Not only do these sanitary solutions supplant the state's claim to primacy over the terms of urban waste management; in the process, they rework the expected relation between bodily waste, public life (the res publica), the locus of collective decision making (the polis), and the domus, taken to be the space of domicile and primary affiliation (Swanson 2018).[22]

This book unpacks the unexpected political possibilities, some emancipating and enabling, others creating new forms of dependence and inequality, born from the reinvention of excremental infrastructure in the city. The point is not to argue that anywhere there is centralized urban sanitation

Table I.1. Survey of urban sanitation in Tema

Types of sanitation facilities	Households	Percentage of total households
No facility—bush, beach, field	6,701	9.5
Water closet	37,626	53.1
Pit latrine	1,465	2.1
Ventilated latrine	2,498	3.5
Bucket/pan	115	0.2
Public toilet	21,775	30.8
Other	617	0.9
Total	**70,797**	

Source: Rohilla et al. 2018, 3.

the same vital politics found in Tema will be in play. To the contrary, building on the insights of a long line of social theorists (Elias 1994; Foucault 1979; Harvey 2005; Laporte 2002; Mumford 1939), the case of Tema is both norm and exception. State-based, mandated, or delegated waste management, paired with the privatization of waste production outside the public sphere, is more often largely expected and little objectified in urban political life. Only rarely or sporadically does this metastructure of urban order come to the fore, typically in the case of breakdown, massive inequality, or gross mismanagement.[23] In some cities, water and water infrastructure spur activism and contestation (Anand 2017). In others, it is electricity (Degani 2018; von Schnitzler 2016). In others still, such as Tema, it is human waste (Appadurai 2002; Robbins 2016).

Tema represents a special case, illustrating and complicating norms in several ways. First, Tema's sanitation system, rather than an after-the-fact organic feature of the city's urban built environment, was on the leading edge of urban design, planning, and settlement. In place before many of the residential zones were complete, the system was self-consciously promoted by city founders in terms of the work it could do—at once technical, political, and ideological—as a sign of industrial modernity and a means to orient citizens inward. Second, not only do the breakdown and inadequacy of the system betray its dashed promises and unrealizable intentions, but the real-

Figure I.8. Large-scale biodigester under construction, 2011 (Photo by Brenda Chalfin)

ities of excremental order in Tema foreground an array of alternative pathways to large-scale urban waste management that carry their own political implications and presumptions. In short, the sanitary alternatives evident in Tema do not just bring the norm to attention but call it into question by laying out other viable solutions to urban bodily and infrastructural needs. Circling back to the very constitution and character of urban polities, actually existing sanitary arrangements at work in the city each configure the relationship between public, private, and the state in distinct ways. In turn, they offer urban planners and analysts as well as city residents a means to actualize alternative visions of urban living and propose new paths to urban futures. As the massive infrastructural outlays of the heyday of industrial modernity fall into disrepair (Fortun 2014), much like Tema, such reconfigurations are likely to become all the more prevalent. Coming full circle, Tema's extant exceptions may well map new norms.

In making the case for close examination of Tema's infrastructural alternatives, it is crucial to recognize that the novel excremental arrangements found in the city are not isolated attempts at infrastructural self-provisioning.

They are fine-tuned modalities of claims making and political imagining vital to urban functioning. Sometimes cooperative, sometimes competitive, these excremental interventions give order to the wider urban milieu as state bodies and initiatives struggle for reach and relevance. Born of necessity and biopolitical proscription yet moving in directions all their own, Tema's novel excremental solutions expose a largely overlooked realm of urban public life expressive of urban dwellers' "right to the city" (Lefebvre 1996) that is relevant beyond the case at hand. Phrased in terms of Raymond Williams's (1977) classic analytic triad "dominant, emergent, residual," built on and around "residual" forms, in Tema we find a set of "emergent" urban orders taking shape in response to the rollback of state services and capacities alongside unprecedented urban growth that marks a "dominant" trend across the global South and global North.

If there is one thing that brings urban dwellers together across the social and spatial distinctions of the city, it is the need for bodily relief. An enduring urban motif, the predicament of bodily waste is the prevailing metaphor of Ghanaian Ayi Kwei Armah's *The Beautyful Ones Are Not Yet Born* (1969). In this novel, written during the very era of Tema's founding, a humble bureaucrat and corrupt politician both seek escape through the glory hole of a common bucket latrine. What Joshua D. Esty (1999) describes from a literary stance as "excremental post-colonialism" surfaces anew decades later from an infrastructural stance via the collective reshaping of Tema's built environment. Less about the heavy hand and laden ideals of Ghana's immediate postcolonial state, Tema's excremental realities reflect much more the light touch of the twenty-first-century neoliberal state (Chalfin 2010) amid the ruins of high modernity.

Vital Politics of Infrastructure: Central Arguments

Tema's excremental infrastructures, while shaped by limited state capacity and faulty international fixes, and sometimes less than ideal from a public health standpoint, are meaningful social and political formations not to be overlooked when assessing the lived terms of urban democracy and development, whether in Ghana or elsewhere. Sophia Stamatopoulou-Robbins (2019, 4), regarding Palestine's waste infrastructure, states, "The ways in which and the extent to which a population is exposed to waste can thus be diagnostic of the nature of governance." The study of Ghana's city of Tema indicates that what happens in response are diagnostic of "vital politics"—a

term I use to capture the interplay of that which is full of life—human and nonhuman—along with essential human needs and struggles for dignity and bodily well-being.

From the vantage point of "vital politics," anchored in living bodies and vital needs and substances, the sanitary solutions created and transformed by Tema residents are political on multiple fronts. They are prime domains of urban contention where urban residents confront and challenge the limits of centralized political authority. Moreover, serving as small *p* "parliaments of things" (Latour 1993, 142; 2005a, 24), Tema residents' novel infrastructural outlays extend the limit of what is possible and permissible in both the public and private realms for a large swath of urban dwellers. Despite their ostensibly private ends and location in privately owned and managed spaces, they are formative arenas of public claims making where residents push back on state promises and inherited technologies and reengineer the urban social contract in concrete terms. At once harnessing and stabilizing excrement's elemental volatility and social undecidability, Tema's infrastructural experiments are furthermore political in their capacity to organize, reproduce, and legitimize the lived conditions of urban "plurality," a relation that simultaneously encompasses human "equality and distinction" (Arendt 1958, 175). In toto, these conditions attest to a vital politics by means of infrastructure at work.

In Tema, I argue, three features of infrastructure's vital politics prevail. The first, substantive, I call "vital remains." The second, relational, I term "infrastructural intimacy" (Chalfin 2015).[24] The third, institutional, I label "deep domesticity." Each one shapes the other in turn. Doubly constituting "vital remains," both infrastructure and bodily excreta are never inert. This perspective aligns frameworks of new materialism (Bennet 2010) and anthropologies of waste (Fredericks 2018; Millar 2018; Reno 2015). Along with the bodies and bodily cycles of Tema residents, the liveliness of the materials that make up and move through the city's infrastructural outlays are central to their political possibilities. These materials undergo decay and recomposition just as the bodies of city residents follow their own cycles of consumption and expulsion, production, and evacuation. Like them, the infrastructures in which they are entangled may break down but never completely go away. A point Brian Larkin (2008) makes clear in his discussion of media infrastructure in Nigeria, old systems evince unexpected elements in the course of decline, available to be harnessed anew. As Steven Jackson (2014, 221, 227) asserts, "When we take erosion, breakdown and

decay . . . as starting points," the interdependence of innovation and repair becomes self-evident. That's because breakdown seeds innovation, both human and nonhuman. Likewise complicating received understandings of infrastructural decline, infrastructural decay can also be read as "signs of life" (Hetherington 2019, 9), keeping in mind the disruptions and disadvantages as well as potential opportunities that ensue.

When it comes to the vitality and unpredictability of spent things, feces, sewage, and associated infrastructures are bioactive forms with their own agency and energetics divorced from human intention despite their intimate association with human bodies. As Georges Bataille's (1985) application of the logics of thermodynamics to political life asserts, the excesses of human existence, whether bodily waste or otherwise, can never be completely captured. Given the "ongoingness" of life and the "ongoingness" of things (Haraway 2016), excremental infrastructures thus bring an elemental force to urban politics and serve as a threshold of political possibility. Although they are often suppressed by the heavy hand of the state, they are susceptible to eruption, from the unexpected flooding of markets, homes, and streets in Tema due to broken sewage mains, or more gradual, quotidian transformations of pipes, pumps, water closets, and septic pits.

Vital remains constitute the substrate of infrastructure's vital politics. Surpluses never fully contained, they enliven connections and tensions among urban residents and between urban residents and municipal bodies. Bound up with the relational aspects of infrastructure's vital politics, the play of vital remains in Tema inspires attachments between people and infrastructure and among people through infrastructure that I term "infrastructural intimacy"—the second critical term in the triad.[25] Enabled by bodily processes and outputs in which they are entangled, infrastructural intimacies exceed relations of bodily copresence and play out through an array of affective, sensory, and operational correspondences and interdependencies across persons and infrastructural things. Infused by the force and possibility of vital remains, the sociotechnical remix of infrastructural intimacy offers a formative means through which new political orders and accountabilities materialize in the stead of the city's official infrastructural fabric, moving beyond restoration to sustain innovation (cf. Jackson 2014, 222). They set the stage for new configurations of public order and accountability as well as new social and technical arrangements in the private sphere of household and community.[26]

A kind of relational glue, infrastructural intimacy transforms emergent

orders into enduring formations by tapping into, channeling, and containing the vitality of material remains. In the face of the base substances and practices of human excretion, infrastructural intimacies mobilize emotional attachments and identifications to routinize new infrastructural arrangements. Differing from discussions of infrastructure's capacity to shape intimate forms of sociality (Appel, Anand, and Gupta 2018, 22), I use the term "infrastructural intimacy" to address intimate sociality's capacity to instantiate, stabilize, and harness infrastructure. Such inversions of infrastructural figure and ground, prevalent across Tema's infrastructural outlays, underwrite what I call the "infrastructural inchoate." Through the lens of infrastructural intimacy, attention to the inchoate allows a finer-grained understanding of situations otherwise glossed as "breakdown" (pace Star 1999). The inchoate signals the possibility of transformation as infrastructural context and content intertwine, provider and user switch places, material flows prevail over fixed forms, and popular needs unseat state ideals.

Similarly integral to the vital politics of infrastructure in Tema, excremental solutions formulated by city residents are rooted in and transformative of domestic spaces and practices. Notably, domestic arenas demonstrate a capacity to concentrate vital remains, and seed and sustain infrastructural intimacies. The results are institutional formations marked by what I call "deep domesticity," which provide the work's third conceptual anchor. Undergirding Tema's excremental innovations, deep domesticity involves the expansion and extension of domestic functions, membership, and spatial and operational reach. Drawing persons and things into domestic spaces and networks, deep domesticity provides a foundation for wider infrastructural and political realignments. The "depth" of deep domesticity" lies in multilayered linkages and entailments at once state-facing, public-facing, and internally focused. Like Clifford Geertz's (1972) "deep play," deep domesticity is multivalent. Articulating claims to resources, rights, and recognition and sustaining residents' coordinated response to state exclusions and intrusions, deep domesticity turns inside out Tema's founding plan of excremental infrastructural internalization and centralized control. Rather than infrastructural elaboration and tight enclosure of the domestic sphere walled off from the polis per the conventional modernist sanitary script, by means of infrastructure's vital politics the domus encroaches on the polis and res publica to claim earlier suppressed possibilities. Whether these popular modalities of urban infrastructural provisioning should be replicated or

championed is a matter for health experts to determine. For those concerned with the realities of urban politics and public life in African cities, they offer important grounds for political critique and theorization.

Theoretical Anchors: From Actor Network Theory to Vita Activa

Making Latourian Associations

I draw inspiration from what on the surface may appear to be two rather different camps of political theory to understand the nature of Tema's excremental infrastructures as engines and outcomes of urban political praxis. Bruno Latour's (1990, 1993, 1996, 2005a, 2005b) rendering of Actor Network Theory (ANT) is essential to the discussion. So too is Hannah Arendt's multifaceted conception of political life articulated in *The Human Condition* (1958). Though infrequently conjoined (Chalfin 2014, 2015, 2017; Honig 2017),[27] they share roots in Martin Heidegger's (1971, 2008) phenomenological approach to lifeworlds. Relevant to and revealed by infrastructure's vital politics, the juxtaposition of Arendt and Latour offers generative tensions and unexpected intersections both theoretical and methodological. Drawing on Heidegger's theorization of "gatherings," Latour (1993, 2005a, 2005b) focuses on never entirely predictable processes and outcomes of "associations." Arendt's *The Human Condition*, by contrast, seeks to capture historical trends and transhistorical continuities, fostering comparison and *longue dureé* perspectives. Despite the originality of its historical sweep and conceptual frames, hers is a more conventional approach to politics focused on institutions and individual and collective rights and recognition.

Through the combined optics of Arendt and Latour, it is possible to unpack the multifaceted origins of the excremental infrastructural solutions devised and utilized by Tema residents and their sociopolitical and institutional impacts given infrastructural arrangements' capacity to shape and remake the functionally entangled realms of domus, polis, and res publica. By reflecting on Tema via the conceptual and methodological lens of Arendt and Latour, and Arendt and Latour through the lens of Tema, the ability of excremental infrastructures to express and orient urban political experience and expressions of plurality in enduring, even if contested, ways comes to the fore. *Demos*—including participatory forms of public goods provisioning such as waste management that are the lived terrain of urban coexistence and self-governance—is built not on rote consensus but on constant negoti-

ation across difference, as Latour's (2005a, 14) discussion of the varied and dynamic character of political assembly reminds us.

Eschewing ideal types, Latour's Actor Network Theory is attuned to actually existing entanglements of human and nonhuman and the unscripted possibilities that emerge in the immediate flow of social life. Drawing on Gilles Deleuze's notion of "assemblage," ANT builds on the premise that human and nonhuman agency coconstitute social and technical worlds (Latour 1993). By enabling and reproducing "associations," practices of human and nonhuman assembly establish the material contours of public life and give them durable form (Latour 2005a, 1990). The value of ANT to anthropological investigations of infrastructure is well established (Barry 2006, 2013; Jensen and Morita 2017; Von Schnitzler 2016). With regard to political processes, ANT offers an important alternative to Michel Foucault's (1979) and Giorgio Agamben's (1998) much stricter disciplinary optics. In contrast to these theorists, ANT is attuned to the interacting agencies of humans and nonhuman things, and makes visible infrastructure's multiplex, often unstable technopolitics and its unscripted political outcomes.[28]

The political entailments of public life engendered via gatherings of people and things are core concerns for Latour (2005a). Centered on the concept of "dingpolitics" ("thing-politics"), from the archaic definition of "ding" as a mix of "meeting and matter," Latour (2005a, 5, 12) asserts, "The body politik is not only made of people. They are thick with things" (6). He founds this contention on the premise that "objects—taken as so many issues—bind all of us in ways that map out a public space profoundly different from what is usually recognized under the label of 'the political'" (5). Rooted in the sustained admixture of people and things by means of infrastructure, these configurations enable and orchestrate human plurality amid the vagaries of public life. For Latour (24), as for those who reside in urban Ghana, such assemblies are the "real" parliaments of public life distinct from formal institutions of representation and deliberation. In a similar vein, Bonnie Honig (2017, 90), drawing on Latour and Arendt, asserts, "Public things are one of democracy's necessary conditions"; if we neglect them, "we end up theorizing the demos . . . without the things that give them purpose."

Actor Network Theory speaks to infrastructure's political potentials in another critical way as it moves beyond the dichotomy between human and nonhuman matters. Urging recognition of the intractable presence and agential potential of bioactive materials, the murky middle grounds of the more-than and not-quite human come into the analytic ambit (Murdoch

1997; Haraway 2004, 2016; Kirksey and Helmreich 2010).[29] Excreta prime among them, these are substances of both life and decay. Of the body but not fully human, they are a by-product of human life yet have a life of their own and can threaten or bolster human vitality.[30] Alert to the varied half-lives of human bodily waste, this strand of ANT, falling under the rubric of "vital materialism" (Bennett 2010), lends to the study of infrastructure an appreciation of material arrangements essential to human life and material forms full of life. Not recognized in Arendt's rendering of politics or plurality despite her attunement to human vitality (1958, 47), attention to the dynamics of the "other than human" offers a fuller picture of infrastructure's vital politics appropriate to the case of Tema's excremental experiments.[31]

Arendt on Bodies, Infrastructure, and Urban Publics

Driven by the conditions at work in Tema, I pair ANT's consideration of the Gordian knot of material agency en masse with investigation of the specific ways human interests and intentions are actively materialized to represent and enforce political claims. A conceptual couplet, this approach encodes a double question of how materiality becomes agential and human agency is materialized. Though related and intersecting, the agency of material forms cannot be assumed to be identical to the material dimensions of human agency. In this regard, Arendt's *The Human Condition* offers crucial insight on matters overlooked or conflated by Latour. For Arendt, "the human condition is an active condition": what she calls the *vita activa*. Human existence depends on the engagement of the human body as both agent and object of activity. Such activity takes multiple forms. Arendt divides them in three—labor, work, and action. She poses each as a sequential move in the full realization of human political potential (Arendt 1958, 7):

> Labor is the activity that corresponds to the biological processes of the human body . . . life itself.
>
> Work provides an artificial world of things distinctly different from natural surrounds.
>
> Action, the only activity that goes on directly between men [*sic*] without the intermediary of things or matter, corresponds to the human condition of plurality, to the fact that men, not Man, live on the earth and inhabit the world. While all aspects of the human condition are somehow related to politics, this plurality is specifically the condition . . . of all political life.

Together, the conditions of human experience compose the *vita activa* (Arendt 1958, 17), a form of dually collective and individual existence. Also referred to as the "unquiet," it exceeds the life of contemplation by being in the world with others and with things. Though posed in terms at times contradictory, Arendt's triad of labor, work, and action complicates the prevailing political dichotomization of public and private by speaking to their various overlaps and middle grounds (Honig 1995, 4). In the case of Tema, where public needs enter into private domains and private needs spill over to the public realm, this analytic alternative offers critical conceptual traction. In this work, I make the bold move to attend to action as conceived by Arendt not by privileging speech but instead by treating actions' material manifestations as forms of individual and collective practice.

Appeal to Arendt is not without consequence. Like the work of her teacher-mentor Heidegger, Arendt's political philosophy is marred by presumptions of inherent human hierarchies and exclusions.[32] Where Heidegger is taken to task for his anti-Semitism, Arendt is guilty of a deep misunderstanding of race and racial politics in Africa as well as in the United States (Allen 2004; Bernasconi 1996; Gines 2014; King and Stone 2007; Norton 1995). Attuned to these limitations, my engagement with Arendt partakes of a larger intellectual effort to "think with Arendt against Arendt," as feminist political theorist Seyla Benhabib (2000, 198) puts it. To make Arendt relevant to the present, Benhabib (198) asserts, scholars need to "leave behind the pieties of textual analysis and ask Arendtian questions and be ready to provide non-Arendtian answers." In this vein, my examination of political life in Ghana builds on the growing reappraisal of Arendt among scholars of the global South. Alongside those in allied fields of history (Lee 2008) and political science (Bernstein 2018; Samnotra 2016), anthropologists and their ethnographic interlocutors have a growing stake and voice in this project (Bear 2015; de Genova 2010; G. Feldman 2013, 2015).[33]

Arendt's core ideas—about the body, public life, politics, plurality, and the human-made world—are marked by towering intellectual insights as well as impasses. In these gaps, Latour and Arendt illuminate one another and are illuminated by the case at hand. Of fundamental relevance to the investigation of infrastructure's vital politics in the city of Tema, Arendt, unlike most political theorists of her day—not to mention Latour—deigns to address bodily processes. The body is integral to her distinctive conception of labor, defined as "practices necessary for the maintenance of life itself" (Arendt 1958, 7) and encompassing the biological processes and metabolic

needs of the human body. Arendt, again unusual for theorists of her day, dares to speak directly to the presence and significance of the body in the political realm. However, representing a telling fissure in her conceptual apparatus, she shuts down this conceptual opening. After discussing the details of bodily sustenance and reproduction, Arendt asserts that bodily needs as a realm of bare necessity reflect humans' animal nature. Thus, she deems them prepolitical, preconditional to political life. Provoking scholars to accuse Arendt of both condemning and silencing the political body—especially a body gendered female (Zerilli 1995, 167)—Arendt blatantly rejects any polity in which intimate concerns are publicized and dismisses the body as an inappropriate subject or object of political action. She grounds these claims in her much-idealized polis of Ancient Greece, where "the citizens' freedom derived from their capacity to disregard the fact that they too were . . . as beholden to bodily needs as anyone else" (Tsao 2002, 106).

Taken at face value, Arendt's diatribe against the public body, treating it as not only out of place but also antithetical to the polis and political action, is unable to comprehend the political possibilities of Tema's excremental orders. Yet amid these "pieties," Arendt expresses flashes of insight regarding the place of the body in the public realm. Apposite to the case of Tema, she remarks, "Whether an activity is performed in private or in public is by no means a matter of indifference. The character of the public realm must change in accordance with the activities admitted to it. To a large extent the activity changes its own nature too" (1958, 46). To draw on terms introduced earlier, the "vital remains" of the body are likewise the "vital remains" of Arendt's theorization of labor. Indeed, offering unexpected resonance with Tema's excremental infrastructural innovations, despite Arendt's ardent effort to treat bodily necessity as prepolitical, bodily processes and substances creep into her formulations, suggesting that the body too is politically undecidable.[34] Resonating with the collective management of bodily waste in Tema, Arendt (1958, 100) mentions the "natural metabolism of the living body," and "processes of growth and decay through which nature forever invades the human artifice." From this perspective, the vitalities of things—both human and nonhuman—are recognized to inform political process.

Rather than conforming to Arendt's explicit contention that activities of *animal laborans* corrupt the political realm, Tema's excremental solutions raise the question of how "practices necessary for the maintenance of life itself" (Arendt 1958, 7) shape the character of urban plurality, pushing us to "think with Arendt against Arendt" (Benhabib 2000, 198). Arendt's

subtended intuitions regarding the bodily processes and the polis may well serve to strengthen Latourian assemblage theory, which is widely accused of "ontological flattening" in its tendency to equate human and nonhuman agency (Harman 2014). Such recognition of the forms, forces, and consequences of bodily presence in the modern public sphere, even if couched in dismissal per Arendt (1958), puts the multiplex presences, concerns, and capacities of the body into ANT's political ontology, offering a vantage point in line with infrastructure's vital politics in Tema.

Bringing Latour and Arendt to bear on each other as well as the case at hand, Tema's excremental arrangements likewise pry open Arendt's rendering of what she calls "the social." A core—and much debated (Honig 1995)—contention of *The Human Condition*, Arendt furiously maligns what she identifies as the rise of the "social" in modern public life. Coming to the fore with industrial modernity, the social, as she sees it, undermines the capacity for open-ended in-depth exchange and debate that marks the properly political (Arendt 1958, 45). Characterized by Arendt as an explanation for modernity's downfall, "the social" in her rendering is an expansive if unruly concept collapsing multiple claims. Three stand out. Most pronounced is the surfacing of bodily labors in public. Also wrapped into the social is the force of social conformism in modern consumer society, inhibiting autonomy and expression of difference (Arendt 1958, 46; Pitkin 1995, 59; Tsao 2002, 106). The third is the tendency toward self-interest, summed up by Hanna Pitkin (1995, 54) as the scourge of "housekeeping," whether pushing the preoccupations of the household in the political realm or turning away from public life and collective well-being toward superficial self-interest rather than political things (Arendt 1958, 52). Arendt's disdain for "the social" is evident in her much-remembered discussion of modern enchantment with "small things" in the private space of the household, such that the collective potentials of the public realm are supplanted by a penchant for comfort and "charm" (52). Ultimately undermining what she considers to be the all-important workings of plurality in the public realm, Arendt argues that the social detracts from the pursuit of collective interests and breeds passivity rather than collective negotiation of difference (Canovan 1992; Norris 2002; Pitkin 1995).[35]

Taken at face value, Arendt's concept of the social wholly disqualifies Tema's excremental infrastructures as properly political spaces of plurality. Of the body, the household, and entering into public life in the name of self-care, social inclusion, and status advancement, on the surface at least,

Tema's excremental experiments represent all the ills of Arendt's grand category. Again, looking beyond Arendt's "textual pieties" (per Benhabib 2000, 198) with the aid of Latourian method and the reference point of Tema's lived reality, a closer examination of Arendt's claims offers an analytic opening in its own right. Countering a narrow model of political possibility, a much less restrictive understanding of political community and associated forms of mutual recognition and self-determination rise to the top. Relevant to, and visible in Tema, namely, the demise of the public realm Arendt sketches in her rendering of "the social" opens the door for the politization of the private. In addition, what is initially posed as an impediment to meaningful public life becomes a means to return to and revitalize public space and interaction.

Arendt herself provides the tool kit for this reversal. *The Human Condition* is at root a materialist meditation on human experience. It starts with things, or more precisely, a broad category of things that Arendt labels "work." Work, the middle term in her triad, stands between and also connects and bleeds into labor and action. Work also transcends the categories of public and private. Arendt's is not a Marxian materialism built around relations of production but one rooted in an expansive understanding of work. Work, for Arendt, revolves around fabrication: those who fabricate (whom she labels "*homo faber*," human who fabricates), machines, as well as tools, and the things that result, from objects to the built environment of the city.[36] Indeed, for Arendt, things and their makers are the bedrock of plurality and *vita activa*. Paraphrasing Arendt (1958, 182), Linda Zerilli (1995, 183) states: "Action, which creates the 'web of human relationships,' the intangible 'in-between which consists of deeds and words,' must be supported by 'a physical worldly in-between,' by objective worldly interests that constitute something which inter-est, which lies between people and therefore can relate and bind them."

Aided by the insights of Latour and the lived truths of Tema, all of which address hybrids rather than absolutes, gatherings rather than containment, and how things are constituted rather than instituted, Arendt's stipulations can be turned toward a more inductive approach to urban political space and practice. Eschewing the strict divide of public and private, it becomes possible to notice rather than assume the material forms—burst pipes, wastes, wetlands, alleyways, boreholes, and pour-flush toilets—that provide the context for and object of coparticipation and collectivity. Attuned to "association" in the vein of Latour, Arendt's conceptualization of labor, work, and action as separate spheres rather than interlinked dimensions of hu-

man experience proves inadequate to social reality (see also Markell 2011). Turning from Arendtian orthodoxy to the possibility of a more heterodox perspective recognizing intersection and overlap, the essence of what I call "infrastructural intimacy" comes into view. In this analytic, bodies, waste, infrastructural things, and articulations of human interest commingle and coimbricate, creating complex attachments.[37]

With this in mind, building on Arendt's reluctant admission that the modern *oikos* allows the "outside" in, the household can be understood as a space of plurality in its own right. Whether material things, persons, values, or social accountabilities, it is actively shaped by and reflects back on externalities, not a static closed space as purported by Arendt's strict classicism. Likewise, Arendt's baseline description of the properly public realm as restricted to appearances, utterances, and abstract issues appears surprisingly shallow compared to the taint of living bodies, fabricated and decaying things, and self-interest that invade the public sphere alongside "the social." Laying the ground for bodily and waste-based associations—what I gloss as "intimacies," infrastructural and otherwise—public places and public things (including public toilets) offer a space of fulsome possibility that grapple with and organize the complexities of human and nonhuman plurality in the city. Made evident in Tema's excremental infrastructures, at these junctures, conventions of deep or expansive domesticity coalesce. Usurping the ambit and promise of governmental provisioning, they either draw inward into the space of household or extend outward claiming public space and resources for collective, albeit private, use.

While the alignment of Latourian empiricism and the realpolitik of Tema's excremental outlays unsettle Arendt's sanitized representations of public life, we cannot dispense with the important insights of her work. These include attention to institutional forces and impasses that structure political possibility across different epochs and in the present. In this regard, Arendt's claims regarding the broad contours of the *longue dureé* and multilayered historical realities call for continued consideration. Kim Fortun (2014, 315, 318) sharpens this critique, pointing to the failure of Latour-inspired ANT to adequately address cross-scale interactions and externalities, privileging the emergent over the weight of history and the "soiled grounds" left in its wake (see also Bessire and Bond 2014; Gordillo 2014).[38] In this light, to give analytic pride of place to Tema's excremental experiments is not to treat them as deus ex machina. Rather, refracted through the combined lens of Actor Network Theory and Arendtian political analysis, Tema's

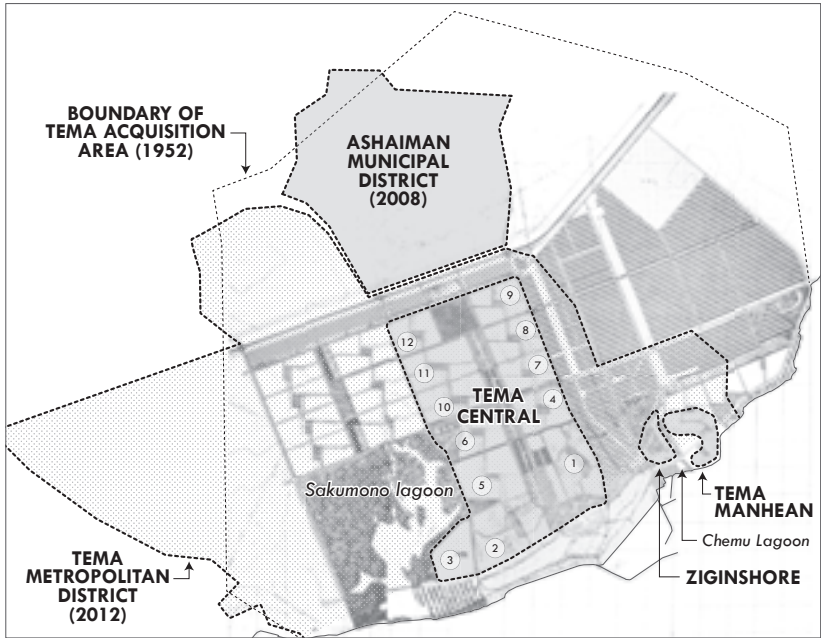
waste management solutions stand as a material index and anchor of shifting strategies of urban collective life across political epochs. Forged in the face of neoliberal developmentalism and the long, drawn-out, multilayered process of industrial modernity's decomposition in a location once considered its leading edge on the African continent, they build on the persistent, transhistorical rhythms of the human body. At once accommodating governmental failures and reproducing urban inequalities as they enable new interdependencies and solidarities, in Tema these interventions remake the urban landscape and alter routines, accountabilities, and expectations by harnessing intimate bodily processes through novel means of essential infrastructural provisioning.

Manufacturing Infrastructural Exception in Tema

Attuned to disparities and interdependencies across Tema's urban expanse, the book's chapters investigate the vital politics of urban waste through in-depth portraits of excremental infrastructures in four parts of the city (see map I.2). Each chapter is situated in a different urban locale to reveal a distinctive nexus of infrastructure, bodily processes, and urban public life expressing and delimiting the possibilities of the polis via the res. Across these locations and examples, Tema's excremental arrangements simultaneously connect and separate the city's inhabitants and serve as a focal point for negotiating the terms of urban plurality above, below, beyond, and alongside governing authorities.

It is important to recognize that Tema, despite being designed and conceived as a whole, was and remains a divided city with sharply demarcated sections and zones. Not only is Tema's infrastructure-laden built environment divided into distinct functional areas dedicated to port, industry, residence, and commerce, but from the start, Tema's urban landscape was also marked by implicit codes of social differentiation. Similar to other large-scale modernist experiments in the tropics from the same era, such as Brasília, designed by Oscar Niemeyer in 1956 (Holston 1989), and Chandigarh in India's Punjab, designed by modernist master Le Corbusier in 1952 (Fynn 2017; Shaw 2009), Tema's actualization was predicated on strict rules of form and spaces of exception. These are the social, geographic, and infrastructural outliers and exclusions on which urban functioning has come to depend.

The deliberate management of difference was part of the city's design early on. Gold Coast town planning advisor A. E. S. Alcock sketched the



Map I.2. Map of Tema Acquisition Area and four research areas: Tema Central, Tema Manhean, Ziginshore, and Ashaiman (Created by Kairon Aiken)

first comprehensive scheme for Tema in 1951. The initial plan centered on small residential neighborhoods, described as "village-size units" (Alcock 1955, 52), designed to reproduce what he called the "feeling of belonging" characteristic of African village life and "avoid the estrangements common to urban living." Organic in shape and tightly clustered, by independence in 1957 only a small fraction of new residential, industrial, or commercial areas were completed. In 1961, after sidelining the inputs of Soviet bloc planners (Stanek 2015),[39] the master plan for the city was finalized with the input of the Athens-based engineering and architecture firm Doxiadis Associates. Eschewing the more naturalistic approach of Alcock, the plan included twelve distinct communities of nearly equal size organized around a central spine at the city's core. Persons deemed not fit for residence in the new city's center were relocated to outlying zones.

Despite the promise of upward mobility for all, the realization of Tema's master plan depended on a series of carefully orchestrated displacements. The first was claiming land to build the city (Gold Coast Ordinance 1952). Designated the Tema Acquisition Area, the land was carved from the

customary property of Ga-Adangbe fishing and farming communities and long-inhabited villages of Tema and Sakumono.[40] Replete with shrines, burial grounds, lagoons, and fishing beaches, under the Public Lands Ordinance, the entire parcel was fully vested in the government, "with the native chieftaincies retaining only residual custodial rights" (Kirchherr 1968, 210).[41] Officials in the Ministry of Housing swiftly recommended the removal and resettlement of persons of Ga-Adangbe heritage, whom they considered indigenous to Tema (D'Auria 2014, 339, 340). Buffered from the rest of the city's residential areas by the port and industrial zone, there was to be a new village with a plan all its own. It was designated "Tema New Village" and designed to offer transitional living arrangements reminiscent of traditional forms. Popularly called Tema New Town, it was also known as Tema Manhean, meaning "new town in Ga" (Amarteifio 1966).

The strict injunctions of planning led to further separation of urban spaces, functions, and populations. Confounding the professed commitment to nation-building and the cultivation of national belonging over and above "tribalism," native Ga were not the only ones removed from the area designated to become the city's core. A settlement of over two hundred multiroomed homes and many more associated households (Field 1940), also residing in Old Tema and adjoining areas, were persons vaguely identified as "Northerners" and "Nigerians" (Amarteifio 1966). Despite having recognized leaders, family homes, and histories in place, they were considered by urban authorities illegitimate occupants of the city yet to come. Members of this diverse demographic were relocated in 1959 to the far reaches of the new township. The area eventually became "point zero" of Tema's working-class community of Ashaiman. Functionally linked to Tema, it was largely exempt from the tight logics of urban governance and municipal provisioning found in of the rest of the city despite the labor residents provided to sustain Tema's seaport, industrial zone, and service economies.

Beneath the promise of political and infrastructural entitlements of the model city, these initial fissures in Tema's urban fabric continue to infiltrate urban life and reflect the type of "splintering urbanism" described by Stephen Graham and Simon Marvin (2001) when high-modernist ideals of urban infrastructural integration give way to differentiation and decentralization. While Graham and Marvin address the rise of urban inequalities in the face of uneven external ties and investments, Tema's infrastructural underground highlights internal and organic processes of disintegration. Reproducing and deepening inequalities, these processes also seed unscripted

outcomes. Revealing the complex political entailments of infrastructural reordering for both public and private life, a view of Tema through these emergent and embedded formations puts Arendt's *vita activa* and Latour's dingpolitics in a new light. In the face of seemingly quotidian technical rearrangements mixing human and nonhuman, living and inert, spent and new, the material and experiential contours of political inclusion and exclusion in the city rise to prominence as sites of transformation even if they do not take the familiar form of polis.

Chapter Overviews

The book begins with a discussion of the founding figures and forces driving Tema's midcentury master plan, highlighting the central role of sanitary infrastructure in entraining urban political possibility. A backdrop to the dilemmas faced by Tema residents and city authorities a half century later, chapter 1 provides a historical touchstone for the rest of the book. Subsequent chapters offer in-depth profiles of four sections of the city. Chapter 2 addresses the core of the planned residential zone, what I call Tema proper. Chapter 3 focuses on the resettlement village of Tema Manhean. An informal settlement built on the polluted wetlands of Tema's industrial area known as Ziginshore is the subject of chapter 4. And the working-class township of Ashaiman is featured in chapter 5. With distinct histories, demographics, and built environments, each section reveals different arrangements of excremental infrastructure composed in response to the gaps, lacks, failures, and possibilities of the received order. Each arrangement carries its own political implications, where excremental infrastructural improvisation turns into political experiment. Through the play of vital remains and the work of infrastructural intimacy, these sections evince and embody different configurations of public and private life. Each ultimately deepens the political reach of the domestic domain to alter the terms of urban coexistence and distinction.

The solutions forged in the different areas of the city represent contrasting patterns of excremental provisioning. Tema's core, built according to a postwar "new town" template, exemplifies the public provisioning of private sanitation. Tema Manhean contains public sanitation facilities provided by public sources, both municipal and community-based. The informal settlement of Ziginshore is the site of an expanse of public facilities built and serviced by a private waste entrepreneur. Ashaiman offers sanitary solutions

Table I.2. Comparison of excremental infrastructure and private/public nexus in Tema

Section of city	Provided by	Provided for
Tema Central	Public authorities	Private use
Tema Manhean	Public authorities	Public use
Ziginshore	Private sources	Public use
Ashaiman	Private sources	Private use

Table I.3. Excremental infrastructure in relation to the state in four sections of Tema

Section of city	Relationship to state
Tema Central	Negotiation of boundary between private property and public responsibility serves to "instate" the state
Tema Manhean	Communal toilets challenge transcendent claims of state and traditional authority and reject the state
Ziginshore	Waste infrastructure forms the foundation of proxy sovereignty both alternative to and simulating state practices
Ashaiman	Enlargement of private excremental provisioning fuses the domestic and public to supplant the state

located in private households for public use and sponsored by private individuals (see table I.2).

In each locale, vital bodily processes and infrastructural breakdown inspire diverse forms of political assembly and serve as the basis of urban collectivity and claims making. Whether with, against, or outside of state authority, they enable new hierarchies and fealties alongside opportunities for security, self-care, and self-determination (see table I.3). In Tema proper, infrastructural breakdown provides grounds for renegotiation of the urban social contract regarding the boundaries between private property and public responsibility. In Manhean, residents utilize public toilets status as a community inheritance to challenge the transcendent claims of state and traditional authorities and while catering to individual and collective needs. In the case of Ziginshore, waste infrastructure forms the foundation of a proxy sovereignty alternative to the state, with excreta an irrepressible force impossible to fully harness or tame. In Tema's sprawling satellite settlement of Ashaiman, a city in its own right, private provisioning of hun-

dreds of public toilets, most within the confines of domestic space, prevails. Insisting on acceptance by the municipal government by default, these facilities rewrite the terms of urban public life to enable new conventions of urban status and civility.

Chapter 1, "Assembling the New City: From Infrastructure to Vital Politics," delineates the infrastructural and ideological underpinnings of Tema's founding and the consequences for urban politics and public life. Tema melds the infrastructure-heavy vision of nation-building of Ghana's first president, Kwame Nkrumah (1958), with the designs of Greek engineer turned planner Constantinos Doxiadis (1968). Like their contemporary, Arendt, both Nkrumah and Doxiadis were invested in the restoration of the rightful order of humanity in the aftermath of the violence of colonization, occupation, and world war. Whereas Arendt privileged participation and self-determination, Nkrumah and Doxiadis saw the built environment and technological advancement as a primary means to achieve societal progress. All three, however, treated the satisfaction of bodily needs as prior to full-fledged processes of political inclusion. In contrast to colonial-era denials of basic services and supports, the approach of Nkrumah and Doxiadis to the new city depended on deliberate strategies of urban provisioning and turned household and neighborhood infrastructure into the prime loci of urban control under the aegis of the Tema Development Corporation. Serving basic needs, these efforts sidestepped the more difficult issue of political mobilization among the city's new working class.

Driven by the 1960s master plan, the disposition of bodily waste became a marker of urban order and parity across Tema's neighborhoods and income categories. Each residence was equipped with private household toilets linked to the municipal sewerage system. By substituting planning for participation, the city's infrastructure-heavy design was intended to serve the liberal project of "self-rule." Alongside the new nation's embrace of self-government, these arrangements encompassed an atomized governance of the self, anchored in the domestic realm. As the urban population and associated waste flows grew, the limits of Tema's sewage system and planning authority became apparent, instigating sanitary alternatives built from the vital remains of the old order, still visible today.

Chapter 2, "Tema Proper: Infrastructures and Intimacies of Disrepair," sticks close to the residential neighborhoods in the planned city's core. A half century after Tema's founding, the sewage system is in the throes of collapse. With Walter Benjamin's idea of "ruination" as the chapter's theoretical

fulcrum, drawing on Ann Laura Stoler (2013, 13), it asks, "How do lives accumulate around ruins and ruins around lives?" Told from the perspective of the engineers who operate Tema's sole functioning sewage pumping station, the chapter recounts the centrality of bodily knowledge and corporal risk in sustaining urban public services. Here, the res publica is supplanted by "the labor of life itself" (Arendt 1958, 7) lodged in the discrete bodies of infrastructure's caretakers. Such infrastructural intimacies, merging human and nonhuman, private and public, bioactive and machinic, prove integral to upholding the façade of municipal capacity.

Tema residents experience infrastructural intimacies of their own. Revealed in the sewage diary of a cluster of middle-class homes, residents confront overflowing manholes and the backed-up excrement of neighbors, tenants, and family members flooding streets, bathrooms, and courtyards. As an example of vital bodily materials spurring political assembly (Latour 2005b), errant excreta enliven the "connective tissue" (Stoler 2013) of community as neighbors pool resources to clear pipes and clean spills. Facing overstretched municipal repair teams, residents prevail on local representatives—aptly designated "assemblymen"—to bring complaints to city authorities. In doing so they invite intrusion into domestic space and inadvertently incite allegations of abuse of public infrastructure as the sewage system's cycle of breakdown and repair reveals a looming gulf between public and private responsibility. While Tema's middle-class urban dwellers continue to look to city authorities for input and oversight, at this political cum technical juncture, it is residents' stopgap measures that ensure the functioning of a fragile system.

Chapter 3, "The Right(s) to Remains: Excremental Infrastructure and Exception in Tema Manhean," employs Henri Lefebvre's (1996) notion of the "right to the city," to examine the rise, fall, and restoration of fee-based public toilet facilities by residents of Tema's resettlement area established in the 1950s to house those removed from their lands and homes to make way for the new city. Manhean's compact neighborhoods retain public toilet and bath complexes from its founding, initially linked to the city's centralized sewage system and for decades bereft of adequate municipal input. In the earliest plans for the urban core, sanitation was largely out of sight. However, in Manhean, standalone public structures with shared toilets and baths, designed by British architects Jane Drew and Maxwell Fry, were located between clusters of residential dwellings to enable public access and monitoring by urban authorities.

Over time, Manhean residents mobilized the self-proclaimed "right(s) to shit" to make public toilet facilities their own. Treating them as vital remains rather than ruins despite their substantial disrepair, residents effectively rendered them community property. In the process, they undermined the claims of Tema's municipal government, political party hacks, and traditional leaders who deem themselves rightful owners of independence-era infrastructure. With septic pits and sewer lines at the fore, a political dynamic around the stuff of bare life is at play. Demonstrating Arendt's (1958, 46) insight that the "public realm must change in accordance with the activities admitted into it, [and] the activity itself changes its nature too," these spaces and contestations fuel a profound reworking of the urban political topos. Namely, driven by vital needs, Manhean's public toilets pull a range of reproductive activities—sleeping, cooking, childcare, petty trade, prayer, medicinal aid, and other forms of self-care—into the public sphere for the urban poor. A graphic example of deep domesticity at work, these spaces enable a public staging of intimate forms of self-determination.

Chapter 4, "Ziginshore: Infrastructure and the Commonwealth of Waste," focuses on a settlement in the wetlands between Tema's port and industrial zone. Turned dumping ground and shantytown, it is built on the sedimentation and recycling of human, environmental, and industrial waste. Akin to a Hobbesian ([1651] 1994) social contract, in this unstable locale—a political and material inchoate—a putative "state of nature" is transformed into waste-based commonwealth by means of infrastructure. The marginality of the landscape is matched by the marginality of Ziginshore's inhabitants: a highly transient array of men, women, and children who lack permanent housing, reliable jobs, or the basic guarantees of social and bodily reproduction. They use this spit of reclaimed land for respite between stints of work at Tema's harbor and movement to and from hometowns elsewhere. Lacking any "privately owned place," these urban dwellers live in a public realm where even the most intimate functions can be "seen and heard by everyone" (Arendt 1958, 50, 52).

While Ziginshore's fluid ecology, human and otherwise, places it beneath the radar of official state recognition or oversight, a more opportunistic sovereign fills the void. At the heart of the settlement is a native son home from abroad who has turned infrastructure into political experiment. A massive public toilet and bath complex and adjoining excrement-based biogas plant is the font of public life and of his own empowerment. Spawning subsidiary functions and structures: schoolroom, hostel, meeting place,

communal kitchen, and more, these infrastructural experiments, built on vital needs and vital essences, make public Arendtian (1958) "labors of living." Entraining bodies and inculcating compliance through a broad range of infrastructural intimacies, they doubly instantiate and suppress the body politic in this corner of the city. Public but by no means polis, Ziginshore's homespun biogas plant and associated waste-based infrastructures rule over sovereign and subjects alike. Here, the ever-productive forces of vital human and nonhuman natures contained by Ziginshore's infrastructure power a crude Leviathan.

Chapter 5, "Dwelling on Toilets: Tema's Breakaway Republic of Ashaiman," focuses on Tema's sister settlement of Ashaiman. Ashaiman is Tema's inverse: an unplanned, periurban catchment area on whose labor, goods, and services the functioning of the planned city depends. If Manhean can be understood as a zone of abandonment marked by the evacuation and eventual rejection of formal government, and Ziginshore as an underground polity, Ashaiman stands as a breakaway republic. For fifty years a part of the Tema metropolitan area, Ashaiman fought for and won municipal autonomy in 2008 and now holds legal authority but lacks the means to actualize its goals. Ashaiman's development depends on the full-blown privatization of public works, toilets included. With more than two hundred privately owned and managed public toilet facilities covering the whole of the community, these arrangements are remarkable for their scope, scale, and class character. A compelling testimony to the force of deep domesticity, most are associated with domestic space, attached or adjacent to dwellings, and offer different degrees of service, comfort, and cleanliness.

Resembling displays of "conspicuous waste" (Veblen [1899] 1994), Ashaiman's dwelling-based public toilets offer upward economic mobility for owners and users alike. The chapter highlights three toilet complexes: one geared to working-class livelihoods, another built on merchant capital, and a third promoting middle-class assimilation. Using what the state refuses to acknowledge, these complexes expose what Bataille (1985) describes as the "heterogeneous nature of power" built on unclaimed excess. With toilets serving as the basis of influence and recognition in a public sphere largely abdicated by city authorities, evidence from Ashaiman affirms Arendt's (1958, 160) reluctant admission that "*homo faber* is fully capable of having a public realm . . . even though it may not be a political realm, properly speaking." The polis here is alive and well but privatized in content and control despite its public locus.

The conclusion, "From Vital Politics to Deep Domesticity: Infrastructure as Political Experiment," uses the case of Tema to offer an alternative means to comprehend urban political currents via human bodily waste. Beyond the "splintered urbanism" (Graham and Marvin 2001) of the underclass, brought to light are the broader repressions, work-arounds, and leakages on which urban functioning, whether for rich or poor, depends. Here, waste matter and its infrastructures provide a source of what Benjamin (1968) calls "profane illumination." Building on the potentials of vital remains, Tema's excremental infrastructural experiments are the lived terrain of the polity and engender and sustain new configurations of urban plurality beyond state sanctions.

Notably, evidence from Tema shows that excremental infrastructures can be a means and ends of political engagement and recognition despite the exclusions and inequalities that fuel them. The city's excremental experiments thus offer a theory of urban political life that recognizes the disordered yet vital remains of and around bodily waste to be a central player rather than suppressed agency in the organization of urban political experience. Taking what Arendt relegates to the apolitical realm of labor and turning it into an active arena of work and fabrication, and ultimately action, the infrastructural adjustments and innovations forged by Tema's residents demonstrate how built forms and sedimented routines alter the fundamental conditions of urban coexistence contra state expectations and interventions.

A vital politics from below, Tema's excremental experiments bring to bear widely shared urban realities. Whether in the global North or global South, cities worldwide are unified by the overwhelming excess of human waste matter, organic and inorganic, and the limits to the Leviathan as the will and capacity of the modern state to manage them wanes. In its face, wastes—both bodily outputs and the remains of defunct infrastructures—spur human and other-than-human agency and aggregation sustained by a range of infrastructural intimacies. A growing locus of urban political activity in cities such as Tema, where residents as well as public officials cope with the breakdown of high modernity's infrastructural inheritance, these arrangements simultaneously alter the character of public life along with domestic spaces, practices, and sodalities. They restructure access to and organization of basic urban services and pull the locus of urban politics and service provision inward. Intensifying and expanding on processes already in place, these routines deepen domestic capacities and responsibilities. Public-facing infrastructure surfaces in domestic space; all the while, domestic practices,

accountabilities, and infrastructural installations move into public domains. Different from the shrouded intentions and "quiet encroachments" of the urban underclass described by Bayat (2013), Tema's excremental infrastructural installations and adjustments directly alter the domestic realm by harnessing the staying power and unpredictability of vital remains, at once letting the state off the hook and calling it to attention.

Notes

Introduction

1 In a cultural system that prides itself on deference and propriety, to speak directly of feces and defecation in Ghana is inappropriate in public discourse. Like other linguistic conventions in this culture area, layered speech and the art of indirection is taken as evidence of maturity, knowledge, and respect. In Ghana, consistent with cultural convention, even the most base term for human feces, *ɛbini* in the Akan (Twi) language widely spoken in southern and central Ghana, is a euphemism, meaning "something that is part of something (eaten), literally *ɛbi* (some of it) *neɛ* (here is)" (Mohammed Mustapha, personal email communication, April 4, 2021). Despite the veiled reference, use of the term in common parlance is seen as vulgar. More acceptable is *taifi*, meaning "toilet" in Akan, and also used to denote bodily waste. Given my status as foreign professional, I revert to the linguistic conventions of those who occupy similar professional roles in Ghanaian society. However, as an anthropologist I also defer to the vocabulary used in the communities under discussion. In this text I primarily use the term "excrement" or speak more generally of "bodily waste." When it is used by my interlocutors, I also use the term "shit."

2 The term "undecidable," drawn here from Derrida (1981) after Hansen (1999), is also developed by Agamben (1998).

3 Long considered a fundament of modern sociality and civic order, this is labeled by Mukhopadhyay (2006, 226) "the municipal-civic master discourse."

4 This perspective is articulated by Jacky Bouju (2008, 159), who recognizes that recurring claims of "lack" regarding public sanitation usually hide political struggles and policy failures underwriting resource deprivation.

5 For a similar approach from a political science perspective, Paller (2019), also focusing on urban Ghana, offers a compelling example of studying informal politics in Africa to understand processes of democratization.

6 With reference to Palestine, Stamatopoulou-Robbins (2019, 212) speaks to the "doubleness" of waste as a matter both expended and portentous.

7 Kregg Hetherington (2019, 10–11) likewise recognizes the capacity of perspectives centered on "vitalism" to displace biopolitical paradigms in order to speak to the liveliness of infrastructures.

8 Though Kristin Phillips (2020) focuses on energy, her work on solar and wind power in rural Tanzania also insightfully unpacks the relationship between infrastructure and embodied capacity.

9 Drawing on the conceptual vocabulary of her interlocutors in South Africa's urban shacklands, Chance (2018) refers to the "living politics" of the urban underclass, which hinge on the mobilization of elemental matters, namely "fire, war, air, and land" in everyday tactics of protest, resistance, and community building. What I term "vital politics" are likewise a material politics. Rather than tactically politicized for self-conscious political ends as in South Africa, in Tema material forces are harnessed to fulfill essential needs. That is, while active and transformative and built from elemental forms of life, politics in Tema are more associative than agonistic, reflecting the different political histories and built environments of these contexts. In addition, vital politics in Ghana are more directly and consistently mediated by infrastructures with their own vitalities, which constitute what I call "vital remains."

10 The most graphic ethnographic example of the twin forces of scatological repression and resistance come from depictions of Northern Ireland's political prisoners' collective decision to cover the walls of their cells with their own feces and menstrual blood as a statement of self-determination under conditions of abuse and duress known as the "Dirty Protest" (Aretxaga 1995; A. Feldman 1991).

11 Reports indicate that more than half the country's population—56 percent—rely on shared facilities. The World Bank reports that 84 percent of the population was without access to "improved sanitation" (Armaly 2016, 1). Despite over a decade of government, multilateral, and NGO investment in meeting the UN Millennium Development Goal of private waterborne sanitation, rates shifted from 11 percent only to 15 percent between 2000 to 2015 (Appiah-Effah et al. 2019, 399, 402). Among rural households, open defecation was most common, followed by public toilets and pit latrines, and finally by water closets. In urban areas, with water closets used by 23 percent of the population, public toilet use prevailed, with a smaller percentage of open defecation (Armaly 2016, 3).

12 Colin McFarlane (2008a) makes a similar point about excremental politics in colonial India, including their continued imprint on contemporary practices.

13 "In the gold mining areas at the core of the colonial economy," Raymond Dumett (1993, 217) writes, "street sanitation, sewage disposal and anti-malarial preventive measures were entrusted almost entirely to the companies." These

were among the first urban areas to make widespread use of pan latrines (220).

14 Consisting of communal pan and pit latrines, these installations were considered sites of squalor and abjection despite the health benefits touted by medical officers. Marking their mutual taint, prisoners were put into service to clean and empty waste pits and buckets (Williamson and Kirk-Greene 2001).

15 Kru laborers emptied pan latrines each night. At first they waded into the surf to dump the contents, and later they made use of a "tipping depot" at the meeting point of the ocean and the Korle Bu Lagoon. An early example of makeshift urban sanitary infrastructure, "this facility allowed the contents of pans to be hosed out to sea in a long pipe supported by concrete pillars" (Patterson 1979, 254).

16 Accra's Jamestown area, for instance, in 1936 had a ratio of one toilet per ninety residents (Patterson 1979).

17 The city was named after the village of Tema that occupied the ridge above the port, itself named after the local calabash trees (*Lagenaria siceraria*) still common in the area and in some accounts referred to as *Torman*.

18 The Volta River Plan was a multifaceted megaproject, and its details were in flux for much of the 1950s. Coinciding with considerable political and economic upheaval regionally and worldwide, the location of the dam, smelter, and resettlement area changed considerably during the early years of project planning. As central elements of the larger project, plans locating the port and new city in Tema were fixed early on (D'Auria and Sanwu 2010). Following suit, when the US-based Kaiser Aluminum Company took over the smelter project from British industrial interests, the location was shifted from Kpong to Tema (Kirchherr 1968, 212) to make the import and export of aluminum inputs and outputs convenient to the port.

19 The new port of Tema would replace the antiquated surf port of Accra, which was little suited to large-scale bulk importation. The new port also supplemented the capacity of Takoradi Harbor, located hundreds of miles away and geared primarily to the export of raw materials (Kirchherr 1968).

20 The city of Accra, as a point of contrast, lacks a large-scale sanitary sewage system comparable to that of Tema. Accra contains an expansive, if imperfect, drainage system consisting of open storm sewers across residential and commercial areas and lagoons and wetlands that have been encroached on and rerouted to handle urban runoff and the pressures of urban settlement. Though the sewers may be used to dispose of and channel sanitary waste, they are foremost intended to capture stormwaters and household liquid waste from cooking, bathing, washing, and the like. Sanitary waste, i.e., fecal matter, is to be managed by residents through the use of dedicated household-based septic tanks, which have supplanted but by no means replaced pan latrines, or public toilets, also with self-contained septic systems. To reiterate, Accra, unlike

Tema, was never equipped with a citywide sanitary sewage system overseen by the municipality or national ministries. While sanitary codes remain widespread and exacting in scope, they focus largely on individual responsibility rather than state provisioning. The work of Accra's municipal authority with regard to waste was and remains largely devoted to larger-scale public works such as urban drainage channels and water courses, not those linking individual households to citywide networks, as in Tema's founding plan.

21 Given Tema's vast size, approaching half a million residents or more, and large expanse, spanning over fifty square miles, this book does not intend to be comprehensive in its discussion of sanitary practices across the city. It presents a representative sample drawn from Tema's core and its earliest-planned neighborhoods. Left out of the discussion are the more affluent and suburban communities at the fringes of the city's original expanse, such as Sakumono, along with those sections closer to the center with self-built and self-financed houses that rely on dedicated household septic systems. While they would surely offer a valuable source of comparison, the findings discussed here admittedly focus on excremental solutions that depart from the assumed modernist norm of municipal expectation and facilitation of private household facilities. Tema's oldest planned neighborhoods, Site 1 and Site 2 in Community 1, contain public toilets for its residents. These departures are more prevalent than meets the eye. Claims that the cases presented in this study are somehow exceptional or aberrant overlook the actualities of the midcentury system decline apparent to Tema residents, which they negotiate with grace, dignity, and tenacity and work hard to shroud from the view of visitors and casual acquaintances.

22 By no means is this a call to collapse the divisions between these domains: res publica, from Roman antiquity, and polis, from classical Greece. Arendt is sensitive to their different constitution. Although the polis is idealized by her, it is not always privileged. As a persistent subtext, Arendt notes the durability of material practice—of making—in the res publica versus the inherent insecurity of the polis grounded as it is in words, in the present, transformative yet fleeting (Ashcroft 2018). In this discussion I add the Latin *domus*, roughly equivalent to "household" (Swanson 2018). The Greek cognate, *oikos*, is widely used by Doxiadis. When quoting or referring to Doxiadis, I use the term *oikos* for accuracy.

23 In the case of waste, the chronic neglect and disempowerment of Black communities in the US South, as evident in Catherine Coleman Flowers's (2020) depiction of the fight for rural sanitation and sewage infrastructure in Perry, Alabama, makes these forces evident. In the case of water, the water crisis in Flint, Michigan, stands as an example of the convergence of all three and likely represents a phenomenon that is much more common than recognized.

24 Informed by Michael Herzfeld's (2005) discussion of bureaucratic intimacy, I initially formulated this term to explain the embodied and emotional disposi-

tions of Tema's waste engineers toward decrepit pumping station infrastructure (Chalfin 2015).

25 This term differs from what Butt (2020) calls "waste intimacies" with regard to garbage collection in Pakistan (see also Chalfin 2019). In the case of Tema, it is infrastructure rather than waste object that is the medium of intimacy. Butt furthermore stresses the ambivalences and inequalities of intimacy. My exploration of "infrastructural intimacy," by contrast, stresses intimacy as a means to build and stabilize material forms.

26 Elif Babül's (2017) discussion of "bureaucratic intimacies" in Turkey also draws on Michael Herzfeld (2005) to capture the collective moral frameworks and shared secrets of Turkish civil servants enrolled in international human rights training. Whereas Babül emphasizes the bureaucratic dimensions of Herzfeld's construct, I use the term "infrastructural intimacy" to draw attention to the insistent force of embodied processes and nonhuman agents in infrastructural transformation. Although experienced and enlivened by state actors and state-based and state-built material forms, ordinary citizens and state subjects are essential to infrastructural intimacies in Tema.

27 Driven by a shared interest in objects and contexts that orient urban political life outside the formally constituted realms of public administration and collective decision-making, Bonnie Honig's (2017) meditation on "public things" likewise joins the perspectives of vital materialism and Arendt's political thought. Offering little direct engagement with Latour, and making brief mention of infrastructure, it is primarily a conceptual work reflecting on political matters in the contemporary United States very different in object and orientation from this book.

28 From this perspective, Foucault's (1979) rendering of Jeremy Bentham's panopticon, in which both authority and fealty are absolute, is an infrastructural exception, not the rule. Among other things, in Foucault's reading, political relations are unmediated by the autonomous capacities of material objects.

29 In contrast to the late twentieth-century assessment of man-made waste as "unnatural," Mumford (1938, 46) mentions the prevalence in medieval cities of "organic waste materials, which decomposed and mingled with the earth."

30 Among the latter are new medical treatments utilizing fecal transplantation (Costello et al. 2017).

31 Vital infrastructures can be understood as a variant of critical infrastructure (Fredericks 2018). A concern with infrastructure's vital politics goes beyond this received understanding to consider how the fabrication, claiming, and taming of infrastructure's essence and essentialness are entangled with the expression and negotiation of political interest and contention.

32 The theoretical dispositions of Latour, a generation removed from Arendt and a student of Heidegger only in the indirect sense, are little discussed as bearing the burdens of Heidegger's political legacy, only his intellectual imprint.

33 Taking up Arendt's driving concerns around exile, human rights, forced mobility, and enforced stasis, the most prominent of these emergent intellectual trends combines the perspectives of migration and security studies, evidenced by the scholarship of Nicholas de Genova (2010) and Gregory Feldman (2013, 2015). De Genova (2010) addresses the most basic of human freedoms discussed by Arendt: the freedom to move outside of the sovereign logics of the nation-state. Feldman (2015) trains his lens on victims of what he calls the "migration apparatus" as well as its agents and perpetrators. Embracing Arendt's idea of the *vita activa*—a life for oneself that is at the same time a life for and with others—in the unfamiliar light of bureaucratic administration, Feldman investigates the possibility of political action through the act of speaking and thinking in common.

34 Mary Dietz (1995, 29) asserts, "*The Human Condition* carries a far more provocative gender subtext than most feminists have noticed." Building on this insight, I argue that *The Human Condition* carries a far more provocative "body" subtext than most analysts have noticed.

35 Tsao (2002, 105) discusses Arendt's "rather unconventional distinction between a public realm that is genuinely 'political'—allowing for human freedom—and one that is merely 'social.' Driven by the uniform, unceasing needs of their bodies and incessant cycles of labor and consumption, she argues that the demands of 'society' in this sense have increasingly overrun the public realm in modern times, bringing their inherent presumption of uniformity and unfreedom to human interaction."

36 Arendt (1958; Markell 2011) reads political life through the spatial and architectural arrangements of the classical city. She poses the enclosures of city walls as the protector of public life and the grounds for political participation, offering a durable context for human interaction and collective life of the *vita activa*.

37 Bonnie Honig (2017, 40) speaks of attachments to others via things as "adhesions," a term implying connection without the commitment of sameness implied by "cohesion."

38 Lucas Bessire and David Bond (2014, 449) voice a similar concern that ontological perspectives on their own run the risk of valorizing alterity and fail to speak to the wider political economic inequalities and injustices driving them. A notable exception, Gastón Gordillo (2014, 14), addressing large-scale rural ruins in Argentina, works to "politicize object-oriented approaches."

39 In *Overseas Building Notes*, A. E. S. Alcock (1963, 12) indicates that the town plan submitted by Russian experts included flats with communal kitchens. The plan was rejected on the basis of cost as well as style, as it "was not considered at all suitable to the Ghana way of life."

40 According to customary law, the core of the acquisition area was endowed in the chief of the village of Tema (D'Auria 2019). Chiefs of neighboring villages

Kpone and Nungua were also recognized as customary stakeholders because the tract extended into their traditional areas.

41 The ceding of land rights remains in contention to this day.

1. Assembling the New City

1 Danny Hoffman (2017, 16) notes that the large-scale transformation of West Africa's urban built environment in the aftermath of World War II was driven not just by shared postwar political-economic circumstances but by the same architects and pursuing similar planning paradigms (see also Uduku 2006).

2 An indication of a shift from piecemeal approaches to those driven by consistent policy, a master plan for Accra was established in 1944. Shortly thereafter, in 1945, alongside planning decrees for other areas of British West Africa, comprehensive town planning legislation for the entirety of the Gold Coast was put forth (Njoh 2007, 60, 63, 66).

3 These initial structures and layouts drew on the plans of A. E. S. Alcock and Drew and Fry (Provoost 2014).

4 Augmenting the scope and national significance of the city as a whole, in the same year a decision was made to locate the long-awaited aluminum smelter in Tema. President Nkrumah took the opportunity to embrace the prospects of the city anew and made the project a cornerstone of Ghana's "Second Development Plan," spanning 1959 to 1964. Infrastructure, including hydroelectric works of the Volta River Project, along with investments in housing, health, sanitation and water, were at the plan's core (Bissue 1967).

5 Pascal Menoret (2014, 68–69) offers an informative capsule biography of Doxiadis charting his rise to prominence.

6 Doxiadis's plan for the Greek city of Aspra Spitia, realized in 1961, closely paralleled his work in Tema. Not only was its execution coincident with Tema's, but Aspra Spitia's development also hinged on the takeoff of the country's aluminum industry (Theocharopoulou 2009, 128). Doxiadis Associates' involvement in Greek urban development followed earlier efforts by the firm in Baghdad spanning 1955–58. The master plan for Islamabad was launched with Doxiadis's first trip to Pakistan in 1954 supported by Harvard University and the Ford Foundation (Hull 2012; Harper 2012; Pyla 2008). Doxiadis's plans for Riyadh came later in 1968 (Menoret 2014).

7 Arendt's explicit engagement with Africa and the colonial predicament is uneven. In her discussion of German rule in Southwest Africa, she mentions colonial extermination of Herero people in present-day Namibia and argues that the roots of European totalitarianism lie in colonialism (Arendt 1973). Arendt goes on to assert that there are "unbridgeable gaps" between colonial genocide and the Holocaust (Stone 2011), an argument subject to extensive critique on the matter of race (Gines 2008; Lee 2011).