

Introduction

“I was a fisherman for most of my life. But now the *jangal* is closed [*bondho*].¹ So, I have become a businessman.” My research assistant Riton and I are sitting at a tea stall perched on an embankment in Gabura, an island in Bangladesh’s southwest delta region. It’s January of 2018. A warm and dry winter sun is baking the tall mud embankment that separates the interior of Gabura from the river outside. A cracked and uneven road runs along the top of the embankment. The tea stall is squeezed between the road and the embankment’s edge. Riton and I are perched on a rickety bench leaning against a wall, sipping sweet red tea. As we chat with a man I will call Nurul, the stall’s owner, and a group of other men who have gathered there, we look out on a seemingly endless expanse of dry shrimp ponds (*ghers*) inside of Gabura’s embankments.² Stretching off into the horizon, these are small to midsize plots of land hemmed in by short earthen plinths that, when filled, contain the brackish water in which shrimp grow. Now, some are dry, the mud within them sunbaked and cracked. Some are partially covered by a greenish slick of water and algae. Each is marked with a rickety shack in which, when the *ghers* are full, a watchman sleeps to guard against theft of the valuable shrimp. Behind us and outside of Gabura’s embankment lies the wide Kholpetua, a tidal river that flows down through the delta out into the Bay of Bengal. On the far side of the Kholpetua, shimmering green in the late afternoon heat, is the Sundarbans, the world’s largest remaining mangrove forest. This is the *jangal* of which we speak.

The men sitting with us have time on their hands. Some work in the shrimp *ghers*. Most are fishermen, *jele*, in the Sundarbans. This month, fishing has been suspended to allow crab and fish to spawn. It is one of a host of new government-mandated conservation measures intended to help preserve the mangrove forest



FIGURE 1. Shrimp *ghers* (ponds) inside of Gabura, Satkhira.

and address the threat of anthropogenic damage to this critical ecology. Nurul, as he pours tea for his customers, is talking about this closure. But he is also speaking more broadly about a series of restrictions that have made fishing the mangroves tenuous. The fishermen in the group grumble about these measures. Most take them as evidence of the government's failure to care for people who rely on the mangroves for their livelihood.

"Why has the jangal been closed?" I ask. "Who has closed it?"

One responds, "The Awami League government has closed it."³ After taking power, at least as we have heard, foreigners [meaning foreign governments and large international NGOs that have an outsized say in the management of the Sundarbans] started pressuring Hasina [the present prime minister]. . . . They want to close the Sundarbans." Another complains, "[Fishing] permits are available but there are not that many of them anymore. The government is slowly trying to close that option too. The government is working for the jangal, not for us. Foreigners are on duty there. If they capture fishermen, they send them directly to the prison cell." Nurul, clearly the man with the most authority in the group, signals to the other fishermen to be quiet and let him explain. "It's a matter of *oxygen* [oxygen *bapar*]. Some countries have said: 'If the Sundarbans survives then you will get some benefits. Your fishermen, your honey collectors, don't allow them inside

the jangal.” The other fishermen nod their agreement, spit red juice from the *paan* (betel nut) they are chewing on the ground, and sip their tea.

A matter of oxygen. Nurul’s evocative framing captures in a few words the broad scope of debate about the Sundarbans, the Bengal Delta in which it sits, and the future of Bangladesh and, indeed, life in a warming world. Who will get literal and figurative air to breathe? When? How? And at what (and whose) expense? In the Sundarbans, and the debate over its care, lie a host of possible answers to such questions. This delta has come to be imagined as a ground zero of climate change—a place where the future of global warming is happening *now*. Like the delta in which it sits, the Sundarbans looms large in discussions of how to manage the future and the present. Such discussions hinge, broadly, on calls for care and preservation of a warming world. But who is to be cared for, what is to be preserved, how, and to what ends are often less clear. These broad discussions about and visions of the delta’s future in turn yield a bounty of new projects, policies, and practices that shape everyday life for people like those drinking tea in Nurul’s shop—and perhaps for all of us.

Delta Futures charts the myriad possible futures that are embodied in Nurul’s evocative observation. It argues that to understand the terrain of uncertainty faced by people like Nurul, it is necessary to grapple not with a singular vision of climate catastrophe unfolding in delta space—a vision endlessly reproduced in media representations of the delta life—but with a multiplicity of possible futures at play in the delta’s present.⁴ At a glance, these futures appear similar. But they are often incommensurate—formulated from competing imaginations and to different temporalities and ends. The delta has, indeed, become one of climate change’s sentinel sites—a space that provides a preview of and, simultaneously, an early opportunity to forestall some of the catastrophic futures that climate change may herald.⁵ Yet dystopian imaginations are not the only visions at play. As some debate the viability of human life within the delta, it has also emerged as a new industrial site—a space where port, energy, and infrastructure development will help to usher in a new and long-forestalled future of economic prosperity and regional integration for Bangladesh. The contrasts between these two visions are marked. One frames the delta as a wasteland foretold—a space at once endangered (at risk of being wiped out by rising seas) and endangering (a site where future disaster could cause catastrophic human displacement and political destabilization). The other reframes climate change as a set of surmountable challenges and possible opportunities. In this view, the delta can be recast not as an imminent dystopia but as a site in the making of Sonar Bangla, a Golden Bengal: the long-deferred promise of autonomy, development, and prosperity that has been central to the project of Bangladeshi nationalism.⁶

As we shall see, these are only two amongst many delta futures.⁷ These myriad visions are all tied to projects unfolding now. They crowd into the delta zone, sometimes in parallel with each other, sometimes in competition. They offer

sophisticated interventions that seek to fortify the present—to bring these futures into being or prevent them from coming to pass. Yet they are often more interested in the looming tomorrow than the ecological complexities of today. They unfold in a space that is fundamentally uncertainty, on terrain composed of silt and water—protean matter that stubbornly defies clear and unambiguous distinctions between rivers and islands, wet space and dry. Such complexities have long posed problems for those seeking to manage delta terrain. But even as the delta's future is called into question, the dynamics of the delta's present, too, are in flux. The delta's crucial inland waterways are silting up. Embankments, which once protected islands from the water outside, are trapping water within. The Sundarbans, which buffers the delta from the fury of cyclones and storms, are under threat from both proximate and remote pollution at the very moment when cyclones are becoming more frequent. Saline balances in delta water and soil are shifting, with crucial implications for agriculture, aquaculture, and mangrove management. The status quo is perpetually vanishing, shifting, eroding, and reforming.

This book traces the interplay between visions of the delta's future and its present. It is intimately concerned with the imagination and production of climate futures. It understands these visions and imaginations as Nurul and his customers do—as both products and instruments of power and authority. Who authors these visions and narratives—and why—are critical questions for the millions who live in and rely on the Sundarbans and the delta in which it sits. But *Delta Futures* also contends that to understand the delta's present, it is necessary to explore the other kinds of temporalities and their entanglements with its amphibious, material grounds. To see this interplay at work involves thinking the multiple strands of history that have shaped the delta's political economy and ecology. It requires assessing the ways that actors in the delta struggle to hold off the future—to cling to a space of opportunity in the present in the face of potentially catastrophic ecological change. It also requires engaging with imaginations that focus not on climatic (perhaps climactic) catastrophe but on sustainable economic growth and industrial development. The contemporary delta has emerged as a nexus for these different temporalities. They collide, compete, reshape possible trajectories, produce new formations of opportunity for some, expropriation for others. They all do this upon the damp terrain of the delta—its silting rivers, its waterlogged islands, its fragile mangroves, its booming port.

The Bengal Delta, and particularly the southwest delta region of Bangladesh, epitomizes many of the challenges facing deltas today.⁸ It is thus a useful location from which to consider the fate of deltas writ large. The endangered nature of delta ecologies, their role in population (and other) mobilities, and their centrality to regional and global economies, has made them key sites in the discussion of global climate change. As I will show in this book, the collisions of these competing spatiotemporal frames within the Bengal delta have much to teach us about broader attempts to manage climatic transformation. But as importantly, this book will

suggest that the failure to reckon fully with these competing temporalities itself offers grim portents for this and other delta futures.

INHABITING DELTA FUTURES

In Bangladesh's southwest delta, a panoply of transformations is afoot. On its rivers, dredgers combat increasing rates of siltation by dredging thousands of cubic meters of silt from river bottoms every day to keep vital waterways open for business. As silt piles up, water flow is diverted toward river embankments, causing dramatic riverbank erosion. Every season, more of these embankments, and the houses of those who make their homes on them, are washed into the water. Meanwhile, even as the very land disappears from under the feet of its residents, development organizations scramble to anchor this population in place. Projected effects of climate change threaten to make the delta zone uninhabitable. Where its twenty million residents will go has become a question of both regional and global anxiety. The stakes of this question are dramatized by the proximity of the border fence separating India from Bangladesh that bisects this delta—a reminder that the delta is a borderland space where displacement is always also a communal issue.

For peasants in the delta, the prospects for long-term survival indeed look grim. The agricultural labor market, already decimated by a three-decade-long boom in shrimp aquaculture, is getting worse by the day. Each year, there seem to be fewer jobs and less profit. At the same time, the shrimp boom appears to be lurching toward a close. Shrimp are growing more vulnerable to the spread of diseases that can wipe out entire *ghers* and, with it, the season's profits. Some peasants in the delta stubbornly hang on to agriculture, seeking ways to navigate the shifting environment. Many migrate elsewhere in Bangladesh or across the border with India, seeking work. Others join the ranks of those who fish the Sundarbans and the delta beyond. Yet fishing is no longer as straightforward as it once was. In the Sundarbans, national and international actors seek to limit anthropogenic change by reducing small-scale resource extraction—i.e., by keeping the delta's *anthropos* out of the forest. Fishing is becoming difficult to do legally. Some navigate (or ignore) these new policies. Yet for those that do, other dangers lurk in the mangroves. Banditry is on the rise and kidnappings of fishermen from their boats have skyrocketed.

Under the mangroves, the Sundarbans tiger may be making its last stand. As its habitat shrinks, it moves more often to the fringe of the forest and into the communities that live alongside it, drawing it into conflict with people who live near the forest edge. Even as a host of governmental and nongovernmental organizations scramble to preserve the Sundarbans, new existential threats are on the horizon. Ocean acidification looms. But closer to home, the newly opened Rampal Power Station, a 1,320-megawatt coal-burning power plant that some argue will

be the final nail in the Sundarbans's coffin, sits just fourteen kilometers upstream from the mangroves. The power plant is not the only new development in the region. An industrial zone—packed with liquid petroleum gas storage facilities, cement factories, new export processing zones (EPZs), and more—stretches from Rampal south to Mongla, Bangladesh's second-largest port and the gateway to the Sundarbans. This new industrial zone shows that many remain undaunted by dire forecasts of the delta's future. Mongla is growing fast, transforming from a sleepy town to what planners and politicians hope will be a booming smart city—a sustainable jewel in the delta crown.

These are just some of the dynamics converging on this vital yet vulnerable zone. Propelled by contending visions of the future and what the delta should be (a protected ecosystem, an industrial hub, a laboratory of climate change adaptation), these projects map a host of visions and temporalities onto the delta, reworking life in myriad, often incommensurate ways.

A core claim of this book is that one must understand this panoply of future-making projects as an emergent whole. This requires treating the delta as itself a subject of ethnographic analysis.⁹ To do so, the book focuses on a region of the broader delta: Bangladesh's southwest, a zone often described as one of the most climate-vulnerable places in the world. The book traces, through the experiences of people who live them, a set of often contradictory and seemingly disconnected processes that are remaking space and time to often wildly different ends. Rather than an expansive portrait of a single dynamic, it is a project of ethnographic linking. This demands a somewhat peripatetic approach. In my research, as in this book, I did not linger overly long in one place. Doing so, it seemed to me, risked getting bogged down in the singular dynamics of a place or process rather than seeing the ways that things like urbanization, resilient development, and conservation worked to different—sometimes competing—ends in surprisingly resonant ways. Instead, I moved across the delta, returning repeatedly to many of the same places over the course of seven years—reconnecting with friends, observing changes in the delta's terrain, and asking about the shifting politics of making life and livings.

Through this approach, I intend to demonstrate two crucial points about the contemporary Bengal Delta. First, many of the processes unfolding in it look distinct on the surface. Indeed, as I will argue here, their goals are sometimes incommensurate. But they often share similar structures and logics, especially in the ways they imagine the delta present as a staging ground for making the future. Second, while each process may ultimately be unsuccessful in producing the kind of future it claims to work toward, these processes are nonetheless productive.¹⁰ Collectively, they *do* remake the delta. They shape the material conditions of life within it and the possible future outcomes both for those who attempt to manage the delta zone and those who live with and through the consequences.

During this work, I, often in the company of my friend and research assistant Riton Quiah, traveled from place to place in the delta, on boats, on ferries, on the

back of motorcycles, on rickshaws, and on foot. I clambered over hundreds of muddy embankments, visited dozens of climate adaptation and resilience pilot projects, spent time on busy dredgers, waited for hours in the halls of government and NGO offices, drank countless cups of tea with friends and interlocutors. I realized that understanding the delta requires an engagement with things that seem, on the surface, incommensurable. This is true both because of the surprising connections that emerge between projects working to markedly different ends and because this is precisely how residents of the delta encounter change in delta life today—as an aleatory process where there is little means to weigh different possible outcomes even as the very ways one makes a living are increasingly subject to unpredictable and often sudden shifts.¹¹

This book was shaped not only through my constant movement within the delta but also through my work with Riton. Riton assisted in all dynamics of fieldwork—transporting us from place to place by motorcycle, drawing on his broad set of friends and contacts to brainstorm new places and people to reach out to, laboring with me to transcribe and translate interviews long into many nights. The resultant terrain of research—the “field”—was a hybrid of my own ideas and Riton’s about what it meant to chart the delta’s present and future. The “field” is co-constituted in and through relationships between researchers, research assistants, and other fieldworkers.¹² This was doubly true in Riton and my relationship. Riton, when he was not working with me, employed his infinite garrulousness, congeniality, and enthusiasm as a fixer for international journalists and media outlets visiting Bangladesh. Over the time we worked together on this project, Riton began taking his other clients to places where we had conducted fieldwork—sometimes presenting these places as apt sites to represent the effects of climate change writ large. He also took me to places he discovered while working with his other clients, offering me the opportunity to visit places that had already been rendered as sites and images of climate degradation in global media. One of the central claims of this book is that the delta emerges, in part, out of global fascination with and anxieties about Bangladesh’s climate-affected future. To the extent that that fascination is produced through media representations of the delta as a space of immanent climate catastrophe, we are also both implicated in its assemblage.

The research for this book builds on multiple stints of ethnographic fieldwork—most carried out in one-month intervals—between 2013 and 2020.¹³ It seeks to foreground the lives and experiences of delta residents to provide a sketch of life and work in the delta today. In the chapters to come, we will spend time with peasants who eke out a living in the delta’s increasingly saline soil, smallholders struggling with aquaculture’s diminishing economic returns, fishermen who work the dangerous landscape of the mangrove forests, bandits who patrol the Sundarbans’s choked canals, and development workers implementing new climate interventions. While this work makes up the bulk of this book, it is impossible to understand all the transformations afoot in the shaping of the delta from the bottom up. The book thus further draws on discussions with government officials and development

workers, on my engagement with emerging debates and materials on “climate security,” and on my Sisyphean attempts to parse the voluminous documentation on climate change in Bangladesh and reporting on the region in local papers.

What emerged through this research was not a sense of coherence in delta projects but rather one of fragmentation and messiness. While climate change was often a central, if vaguely conceived, frame for almost all attempts to manage the delta’s future in the present, what continually challenged me was these projects’ cross-purposes—the ways that they worked in the same place to radically different ends. Though their projected ends cannot coexist in the same place at the same time, these incommensurate visions for the delta did collectively reformat delta life and delta opportunity. As we’ll see, they constituted their own amphibious terrain of rule, extraction, and expropriation.

This book is an attempt to embrace the messiness of future-making and making life amid such future-oriented projects. It charts an approach to understanding the making of delta (and other) futures that traces their often troubling articulations with the present. I conceive of the delta as a “climate frontier.” My use of this concept recognizes the ways that the delta has historically been conceived as a frontier zone. As a climate frontier, the delta continues to be structured in ways that facilitate the appropriation of land and resources and the mobilization and regulation of human and nonhuman bodies, but by different means and to different ends. In contrast to classical notions of frontier-making, my vision of climate frontiers is not a deterministic one. As we shall see, climate frontiers such as the delta constitute a system that is at once malleable, fundamentally open, and interlinked.¹⁴ This system and its dynamics matter not just to the probable success or failure of future-making projects but also to the challenges of navigating delta space for those who live and work in it—fishermen, peasants, smallholders, migrants, and others. To better understand this vision of delta as climate frontier, we must first engage with a range of other ways that deltas are conceived and the ends to which these conceptions are used.

WHAT IS A DELTA?

To demand that we think critically about the delta zone prompts the question: What, in fact, is a delta?¹⁵ And, moreover, how does the Bengal Delta stand in relation to other deltas around the world? One way to approach this is to conceptualize deltas as material/geographical spaces. By definition, a delta is an environment that emerges around the point where a large river—or multiple rivers, as is the case with the Bengal Delta, which is the confluence of the Ganges, Brahmaputra, and the Meghna—meets the sea. To quote a recent exploration of deltas and climate change, “Deltas have formed at the land–sea interface over hundreds and thousands of years where large rivers deposit their sediment load creating extensive highly productive and low-lying coastal plains. Natural deltas represent the



FIGURE 2. God's-eye view of the delta as geographical formation: *Copernicus Sentinel-3* satellite image of the Bengal Delta, March 31, 2020, European Space Agency (ESA). Contains modified *Copernicus Sentinel* data (2020), processed by the ESA.

interplay of sediment delivery and reworking, destructive marine processes and subsidence, including major river channel migration and switching.”¹⁶

Deltas are protean spaces formed over long periods of time that are at once shape-shifting and amorphous. They are zones of constant creation and destruction, complex hydrological and geomorphological systems that distribute silt and are formed by it. The matter of deltas matters, as we will see throughout this book. But a material description of deltas only goes so far in explaining their historical and contemporary import.

Beyond a hydrological system, the term “delta” invokes spaces of tremendous historical consequence. The Nile Delta, the Mississippi Delta, the Amazon Delta, the Danube Delta, the Mekong Delta, the Bengal Delta—all have figured centrally in human history. This is, in part, because of the abundant resources present within them. They are often exceptionally agriculturally productive because of the regular deposition of nutrient-rich silt on their alluvial planes. In the Bengal Delta, this rich silt, washed down from the Himalayas, means that farmers are able to produce three or sometimes four harvests per year on a single plot of land. In addition to providing agricultural bounty, deltas also offer easy access to rich marine resources. This combination of agricultural productivity and plentiful fish means that deltas have historically been critical sites of food production. Agriculture and fish are only some of the bounties available in them. Others include timber, water, sand, animals, hydrocarbons, and more.

Yet deltas are not just sites of production and extraction. They are also spaces that connect geographical locations. Their coastal and riverine geography link landlocked interiors to a broader world. Goods flowing into delta ports can be easily transported inland along river and land routes and outward via maritime shipping and transportation. Not surprisingly, deltas and the urban areas within them have historically developed as centers of trade. All this means that deltas are also major population centers. More than 500 million people—one out of every fifteen people on Earth—live in them.¹⁷ In Bangladesh, the southwest delta zone alone, which comprises the eastern half of the Bengal Delta, has a population of at least twenty million people.¹⁸

From the standpoint of population, food production, resource extraction, transportation, and trade, then, deltas are zones that have massive distributive effects. What happens within them radiates far beyond their boundaries, however drawn. Many things in addition to water flow through deltas and out and into the world beyond. Yet to describe deltas as hydrological objects, resource-rich zones, or connective spaces fails to capture their environmental complexity. The unique ecology of deltas adds yet another layer to the question of what a delta is. Franz Krause notes, “Deltas are characterised by an ever-changing interplay of land and water as a result of flooding, draining, drying and irrigating, sinking, silting, sedimentation, channeling, erosion, and reclamation. In short, delta life is amphibious.”¹⁹ This amphibious character pervades all aspects of life in the Bengal Delta, perhaps most notably in the Sundarbans, where both ecologies and social relations move from wet to dry and back again.

Hydrological system, resource zone, distributive site, amphibious ecology—all these terms offer ways to define a delta as a material space. But deltas have complex conceptual lives as well. Moreover, the conceptual framings of deltas have dramatic consequences for their futures. To answer the question “what is a delta” by only describing it as a physical space thus misses many of its most crucial dynamics.

To begin, it is useful to keep in mind that the term “delta” is not common parlance for most of its residents.²⁰ They live in the geographical space that many

others call “the delta.” But they rarely, if ever, speak of it as such. More often, they speak of the land on which they live and work. They discuss their homes’ relationship to the water that surrounds them—the balance of *labonpani* (saltwater) and *mishtipani* (sweet, or freshwater) in the rivers, the rains that fall (or not) in the *Borsha* or monsoon season, and the *bonna*, or flooding, that follows in its wake. They contemplate the state of the jangal, often referring to it as the *Sundarban*, *Badoban*, or, if they are feeling poetic, *Athero Bhatir Desh* (the Land of Eighteen Tides). They debate the bounty of marine life to be found in the jangal, in rivers, and in the Bay of Bengal. These meanings and understandings shape regional histories and everyday life. They also shape the ways residents understand, engage, and contest technocratic interventions and attempts to manage this space. Delta residents are conscious that “delta” is a concept that enables consequential interventions in their lives. Indeed, Nurul’s comments about oxygen, with its implication of foreign management and unequally distributed benefits, suggest that residents of the delta are quite conscious of how their home is mobilized in debates in which they have little say.

If not an especially emic term (at least for peasants who live and work it), the notion of a delta has its uses for others—technocrats, politicians, development planners, scientists, climate change experts, anthropologists, and more. For such people, the delta may evoke a range of opportunities and vexing challenges. The delta is a space that regularly floods, that relies on rivers that must be kept flowing through constant maintenance, where upstream water needs must be balanced with downstream hydrological effects, and where short-term economic gain must be balanced against long-term risk. Seen from this vantage, the delta is not just an ecology. It is also a technopolitical object. In it, a complex concatenation of population, ecology, and economy must be *made* to work toward particular ends.²¹ The Bengal Delta has, for much of its colonial, and postcolonial history, been understood as a space of tremendous potential and real value. Yet the extraction of this value can only be realized through the careful management of ecology, infrastructure, population, and policy.²²

For example, a key dynamic of the southwest delta region’s past, present, and future are the human-made embankments that surround many of the delta’s islands. These embankments facilitated the transformation in the delta from a precolonial water-based economy to a colonial agricultural system focused on the growth of rice.²³ This shift required a system that would profoundly transform the relationship between land and water—a system that would prevent the wet from intruding onto dry island spaces. In a zone of indistinction between land and water, the colonial state needed to “invent” the concept of rivers as stable, predictable entities in order to technically transform and rationalize delta space.²⁴ Embankments were decisive technologies in this invention—earthen mounds intended to keep water in its rightful place: the river. This in turn enabled the forging of new agrarian relations in the delta but also the implementation of rigid property regimes, taxation, the reorganization of land rights, and the export of agrarian bounty.²⁵

In short, embankments were part of a technopolitical attempt to transform the delta from a damp space—where land and water were often indistinct—to one that could be mapped and where rivers, islands, and plots of land could be located by the taxman and others on and off the map.

One could tell the story of deltas at large, and the Bengal Delta in particular, as a history of technopolitical management and its failures.²⁶ Indeed, important studies engaging with the politics of climate change in the delta and its colonial histories of water management have undertaken such an approach.²⁷ Yet the failures of technopolitical management, or accounts of the hubris of treating the delta as a vast water machine, do not fully capture the anxiety that attends imaginations of deltas and their futures. Doing so requires considering the acute vulnerabilities of deltas—as technopolitical objects and material spaces—in a warming world. As the Intergovernmental Panel on Climate Change, the international arbiter of climate science, points out, “Deltas . . . are widely recognised as highly vulnerable to the impacts of climate change, particularly sea-level rise and changes in runoff, as well as being subject to stresses imposed by human modification of catchment and delta plain land use.”²⁸ As the cascading effects of remote (global warming) and proximate (development and urbanization) anthropogenic change accumulate, time for deltas may be growing short. The collapse of these systems has dire consequences not only for those who live within them (again, one-fifteenth of the planet’s population) but also for much more widely distributed networks of circulation, distribution, and life. Viewed as such, deltas are vast vital systems—complex entities that are central to contemporary life but also profoundly vulnerable to calamitous disruption. Addressing the threat of climate change within deltas is thus not simply a matter of humanitarian concern or political necessity. Rather, the anticipatory projects designed to manage and forestall the effects of global warming in the Bengal and other deltas are forms of vital systems security—attempts to manage the potential, if unpredictable, outcomes of global warming, whose effects may have devastating consequences in and beyond the space of deltas themselves.²⁹

Thinking of deltas as vital systems helps to explain the urgency and anxiety around the challenge of global warming within them. Yet it does not necessarily capture the regional tensions, anxieties, and nationalist affects surrounding the Bengal Delta. The contemporary Bengal Delta is fundamentally shaped by the Partition of India in 1947, which split Bengal into West Bengal in India and East Pakistan (later Bangladesh). Of the many legacies of this partition is a communally charged border, materialized in space by a frequently violent and militarized border fence that bisects the delta zone. The fence separates a territory that is imagined as “Muslim” (Bangladesh) from one that is imagined as “Hindu” (India), particularly for those who oppose the nominally secular constitutions of both states. Demographic realities have always been more complicated than this imagination allows.³⁰ However, the stakes of such communal visions of national

territory, particularly in an India under the rule of Narendra Modi and the Hindu nationalist Bharatiya Janata Party since 2014, are high and rising.³¹ The fence dramatizes the affective stakes of climate change in the region. While constructed in the mid-2000s as a means of trying to limit migration from Bangladesh, it has come to be seen, rightly or wrongly, as the world's first climate fence—a fence to hold back a future tide of climate refugees.³²

While both West Bengal and Bangladesh share a unified ecology in the Sundarbans, the two states approach the management of its future in divergent ways. The different relationships that India and Bangladesh have with international aid, the radical differences in their size and population density, and their differing political relationships between population and government all shape the possibilities of managing the delta. This leads to fundamentally different conditions and possibilities on either side of the border.³³ Thus while deltas are spaces of ambiguous, indeed amphibious, distinction, this particular delta remains socially, politically, and materially partitioned.

Deltas, then, are many things: swampy zones where the material dimensions of ecology and hydrology pose challenges and opportunities for human and other life, technopolitical objects to be managed, vital systems with widely distributed effects, national and nationalist battlegrounds of territorial belonging, and nexuses of competing temporalities where pasts collide with possible futures. Amphibious, fragmentary, and contested, they refuse to cohere as singular things.³⁴

How then should we understand deltas ethnographically and as an analytic whole? My answer to this challenge is to embrace the multidimensional complexity of the delta, its material ecology, and its politics. All of the possible answers to the question “what is a delta” discussed in this section are very much at play in the making of delta time and space. I therefore propose to think of all the processes discussed here, and others that I will explore in the coming pages, collectively: as dynamics in the assembly of a climate frontier.³⁵ To call the delta a climate frontier, as I do throughout this book, is to think not about which definition, imagination, or framing of deltas is right (or wrong). Rather it is to ask how these many processes come together to produce terrains laden not only with risk but also with opportunity.

ON THE CLIMATE FRONTIER

Let us return to Gabura on the day I spoke with Nurul to witness a few moments on this climate frontier. After finishing our tea, we clamber onto the back of Riton's motorcycle and head on our way. We have appointments to keep. Just down the rough embankment road from Nurul's tea stall sits a shack adjacent to a series of small shrimp ghers. On it, someone has scrawled a slogan: *lona panir haat theke banchte chai*. The phrase, which translates roughly as “please save us from the saltwater,” stands as evidence of devastating environmental change on the



FIGURE 3. *Lona panir haat theke banchte chai* (Please save us from the saltwater), Gabura, Satkhira, Bangladesh.

island—increased salinity in the soil, increased exposure to storms, and declining drinking water. Yet its situation directly in front of a series of shrimp ghers is also a reminder that this environmental change is not simply about climate. It is also linked to the ecological devastation wrought by many years of shrimp cultivation—a process that has eroded both the physical and the social environment of islands like Gabura.

As we pass by the shack, friends are traveling in the opposite direction: Rafiq and his brother-in-law Jolil. Waving and shouting a greeting, we delicately navigate our motorbikes around each other on the cracked and crumbling mud embankment. The day before, Rafiq hosted us with tea and snacks in his house while Jolil, who works in the Sundarbans, showed off the scars on his leg from a tiger attack he survived while hunting for honey in the Sundarbans years before, a story I return to in chapter 3. His multispecies hunting story lapsed into a rant against more human forms of predation. Jolil told us a story of being kidnapped not once but multiple times by *dakats* (bandits). But his story was fragmented. *Dakats* were not the only predators in it. He also spoke with venom of the Forest Department and the new high-speed patrol teams, “SMART Teams”—joint ventures between the government and international donors—that chase down fishermen suspected of illegal activities. As Jolil spoke, I began to lose the plot. His narrative stopped making clear distinctions between *dakats* and law enforcement officers working the jungle. Both were, seemingly, complicit in the capture and exploitation of fishermen who work the mangrove waterways.

After passing Jolil and Rafiq, we continue on our way to see Akkas and Nazma on the other side of the island. They are a couple who have, in some sense, won the climate lottery. In the years following Cyclone Aila, the couple were selected to be the occupants of a new NGO-built climate-smart house. The house, which I explore in more detail in chapter 1, is the only multistoried home on the island. It sticks out like a sore thumb in the hamlet where they live. The house is not without its problems. But its point, as we will learn, is not necessarily to change the lives of Akkas and Nazma or that of the other residents of Gabura. Rather, it is designed to capture the imagination of donors elsewhere—to encourage them to support efforts to address climate change as its effects are (or will soon be) felt not just in remote zones like the Bengal delta but closer to donor homes.

On our way to Nazma and Akkas's, we pass by another new project: a soft-shell crab farm. This farm is run by Monir, a young man from a comparatively wealthy family in Gabura. The farm is built to hold small crabs until they begin the molting process. It consists of a series of orderly ponds filled with PVC support tubes and small perforated black boxes. These rest half in, half out of the water. They contain small crabs, caught in the Sundarbans and sold directly to Monir by Gabura fishermen. The crabs will stay in the boxes until they molt—losing their hard shell and beginning to regrow a soft new one. Once this happens, the crabs will be exported to Australia and East Asia. The boxes in Monir's farm are full despite the fact the Sundarbans is closed for fishing this month. When I ask him about this, he simply shrugs. Monir's soft-shell crab farm is one of only a few in Gabura at this point, but across the water in Nildumur, they are popping up everywhere, as I discuss in chapter 2. Business is good, Monir tells us. He intends to take advantage of the new soft-shell boom and to use some of his profit to buy out his neighbor's land, currently covered with unproductive shrimp ghers. While the boom lasts, Monir is going to grab as much land and profit as he can.

My proposition in this book is that we think of the many processes of time and materiality I outline in the previous section and in the above vignettes as processes that are collectively assembling the delta zone as a climate frontier. "Frontier," as I've noted elsewhere, is a hopelessly overdetermined concept.³⁶ It can and has meant a range of things throughout its long and fraught history: a space of opportunity; a zone outside or on the fringe of law and civilization; a "people-less" space where expropriation is licensed through rhetoric of emptiness, nature, and the racialized dynamics of empire; a valve that allows for the safe expansion and circulation of capital; and more. Here, I build on Anna Tsing's conceptualization of frontiers as spatial and temporal zones of emergent possibility. As she writes, "Frontiers are not just discovered at the edge; they are projects in making geographical and temporal experiences. . . . Their 'wildness' is made of visions and vines and violence; it is both material and imaginative. On the resource frontier, the small and the great collaborate and collide in a climate of chaos and violence."³⁷

Visions, vines, and violence—a potent mix of imaginations about what space is or could be, the material and biological affordances of a particular zone, and

competing interests able and willing to use force to make visions into realities. While Tsing's description of frontiers emerges out of her work in the rainforests of Kalimantan in the late 1990s and early 2000s, it is a remarkably apt description of the dynamics unfolding in Bangladesh's southwest delta in the present. While the "great" actors of Tsing's narrative were mining companies, illegal loggers, and foreign investors (classic agents of extraction), here they are NGOs, international organizations, and foreign governments intent on mobilizing the delta for the greater good. The delta is a space that is constantly reinvented across time and scale to serve different ends. Materials from competing pasts are reappropriated and recursively transformed to open new futures.³⁸ In the chapters that come, I trace these visions (*imaginations* about what the delta is and could be), vines (the *materiality* of delta terrain), and violence (the means of *capturing* bodies, goods, rents, and territories) to explore the constitution and assemblage of a climate frontier.

Arguments that the delta is a frontier are not new. The delta—its mangroves, its inland waterways, its embanked islands—have long been seen, treated, and managed as "a vast wetland frontier."³⁹ To argue that the delta has emerged as a "climate frontier" then is not to claim a radical transformation. Rather, it is to suggest a new conjuncture in a much longer trajectory. Frontiers are palimpsests, bearing the ghostly traces of previous imaginations, lives, and ecologies.⁴⁰ On them, the ruins of older projects of territorial control and extraction are sedimented—often literally—on top of each other. These older projects and social relations emerge in often surprising ways and at unpredictable times. They also constitute an uneven and occasionally unstable terrain upon which future-making projects unfold.

By "climate frontier," then, I propose that the delta at large has become a space where opportunity and expropriation emerge amid the friction between new interventions seeking to address impending climate change, competing projects of extracting value from the delta, and older political economies, regimes of territorial control, and the material realities of delta ecology. It is at once a delta of space and of time. Fundamentally recursive, profoundly contested, built simultaneously of silt and mangroves and infrastructures and imaginations, this climate frontier is the space on and through which the future of the delta is worked out. Moreover, it is a space in which the terrain of future-making itself is constituted by a multiplicity of histories and temporalities of the past. Tracing these various visions and projects that unfold within it allows us to see the complexities of space and time at play in the delta. It allows us to disaggregate climate change—to see that the climate future of the delta is in fact a multitude of radically different visions, possibilities, and temporalities embodied in projects unfolding in the present. And it allows us to reflect on the challenges of life for delta inhabitants (human and otherwise) and to glimpse some of the immediate and near-to-hand consequences of attempts to manage delta futures. In short, rather than merely a descriptive term, calling the delta a "frontier" demands that we think about the politics of future-making and the opportunities that drive it.

The delta, as this book makes clear, is overrepresented in global imaginations about climate change. It is a place that is both imperiled in a tangible sense (vulnerable to and increasingly affected by myriad forms of environmental change) and in a discursive one (where predictions, imaginations, and anxieties of global climate catastrophe are projected onto an actual space). Not surprisingly, the delta has been the subject of a range of academic work—of more and less critical varieties. Of these, three recent books on Bangladesh have been particularly important to my conceptualization of the delta: Naveeda Khan's exploration of *char* life upstream from the delta on the Jamuna river; Camelia Dewan's exploration of the misrecognition and misreading of the delta's social and material history in light of climate change; and Kasia Paprocki's account of the emergence of an adaptation regime that naturalizes urbanization and export-oriented development as the only viable solution to climate change.⁴¹ My approach to thinking about the delta as a climate frontier departs from each of these texts. This book does so by, on the one hand, exploring the ways that a multiplicity of futures collectively *make* the delta a frontier. On the other, it examines the ways that the emergent climate frontier reconfigures the relationships between a wide array of actors—from tigers prowling both the Sundarbans and the minds of conservationists the world over to dredgers prowling the silting waterways of the delta landscape; from fishermen seeking to navigate the new policies that regulate their livelihoods to bandits seeking to navigate new policing regimes to extract rents and ransoms from those traversing their territory.

In the exploration of this climate frontier, we will encounter a range of different voices and arguments. My approach is to bring the narratives of those who fish the Sundarbans or work the delta's salty land into relation with policy and international planning documents, development practitioners, and others. My point in doing so is not to give "equal weight" to all accounts or to posit an analysis that assigns flat agency to "actants" across the delta.⁴² My goal in mapping this frontier is political. It is to highlight the ways that a complex assemblage of interventions in the delta are more often reinforcing conditions of risk, exploitation, and expropriation than alleviating them.

Climate change poses an existential threat to human and other life in Bangladesh and the world at large. Yet if we are concerned not only with climate mitigation but also with climate justice, then current modes of addressing planetary threat through climate hotspots like the Bengal Delta are in urgent need of interrogation. This book highlights a need to engage not just with climate change as an abstract threat, or to see how this global transformation unfolds in place—it asks how climate change is also made in places that are conceived as its ground zeros. It demands that to understand what questions of justice, equity, protection, adaptation, or resilience *might* look like, we need to think these questions in situ—especially within the confounding contours of sentinel sites such as the Bengal Delta. The challenge is not to rationalize or explain away the multiple,

incommensurate, and messy ways that climate change is being confronted. It is rather to understand how that multiplicity itself is complicit in producing new terrains of risk, new opportunities for accumulation, and new regimes of regulation. Projects remaking the future in the delta do more to expose the fault lines in our assumptions about the warming world than they do to address degradation, climate vulnerability, and the rights and desires of those who live on the bleeding edge of environmental change. Tracing this climate frontier opens ways to engage with time and territory-making, and thus to think differently about life, land, and risk in this and other “climate ground zeros.” The picture that emerges is chaotic one, but also crucial in our assessment of attempts to meet looming planetary threats. This is particularly true if we are to think of the fate of those who live in places like Bangladesh’s southwest delta as central to forging a more just environmental future.