

Dams, Displacement, and the Delusion of Development

*Cahora Bassa and Its Legacies
in Mozambique, 1965–2007*



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1 Introduction

Cahora Bassa in Broader Perspective

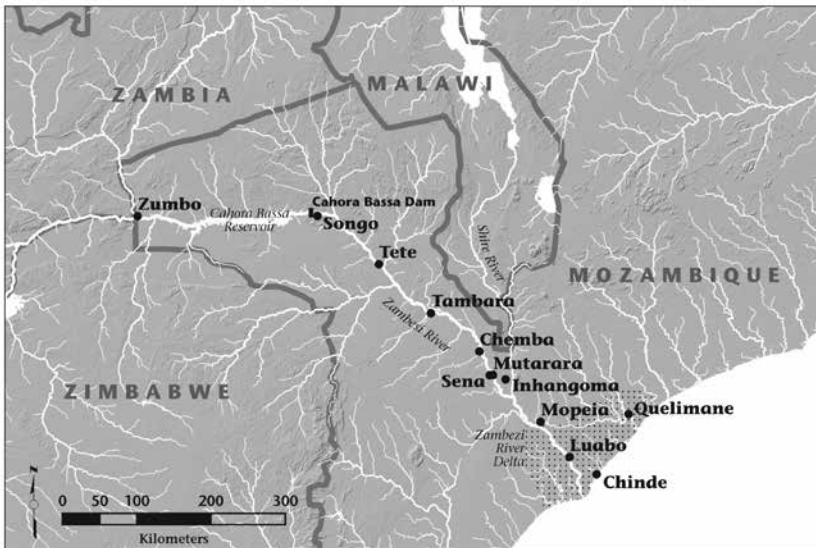
DAMS HAVE histories that are located in specific fields of power. Unlike the dams themselves, however, these histories are never fixed; whether celebrated or contested, they are always subject to reinvention by state and interstate actors, corporate interests, development experts, rural dwellers, and academics. Too often, though, the viewpoints of people displaced to make room for a dam are lost or silenced by the efforts of the powerful to construct its meaning in narrow terms of developmental or technical success. Yet, the voices of the displaced endure, carried by memories as powerful as the river itself. Such is the case of Cahora Bassa,¹ a grandiose dam project on the Zambezi River in Mozambique (see maps 1.1 and 1.2).

The Zambezi River is the fourth-largest waterway in Africa and the largest river system flowing into the Indian Ocean. Although the Cahora Bassa Dam and reservoir are entirely inside Mozambique, the vast bulk of its drainage basin lies outside the country. “Rising in Angola it has a catchment area of 1,570,000 [square kilometers], drains the southern borders of the Democratic Republic of Congo (DRC) and traverses Botswana, Zambia, Zimbabwe, Tanzania, Malawi and Moçambique.”² Because Mozambique is furthest downstream, it depends on its neighbors for access to the Zambezi’s waters.

Before the Zambezi or any of its tributaries were dammed by the Europeans in the twentieth century, the rate of the river’s flow varied considerably in the catchment area. In much of the basin, located on the Central African plateau (termed the upper Zambezi by hydrologists), the water moved slowly through low plains and swamps. The undulating topography changed radically at Victoria Falls, where the river plunged more than one hundred meters and became the middle Zambezi. It was on this stretch, downstream from Victoria



MAP 1.1. Zambezi catchment. *University of Minnesota Cartography*



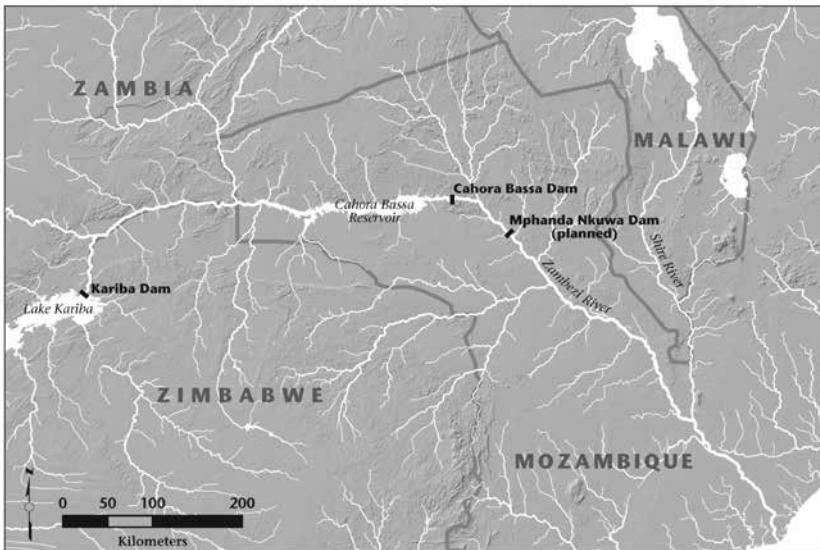
MAP 1.2. Lower Zambezi. *University of Minnesota Cartography*

Falls, that the British built Kariba Dam in 1958. Approximately one hundred kilometers further downstream, at the Cahora Bassa gorge, the river plunged once again, down a long succession of rapids and cascades, turning into a powerful and volatile force. The gorge marked the beginning of the lower Zambezi, which extended 650 kilometers to the Indian Ocean.

the British experience at Kariba, colonial planners decided that Cahora Bassa would be an ideal location for Portugal's hydroelectric project.³

When built, in the early 1970s, during the final years of Portuguese colonial rule, Cahora Bassa attracted considerable international attention. Engineers and hydrologists praised its technical complexity and the skill required to construct what was then the world's fifth-largest dam. For them, Cahora Bassa confirmed that nature could be conquered and biophysical systems transformed to serve the needs of humankind. Portuguese colonial officials recited a litany of benefits they expected from the \$515 million megadam and the managed environment it would produce—expansion of irrigated farming, European settlement, and mineral output; improved communication and transportation throughout the Zambezi River valley; reduced flooding in this zone of unpredictable and sometimes excessive rainfall. In slick brochures and public pronouncements, they claimed that Cahora Bassa would “foster human progress through an improved standard of living for thousands of Africans who live and work there.”⁴ Above all, Cahora Bassa would generate a substantial influx of hard currency, since 82 percent of its electricity would go to South Africa—making it the largest dam in the world producing energy mainly for export. As a follow-up to this technological triumph, Portuguese planners envisioned building a second dam, sixty kilometers south of Cahora Bassa, at Mphanda Nkuwa (see map 1.3).

In June 1975, six months after the dam's completion, Mozambique gained its independence, ending a decade of warfare between the colonial regime and



MAP 1.3. Mphanda Nkuwa and Cahora Bassa Dams. *University of Minnesota Cartography*

the guerrilla forces of Frelimo (Frente de Libertação de Moçambique). The newly installed Frelimo government—after years of claiming that Cahora Bassa, by providing cheap energy to apartheid South Africa, would perpetuate white rule throughout the region—radically changed its position. Hailing the dam’s liberating potential, it expressed confidence that Cahora Bassa would play a critical role in Mozambique’s socialist revolution and its quest for economic development and prosperity.

Even after Frelimo abandoned its socialist agenda, in 1987,⁵ the dam remained central to Mozambique’s postcolonial development strategy. Serious economic problems, stemming in part from the ongoing military conflict with South African-backed Renamo forces⁶ and mounting pressure from the International Monetary Fund (IMF) and the World Bank, compelled the Mozambican government to introduce market-oriented reforms to lure foreign investment. What did not change was its continued celebration of the transformative potential of Cahora Bassa, whose provision of cheap electricity to new privately owned plants and factories would stimulate rapid industrial growth. Moreover, its announced intention, in the late 1990s, to implement the colonial plan to build a second dam at Mphanda Nkuwa underscored Frelimo’s belief that large energy-producing dams were essential for national economic development.

Thus, despite their very different economic agendas and ideological orientations, the Portuguese colonial regime, the postindependence socialist state, and its free-market successor all heralded the developmental promise of Cahora Bassa. Whether Portuguese or Africans held the reins of state power, the dam symbolized the ability of science and technology to master nature and ensure human progress.⁷ Moreover, to the extent that official versions of Cahora Bassa’s history became the dominant reading of the past, they suppressed alternative voices that questioned the state’s interpretive authority.⁸

The African communities living along the Zambezi River, however, tell a markedly different story. When the three hundred Zambezi valley residents interviewed for this book speak of the dam, their accounts rarely evoke images of prosperity or progress. Instead, Cahora Bassa evokes memories of forcible eviction from historic homelands, of concentration in crowded resettlement camps, and of unpredictable discharges of water that destroyed their crops and flooded their fields. Many also describe in detail the results of the river’s altered flow regime—the devastating erosion of fertile riverbanks, the destruction of wildlife vital to their food security, and the dramatic decline of fish populations.

This book advances three central arguments. First, over the past three and one-half decades, Cahora Bassa has caused very real ecological, economic, and social trauma for Zambezi valley residents. All this is conspicuously absent from the widely publicized developmentalist narratives of Mozambique’s colonial

and postcolonial states, which have been a critical feature of state efforts to dam the Zambezi River in Mozambique. Elderly African peasants,⁹ who had a long and intimate relationship with the Zambezi River, graphically describe how the dam devastatingly affected their physical and social world and recount their resiliency in coping and adjusting. These memories, which speak so powerfully about the daily lives and lived experiences of the rural poor, are either discounted or ignored in dominant discourses touting Cahora Bassa's centrality to national development. This silencing is indicative of the unequal field of power in which the histories of the rural poor are typically embedded.

The second argument is that extreme and continual violence has been a critical feature of state efforts to dam the Zambezi River in Mozambique. Bluntly stated, the history of Cahora Bassa reveals the willingness of an authoritarian but embattled colonial state, facing an armed nationalist movement and mounting criticism from the outside world, to put the full weight of its coercive power behind economic and strategic objectives it believed would strengthen its permanent hold over Mozambique. The forced labor used to build the roads to the dam site, the harsh labor regime at the dam itself, the displacement of thousands of peasants, and Renamo's prolonged destabilization campaign demonstrate the extent to which violence is deeply implicated in the history of Cahora Bassa.

The deleterious social and ecological consequences of this massive state-imposed project never figured in the political calculus of colonial planners. Nor do they seem to matter in current discussions about the building of a second dam, at Mphanda Nkuwa. This disregard for peasants' concerns about Mphanda Nkuwa is yet another example of the state's continuing efforts to silence the voices of the rural poor—a form of epistemic violence. In this respect, the present neoliberal government mimics the ways in which the late colonial state exercised and rationalized power.¹⁰

The history of Cahora Bassa also reveals the persistence of “colonialism's afterlife.”¹¹ Under the 1974 Lusaka peace accord, which set the stage for Mozambique's independence, in return for assuming the \$550 million debt incurred in building Cahora Bassa, Hidroelétrica de Cabora Bassa (HCB), a Portuguese parastatal, received 82 percent of the shares, with the remainder going to the Mozambican government. The Constitution of the Cahora Bassa Dam, signed between Portugal and Frelimo on June 23, 1975, which memorialized this agreement, granted the HCB the right to manage the dam until Mozambique repaid the construction debt.¹² Because it was unable to do so until 2007, for thirty-two years after independence a Portuguese company retained effective control of the hydroelectric project (see chapter 6)—operating the dam, determining the outflows of water, and negotiating the sale of virtually all its electricity to South Africa.

That the newly independent socialist government could not use this energy for domestic purposes, such as electrifying the countryside, exposed the neocolonial reality—which persisted even after Frelimo adopted a neo-liberal agenda in 1987 and needed cheap energy from Cahora Bassa to attract foreign investments and promote a free-market economy. Throughout, HCB management ignored these needs. For Mozambicans, Cahora Bassa was a living symbol of the violent and oppressive past and a constant reminder that independence did not guarantee resource sovereignty.¹³

In the mid-1990s, Frelimo began a campaign to wrest control of Cahora Bassa and its energy from Portugal. Lisbon, however, summarily rejected all Mozambique's attempts to reduce or erase the price it would have to pay to own the dam. To enhance its bargaining power, the Mozambican government then threatened to revive a colonial plan to build a second dam downriver at Mphanda Nkuwa, which would reduce Cahora Bassa's profitability. In 2007, under increasing pressure from Mozambique and its postapartheid South African ally, Portugal finally agreed to sell two-thirds of its shares in Cahora Bassa for \$700 million (see chapter 6).

By this time, the Mozambican government had decided that two dams on the Zambezi were better than one, despite the human suffering and ecological destruction Cahora Bassa had inflicted. The rationale for constructing another dam at Mphanda Nkuwa was, as before, that foreign exchange would come from the sale of its energy—to South Africa and other energy-starved nations in the region. Rural electrification remained a secondary consideration, notwithstanding that only 7 percent of Mozambican households had access to electricity. In this regard, postindependence Mozambique continued the colonial ways of seeing, thinking, and acting. The persistent links between the postcolonial present and the colonial past is the third argument we advance.

We first became interested in the history of Cahora Bassa in 1997, when we visited Songo, the town adjacent to the dam site, to attend a Ministry of Culture-sponsored conference about the dam.¹⁴ The list of participants was impressive. It included the manager of Cahora Bassa, who recounted the engineering feat of the dam's construction and the valiant attempts to keep it functioning, despite repeated Renamo attacks. Prominent scientists provided richly detailed accounts of the effects of the postdam river flow regime on the flora and fauna of the lower Zambezi valley. Historians presented papers on topics ranging from changing Zambezi flood patterns to the political economy of the dam. While more than fifty experts participated in the Songo colloquium,¹⁵ absent were the voices of the African workers whose labor actually built Cahora Bassa and of the rural poor whose lives it changed forever—except through the presentations of a few sympathetic Europeans, who could offer, at best, only partial renditions of what local people remembered

of the dam's history.¹⁶ We quickly realized how little we knew about its impact on Songo-area workers and peasants, not to mention the rural communities downriver, whose gardens and grazing lands no longer benefited from the Zambezi's seasonal irrigation and whose fishing lagoons Cahora Bassa had greatly reduced.

This study presents an alternative history of Cahora Bassa—one that seeks to recover, or bring to the surface, what the master narratives of Mozambique's colonial and postcolonial state actors have suppressed.¹⁷ This version clearly demonstrates that human and environmental well-being are inextricably intertwined, that development projects cannot be separated from the politics of control over scarce resources, and that the critical question of what is being “developed”—and for whom—is shaped as much by transnational as national or local actors.

Environmental policies and practices can never be divorced from relations of power. This is especially true when what is at stake is control over water, since no other natural resource is more important for the maintenance of life, society, and stable government. It is no surprise, then, that control of aquatic resources has provoked, and continues to provoke, conflict at local and national levels in Mozambique and elsewhere, especially in the global South.¹⁸

In the final analysis, most large state-driven development projects—whether dams or other initiatives that facilitate resource extraction and the export of cheap commodities—have not only failed to alleviate poverty and promote sustainable livelihoods but also often imperiled the lives of the poor. As long as such planned interventions lead to growing disparities in wealth and concomitant increases in hunger and poverty, which are the natural consequences of their market-driven calculus, for the overwhelming majority of people living in the global South there remains nothing but the delusion of development.

THE DAM REVOLUTION IN AFRICA

In the second half of the twentieth century, worldwide construction of large dams¹⁹ increased exponentially—from approximately five thousand by 1950 to over fifty thousand by 2000.²⁰ According to Professor Kader Asmal, chair of the World Commission on Dams (WCD), “We dammed half our world's rivers at unprecedented rates of one per hour, and at unprecedented scales of over 45,000 [large] dams.”²¹ As a result, dam reservoirs submerged more than four hundred thousand square kilometers of the world's most fertile land.²² Although the pace of construction has slowed, a number of new dams—most notably China's Three Gorges—were erected in the first decade of the twenty-first century.

In his monumental study of dams, Patrick McCully describes the appeal of such projects for political leaders as different as Jawaharlal Nehru, Mao

Tse-tung, Franklin Roosevelt, and Joseph Stalin: “The gargantuan scale of large dams, and their seeming ability to bring powerful and capricious natural forces under human control, gives them a unique hold on the human imagination. Perhaps more than any other technology, massive dams symbolize the progress of humanity from a life ruled by nature and superstition to one where nature is ruled by science, and superstition vanquished by rationality.”²³ Nehru, for instance, invoked a sense of national pride, when observing the 226-meter-high Bhakra Dam, in northern India: “What a stupendous, magnificent work—a work which only that nation can take up which has faith and boldness!”²⁴

The international community provided both material and moral support for these megaprojects. The World Bank, the largest financier of dams, funded more than six hundred dam projects in ninety-three countries during this period.²⁵ Other major lenders included the Inter-American and Asian Development Banks.²⁶ The Agricultural Organization of the United Nations (FAO) and the UN Development Programme (UNDP) also financed dam construction, as did the United States Agency for International Development (USAID) and the British Overseas Development Administration (ODA).²⁷

These dam proponents, however, uniformly ignored the fact that the construction of large dams also brought intense suffering for an estimated 30 to 60 million people worldwide—many already poor and disenfranchised.²⁸ Most large dams forced poor rural populations to abandon their historic homelands, which the river’s displaced water then submerged. In several cases, dams even had lethal consequences—the most tragic, perhaps, occurring in China’s Hunan Province, where a number of dam bursts in 1975 left more than two hundred thousand people dead.²⁹

Africa, too, became part of the dam revolution. In the name of modernization and prosperity, especially in the developmentalist years after World War II, European colonial governments constructed major hydroelectric complexes—as well as other large infrastructural projects.³⁰ Ghana’s Akosombo Dam, for example, although originally conceived in the late colonial period, was erected under the leadership of Kwame Nkrumah shortly after independence.³¹ Nkrumah used the language of national development to explain his unequivocal support for this colonial project: “Newer nations, such as ours, which are determined by every possible means to catch up in industrial strength, must have electricity in abundance before they can expect any large-scale industrial advance. . . . That, basically, is the justification for the Volta River Project.”³²

African leaders of all political persuasions embraced these projects with unbridled enthusiasm, as did their postcolonial successors. After all, dams reinforced the consolidation of state power in the countryside and were highly visible symbols of modernity and development. During the second half of the twentieth century, African governments constructed more than one thousand

dams, including twenty megaprojects such as the Akasombo Dam in Ghana, the Lagdo Dam in Cameroon, the Kainji and Bakolori Dams in Nigeria, the Kossou Dam in Ivory Coast, and the Masinga Dam in Tanzania. Some of the most highly publicized dams in Africa—the Aswan High Dam, the Kariba Dam, and the Lesotho Highlands Water Project—cut across territorial frontiers.³³ By the end of the twentieth century, South Africa alone had more than 550 dams in operation.³⁴

As elsewhere, the construction of large dams in Africa often had deleterious consequences. Megadams at Akasombo, Aswan, and Kariba flooded hundreds of thousands of hectares of fertile farmland.³⁵ The Akasombo, for example, which permanently inundated 4 percent of Ghana's land area, forced more than eighty thousand Ghanaians to abandon their communities adjacent to the Volta River.³⁶ Similarly, the Aswan dam uprooted one hundred twenty thousand people in Egypt and Sudan, and, in the area of the Kariba Dam, fifty-seven thousand Gwembe Tonga lost their homelands.³⁷ In these and many other cases around the continent, the physical, social, and cultural worlds of displaced peoples turned upside down.

People located downriver from the dams also found their livelihoods in jeopardy and critical natural resources degraded.³⁸ Damming permanently altered a river's flow regime—particularly the timing and extent of flooding along its banks. This disruption jeopardized long-established agricultural production systems that depended on seasonal flooding to enrich alluvial soils.³⁹ It also destroyed downriver fishing industries, increased waterborne diseases, eroded the shoreline and coast, degraded aquatic ecosystems, and caused declines in riparian animal and plant life.⁴⁰ Among the conclusions of a highly influential 2000 report by the WCD was the recognition that “in too many cases an unacceptable and often unnecessary price has been paid to secure these benefits [of dams], especially in social and environmental terms, by people displaced, by communities downstream, by taxpayers and by the natural environment.”⁴¹ Rural Mozambicans living adjacent to the Zambezi River certainly paid that price.

Although the construction of Cahora Bassa shares much in common with hydroelectric projects elsewhere in both Africa and other regions of the global South, the political context and social dynamics of Mozambique's megadam were unique. Cahora Bassa was the last “great” colonial infrastructure project in Africa. Whereas post-World War II British and French colonial planners tried to reshape the rural landscape of their African possessions through far-reaching river basin schemes and other large development projects,⁴² Portuguese authorities invested little in Mozambique's rural infrastructure—or those of its other African colonies of Angola, Guinea-Bissau, and São Tomé. That all changed in the early 1960s when Portugal, as part of its *antiguerrilla*

policy, began a number of infrastructural projects in the central and northern regions of the colony.

Military exigencies also explain why Cahora Bassa has the dubious status of being the world's largest national hydroelectric project created to export energy.⁴³ Mozambique's megadam, which cost so many rural families their livelihoods, land, and homes, existed solely to cement military ties between the Portuguese colonial administration and its apartheid neighbor, by exporting cheap energy to South Africa. In the process, the Mozambican countryside—even areas adjacent to the dam site—remained in the dark.

While the construction of large dams in Africa and elsewhere involved the forcible relocation by the state of large numbers of indigenous people, only in Mozambique were the victims of relocation herded into barbed-wire encampments (*aldeamentos*) to prevent them from aiding Frelimo guerrillas. The government also forcibly evicted several thousand more Africans living on the salubrious highlands near the dam site to make room for the construction of a segregated town for white workers and their families.

But it was not only peasants who suffered. Local African men who were conscripted to build the roads leading to the dam experienced another form of violence for the sake of Cahora Bassa, and the dam itself was literally built on the backs of thousands of African laborers enmeshed in a coercive and highly regimented labor regime.

These harsh realities highlight the central role of violence as a defining feature of Cahora Bassa's history. Unlike in India and Brazil, for instance, where domestic struggles shaped the politics of dam construction,⁴⁴ in Mozambique external political and security considerations generated this violence. Because the hydroelectric project symbolized the military alliance between the Portuguese colonial state and apartheid South Africa, the surrounding region became a highly contested zone of confrontation between Frelimo guerrillas seeking to sabotage it and the Portuguese military, which, with logistical support from Pretoria, unleashed a wave of violence against the peasant population allegedly to prevent them from aiding Frelimo.

Even after both the dam's completion and Mozambique's independence, the violence continued. When South African-backed Renamo forces launched a military campaign to destroy the new nation's economic infrastructure, Cahora Bassa's power lines were inviting targets—since the apartheid economy did not require the energy at that moment. These attacks lasted for over fifteen years.

THE LITERATURE ON LARGE DAMS

The dam revolution generated a voluminous body of scholarly literature, detailed discussion of which falls outside of the scope of this study. Broadly speaking, there are two diametrically opposed schools of thought: one celebrating

and promoting these megaprojects as developmentalist triumphs and the other highlighting their damaging social and environmental consequences.

Engineers, economists, development experts, state officials, and representatives of the dam industry have been the most vocal proponents of the celebratory school. Their influential publications date back to the completion of the Hoover Dam, in the 1930s.⁴⁵ For half a century thereafter, they controlled the terms of public debate, while promoting dams in all corners of the globe. Using a narrow cost-benefit analysis, they emphasized the transformative potential of hydroelectric projects, even while acknowledging some of their unintended negative consequences. Dams, they stressed, provided a source of cheap energy that would stimulate industrial production and electrify areas with no previous access to power. Harnessing rivers, in their view, would promote irrigation and flood control, facilitate river transport, and ensure a secure supply of clean water. Many also predicted a sharp increase in the number of fish in dam reservoirs, thereby increasing the potential income of commercial anglers. More recently, the dam industry and its allies have appropriated the discourse of the green energy movement to claim that hydroelectric projects are a cleaner source of fuel than coal, thermal, oil, or natural gas.⁴⁶

In the 1970s, geographers and anthropologists concerned about the social costs of dislocation and the worrisome environmental effects of recently erected dams began to challenge this dominant narrative. They pointed to the devastating ecological and health consequences of a river's inability to flow freely, since large dam reservoirs flooded fertile farmlands and rich forests, drowned wildlife, and destroyed medicinal plants. Downriver, altered flow regimes increased erosion, destroyed subsidiary channels, disrupted fish populations, increased salinization, and threatened vital mangrove forests. Human populations occupying river valleys also suffered sharp spikes in waterborne diseases, such as schistosomiasis, malaria, and gastroenteritis.⁴⁷

Mounting evidence of large dams' damaging effects helped fuel indigenous protest movements, particularly in Brazil, India, Nigeria, Thailand, Turkey, and Zambia, and added urgency to academic debates.⁴⁸ These local insurgencies, supported by a growing transnational antidam movement,⁴⁹ highlighted for the world the traumatic social and cultural costs to riverine communities. Concerned scholars followed the lead of antidam activists, publishing accounts of forced displacement and the ways in which postdam flow regimes undermined traditional agricultural systems.⁵⁰ Other academics questioned whether providing cheap energy for cities and export industries at the expense of the rural poor was a sustainable development strategy or simply a reflection of who controlled the levers of state power.⁵¹

Although most of these debates focused on large dams in Asia and Latin America, Africanist scholars contributed by challenging the "heroic and often

arrogant, modernizing dam-building agenda of the 1960s to the 1980s.”⁵² Foremost among them was the eminent anthropologist Elizabeth Colson, whose foundational 1971 study *The Social Consequences of Resettlement*, based on her extensive fieldwork in the 1960s, described in painful detail how the world of more than fifty-seven thousand Gwembe Tonga was turned upside down by their forcible removal from their homelands in southern Zambia during construction of the Kariba Dam. Thayer Scudder, who worked with Colson, extended her analysis by publicizing the dam-induced poverty in the area surrounding Lake Kariba, one of the largest artificial lakes and reservoirs in the world.⁵³ Geographer William Adams, in his continentwide study, *Wasting the Rain*, documented how river development schemes disrupted floodplain ecologies and subverted farming and fishing.⁵⁴ Most recently, feminist scholar Dzodzi Tsikata’s *Living in the Shadow of the Large Dams* analyzed the experiences of lakeside and downstream communities affected by Ghana’s Volta River Project.

Other Africanists, both north and south of the Sahara, opened up new areas of inquiry. Timothy Mitchell’s provocative *Rule of Experts*, using the case of the Aswan High Dam to explore the inner world of technopolitics in the Egyptian state, showed how colonial and postcolonial experts celebrated the transformative power of dams while sidelining peasants’ concerns.⁵⁵ JoAnn McGregor’s innovative study, *Crossing the Zambezi*, situated the Kariba Dam’s construction within the 150-year history of the politics of landscape in the middle Zambezi, while Julia Tischler’s doctoral dissertation on Kariba analyzed the politics of development in the turbulent era of decolonialization.⁵⁶ Tsikata’s work on the Volta Dam raised important questions about the gendered effects of Africa’s hydroelectric projects, and Stephan Miescher’s current research, extending the analysis beyond political economy and ecology, will explore its cultural symbolism and Ghanaian attitudes toward modernity, development, and nationhood.⁵⁷

Our work is informed by both the scholarly debate on Africa’s large dams and prior scholarship on Cahora Bassa, much of which focused on either the dam’s strategic dimensions or its effects on downriver flora and fauna. João Paulo Borges Coelho’s 1993 doctoral thesis, “Protected Villages and Communal Villages in the Mozambican Province of Tete (1968–1982),” detailed how the forced relocation of thousands of peasants—both those living in the area adjacent to Cahora Bassa and others residing in adjacent regions not affected by the dam—was a critical dimension of Lisbon’s counterinsurgency program.⁵⁸ Keith Middlemas’s 1975 study, *Cabora Bassa: Engineering and Politics in Southern Africa*, documented the challenges of financing and constructing the dam, drawing on official government reports, correspondence between Lisbon and prospective investors, and over one hundred interviews with dam

officials, African workers, Portuguese military commanders, and Frelimo guerrillas.⁵⁹ In his carefully researched doctoral thesis, “The Regulation of the Zambezi in Mozambique,” Peter Bolton examined the initial impact of the dam on the Zambezi River valley.⁶⁰

Professor Brian Davies, a University of Cape Town zoologist, was part of a Portuguese research team in the 1970s investigating the anticipated ecological impacts of Cahora Bassa. After conducting pioneering studies downriver, he predicted that the dam would cause appreciable environmental destruction.⁶¹ He spent the next thirty years mapping out the actual consequences, which were even worse than what he had predicted.⁶² His work has been extended by Richard Beilfuss, a hydrologist who, with a team of Mozambican and foreign scientists, extensively researched environmental flows and sustainable management of the Zambezi River over the last two decades.⁶³ Their extremely important studies of wetland and wildlife conservation, particularly in the Zambezi delta, have provided invaluable information on the long-term ecological effects of Cahora Bassa. Our debt to all these scholars, but particularly to Beilfuss and his colleagues, is evident in the frequency with which we cite their work.

The present study makes three contributions to the literature on Cahora Bassa and the broader scholarship on the impact of large hydroelectric projects in Africa and the global South. Most writings on large dams have a strong presentist bias. Investigators typically begin their analyses either just before a dam’s construction or shortly thereafter. By contrast, we treat Cahora Bassa as part of a much longer history, dating back to the sixteenth century, of Portuguese attempts to colonize the Zambezi valley and domesticate one of Africa’s mightiest rivers. In summarizing that history, we also explore how European travelers and Portuguese functionaries forged a master narrative of the river as wild and dangerous—one that stands in stark contrast to indigenous representations of the Zambezi as a source of life and prosperity, which could be dangerous if not respected. Additionally, we look ahead—examining how the dam’s history may affect Mozambique’s decision to build a second dam at Mphanda Nkuwa, sixty kilometers downriver.

Just as we have extended the temporal parameters of our study beyond the relatively short history of the Cahora Bassa Dam, so too have we broadened its spatial dimensions by extending our gaze downriver from the dam site and reservoir to the Zambezi delta and estuary. Most studies of large dams tend to explore the social and ecological consequences either around the dam site or in the river delta, rather than examining the entire river system. As part of this expanded geographic perspective, we also include material on the Kariba Dam, located approximately eight hundred kilometers upriver on the Zimbabwe-Zambia border, since the amount of water it discharged has had

a significant impact on Cahora Bassa and the area downriver. To understand the changing fields of power in which Cahora Bassa's history is embedded, it is necessary to consider the wider regional, transnational, and global forces operating during this period. Cold war geopolitics, the apartheid regime's aggressive efforts at bolstering its hegemonic position in the region, Lisbon's efforts to maintain a significant presence in postcolonial Mozambique, and pressure from the World Bank and the IMF have all figured prominently in the history of the dam.

Finally, we have shifted our principal angle of vision from a state-centric developmental approach to one that explores the linkages between power inequities and environmental change—particularly the difficulties of securing water for the Zambezi valley's rural poor and ecosystems. We focus on the interconnection between livelihood vulnerability and environmental changes provoked by the dam, and, because our emphasis is on the daily lives of affected rural communities, peasants' stories, rather than the official modernizing discourse of the colonial regime or the postcolonial state, are at the center of our analysis.

In adopting this strategy, we do not dismiss the role of the colonial state or its successor. Nor do we ignore the possibility of dissenting voices within the Portuguese and Frelimo administrations. To the contrary, we examine whatever critical debates and divergent views about the dam periodically surfaced. Although some documentation from the colonial period exists, because Mozambique's postcolonial archives remain closed, and producing cheap hydroelectric power continues to be a high priority of the Frelimo government, high-level disagreements about Cahora Bassa and the proposed dam at Mphanda Nkuwa generally remain shrouded in secrecy.⁶⁴

Thanks to the work of such authors as Timothy Mitchell, James Scott, and James Ferguson, we know a great deal about “the rule of experts,” what it means to see like a state, and the totalitarian aspects of modernist state planning.⁶⁵ Using these concepts, we have sought to write a social history of a development project in which the rural poor are not simply objects of state planning but play a significant role as actors in the story. This shift in the angle of vision helps us to understand how top-down developmentalism affected the organization of agriculture, the utilization of labor, the exploitation of microecological systems, the development of innovative fishing techniques, and the general resiliency of affected populations.

DISPLACEMENT FOR DEVELOPMENT

In the name of development, state-planned and -executed large dam projects have disrupted the lives and livelihoods of millions of people throughout the global South. “Development-induced displacement,” to borrow the language

of Peter Vandergeest, most often affects the poorest and most marginalized communities.⁶⁶ It also can have calamitous consequences for the physical and cultural worlds in which poor communities reside. Displacement for development certainly happened at Cahora Bassa, and the history of that destructive process is the narrative core of this study.

In the chapters that follow, we employ the term *displace* in two slightly different ways.⁶⁷ In its most conventional usage, as described in the next several paragraphs, *displace* means to remove or shift someone or something from its customary physical location. We use *displace* in this sense to capture the lived experiences of riverine communities that were violently dislodged and relocated to so-called protected villages when Lake Cahora Bassa inundated their historic homelands. *Displace* also refers to the forced removal of African villages located on the salubrious Songo highlands when those lands were taken over by Zamco, the multinational corporation that constructed the dam.⁶⁸ The term *displacement* also captures the experience of peasants living downriver who had to abandon fertile alluvial plains and island gardens when unpredictable discharges from the dam flooded these highly valued cultivated spaces.

In addition to people, Cahora Bassa literally displaced animals, plants, and soils. A few examples will illustrate this point. Herds of elephant, wildebeest, and kudu, among other wildlife that roamed the savannas and forests in the region adjacent to the river, either drowned or fled when the dam reservoir was filled. By sharply reducing the volume of river flow in the lower Zambezi, the dam increased salinization in the biologically diverse delta wetlands, leading over time to the replacement of freshwater grasses with more salt-tolerant species, able to thrive in the brackish water. And, because Cahora Bassa dramatically impeded the silt from traveling downriver, the mineral-starved water below the dam recaptured sediment loads by eating away at the riverbanks. This caused erosion that displaced large quantities of precious alluvial soil.

By converting the natural power of the Zambezi River into electricity for South Africa, the dam also displaced energy from Mozambique. Its primary function was to produce electricity, but not for local consumption. Instead, Cahora Bassa transported up to 1,450 megawatts over a 1,800-kilometer network of pylons stretching from Songo to the power grids of South Africa. This energy was, and continues to be, used to power South African mines, farms, and cities, while the vast majority of Mozambicans who live in the lower Zambezi valley remain without access to electricity and the economic activities it makes possible. In short, the dam converted one of Mozambique's most vital natural resources into an export commodity, principally for the economic benefit of its powerful neighbor.

The dam robbed energy from the region in another, less obvious way. By harnessing the once powerful Zambezi so that it no longer flowed freely, the

dam prevented the river from accomplishing all its previous essential work. In addition to blocking the flow of water and silt, the dam walls trapped substantial amounts of organic and inorganic material that had previously fertilized the alluvial soils of the floodplains, creating optimal conditions for agriculture in an environment where erratic rainfall and poor soils made farming a precarious enterprise. As a result, riparian human communities as well as other forms of plant and animal life permanently lost essential energy-supplying nutrients.

We employ the term *displace* in a second, very different way to connote a less tangible process of dislodging and replacing. Here we have in mind the ways in which dominant colonial and postcolonial narratives of Cahora Bassa's history have rendered inaudible the stories and experiences of the Zambezi valley's riverine peoples. This silencing is due, of course, to the asymmetrical power relations surrounding the production and dissemination of knowledge about state-sponsored development projects. The Portuguese colonial state and its postcolonial successors all maintained a wall of silence around Cahora Bassa, authorizing only official representations of the dam in public discussions. Absent from public discourse were the experiences, conversations, and ideas of peasants who lived with the consequences of its existence. Official adulation for the hydroelectric project muted the voices of these men and women, in a form of displacement whose epistemological violence was no less painful than the physical violence peasants experienced because of the dam.

That Portuguese authorities silenced critical discussion of Cahora Bassa is hardly surprising, given the colonial regime's highly authoritarian character and its tendency to stifle any dissent. For all the fanfare about improving the quality of life for rural Mozambicans, Cahora Bassa's ultimate purpose was to cement a security alliance between the Portuguese colonial state and apartheid South Africa. The dam was integral to Portugal's antiguerrilla military strategy and a symbol of its commitment to retain its African empire. Even in government circles, there could be no debate about Cahora Bassa. European planners, scientists, or district administrators who raised questions about the potentially devastating effects of the megadam on local communities and environments were ignored, censored, or removed from their positions.⁶⁹

The colonial version of history rested on the premise that the Portuguese were the guardians of progress, civilization, and modernity.⁷⁰ In its master narrative, the colonial state produced order, as opposed to the chaos and disorder of the precolonial past, which left no place for state-sanctioned violence. To the extent that colonial authorities acknowledged the violence that did occur, they cast it as an unintended or unfortunate, but necessary, consequence of "progress." Thus, Lisbon claimed that, compared to the dislocations caused by other large dam projects in Africa, only twenty-eight thousand people—a relatively small number—would be relocated due to Cahora Bassa and that

problems associated with peasant relocation were amenable to technical solutions, such as selecting fertile sites and digging wells and boreholes. Colonial officials also contended that the inconvenience of forced resettlement was a trivial price to pay for the wide-ranging benefits Cahora Bassa would deliver.

Since the state prohibited scholars, journalists, and international observers from entering the areas of the Zambezi valley where aldeamentos (protected villages) were located, rural families herded into the protected villages had no channel through which to communicate their version of events to the outside world and no power to challenge the sanitized fiction of official discourse. Like displaced peasants, the African workers whose labor built Cahora Bassa could share stories of suffering only with one another. Portuguese accounts of the dam's construction similarly displaced evidence of the ongoing violence and exploitation and depicted the construction site as a harmonious multiracial workplace. No one reported the coercion and intimidation, the grueling work schedules and inadequate living conditions, or the industrial accidents that were an integral part of African dam workers' daily lives.

Even when, after independence, scholars and journalists documented the forced internment and labor abuses, the Frelimo government reproduced the colonial narrative that portrayed Cahora Bassa as an icon of economic development and progress and expressed confidence in the dam's ability to transform the Zambezi valley and spread the fruits of socialism to rural populations. Yet, like all developmentalist states, postindependence Mozambique paid scant attention to the voices of the rural poor—the riverside communities whose concerns about the effects of the dam were lost in the noise surrounding socialist transformation. In 1987, when Frelimo abandoned its socialist project and implemented an IMF–World Bank structural adjustment program, Cahora Bassa figured prominently in its neoliberal development agenda. The optimistic discourse of Mozambican leaders—engineers and economists, stressing the untapped potential of the dam as a source of hydroelectricity—perpetuated the state's developmentalist ideology and, once again, marginalized peasant concerns.⁷¹

In general, displacement is an inherent part of large-state development initiatives, and, whether intended or not, violence regularly accompanies massive infrastructural projects, such as dams. Nevertheless, development, as originally conceived in the aftermath of World War II,⁷² was not supposed to involve the violent disruption of rural societies. Instead, it was built on the premise that “foreign aid and investment on favorable terms, the transfer of knowledge or production techniques, measures to promote health and education, and economic planning would lead impoverished countries to be able to become ‘normal’ market economies.”⁷³ Since development was a strategy to alleviate poverty, the rise in per capita GNP, which accompanied development would,

according to economist Arthur Lewis, give “man greater control over his environment and thereby increase his freedom.”⁷⁴ At a global level, accelerated economic growth would narrow the gap between rich and poor, precipitating “modernization and economic take off.”⁷⁵ By the 1970s, advocates of neoliberalism were proclaiming that unfettered markets were the key to development and to the optimal allocation of resources.⁷⁶

Theorists on the left disagreed, pointing to the failures of large infrastructural projects, like dams—one prominent and typically destructive form of development—to alleviate poverty.⁷⁷ They contended that, rather than closing the gap, the unfettered functioning of the global market actually widened disparities between rich and poor.⁷⁸ This argument was sharpened by critical theorists who stressed that the “uneven development” inherent in capitalism had far-reaching and unequal social and spatial consequences that reinforced global hierarchies of power. By heightening the “contradictory relations of class, of gender, of town and countryside, of ethnicity and nationality,” uneven development created conflicts over scarce resources and struggles for social justice.⁷⁹ Other Marxist critics took a slightly different approach, maintaining that a capitalist modernization agenda further oppressed the working classes, while facilitating capitalist accumulation.⁸⁰ In its place, they offered a socialist model of development that would promote prosperity and social equality.⁸¹ Feminist scholars, drawing on a variety of different social theories, instead focused on the power of patriarchy and the subordination of women under both developmental paths, which ignored or undervalued production for sustenance and survival in which women and children figured most prominently.⁸²

Proponents of sustainable development—primarily environmental economists for whom the construction of megadams provoked obvious concerns—also criticized the tendency of developmentalists to privilege large infrastructural projects. They insisted that any analysis had to consider the long-term resilience, vulnerability and regenerative capacity of ecological systems, which were essential for sustained economic growth, along with inter- and intragenerational equity.⁸³

In the past two decades, postdevelopmental theorists have argued that development cannot be equated with enlightenment and progress. Ferguson, for example, has maintained that Western notions of modernity were little more than “a set of discourses and practices that has produced and sustained the notion of ‘the Third World as an object’ to be developed” and that developmentalism shaped and legitimated the practices of both the postcolonial state and international development agencies, whose interests were closely aligned.⁸⁴ Arturo Escobar similarly criticizes developmentalism as a strategy by capitalist countries in the global North to secure control over scarce resources and former colonial subjects, which simultaneously intensified hunger and poverty

in the very communities being “developed.”⁸⁵ The dam revolution is a case in point—the quintessential example of the delusion of development.

Although our study is informed by these criticisms of development, it would be an oversimplification to assume that development “is a self-evident process, everywhere the same and always tainted by its progressivist European provenance.”⁸⁶ In fact, local, national and transnational factors produce substantial variations over time and space, and even development’s coercive power, while still inseparable from larger processes of economic transformation and power relations, is rooted in local history and social relations.⁸⁷

While not rejecting the notion of development per se, we recognize its inadequacy as an analytical concept.⁸⁸ For us, the critical issue is what exactly is being developed and for whom. Throughout the text, we employ the concept of sustainable livelihoods—itself a product of development theory—which stresses the inextricable interconnection between power, poverty, and environmental degradation,⁸⁹ since neither communities nor nations can ultimately sustain themselves if they pursue policies that adversely affect the nonhuman world.⁹⁰ In this study, we explore how the socioeconomic and ecological changes caused by Cahora Bassa adversely affected both people’s access to scarce resources and their capacity to use these resources effectively to enhance their daily lives.⁹¹ To the extent that the dam limited peasants’ ability to achieve positive livelihood outcomes, it brought with it, instead, the delusion of development.

READING CAHORA BASSA—THE CHALLENGE OF SOURCES

Archival sources provide much of the evidentiary base for chapters 2, 3, and 4. The Arquivo Histórico de Moçambique (AHM) in Maputo, Mozambique, and the Arquivo Nacional da Torre do Tombo (ANTT) in Lisbon, Portugal, are the most important repositories of written documentation on the planning and construction of Cahora Bassa. The AHM contains numerous engineering and financial reports, as well as brief ecological and ethnographic surveys of the area to be affected by the dam, prepared under the auspices of the Missão do Fomento e Povoamento do Zambese (MFPZ), the state agency charged with overseeing the dam project. The archive is also a repository for reports from local administrators and military officials describing the forced resettlement scheme, rural opposition to the aldeamentos, the war effort against Frelimo, and official concerns about Frelimo’s advance along both margins of the Zambezi River.⁹²

The ANTT houses the largest body of material on the strategic dimensions of the dam. Reports by the Portuguese secret police (Policia Internacional e de Defesa do Estado, or PIDE) and other security branches, along with those of colonial administrative officials, document the forced removal of peasants, the conditions of the proposed resettlement sites, and internal debates about

the strategic desirability of relocating thousands of people from their homelands to protected villages. These sources reveal fissures within the Portuguese colonial regime, particularly between civilian administrators, who favored persuading rural communities to relocate voluntarily, and military commanders, who simply wanted to use force. Colonial intelligence reports, often based on accounts from African spies, describe the growing rural opposition to forced resettlement, the difficult position of loyalist chiefs who had to implement the villagization policy, and government fears that Frelimo would organize workers at the dam site. The ANTT also contains significant documentation of Portugal's negotiations with South Africa concerning financial and security matters and of efforts by competing multinational corporations to win construction contracts. Additionally, there is an entire dossier about Lisbon's attempts in the early 1970s to infiltrate and discredit the antidam movement, which had organized an international boycott of Cahora Bassa.

This voluminous documentation, however, has serious limitations. The most obvious is that colonial officials typically considered the opinions and experiences of the rural poor insignificant, rarely recording them for posterity. Even at the local level, European personnel tended to ignore the critical factors affecting the lives of African workers and peasants. For example, there were only passing references to labor conditions at the dam site, all concerning white workers. Moreover, because the dam site and the town of Songo were the domain of two Portuguese companies—Zamco, the consortium that built the dam, and Hidroeléctrica de Cahora Bassa (HCB), which subsequently owned and operated it—the limited extant labor documentation is in their archives, which remain closed to the public.⁹³ Nor did colonial authorities consider reporting on either life within the aldeamentos or the social and ecological consequences of Cahora Bassa's construction.

More fundamentally, these sources are problematic because they are colonial texts produced by chroniclers whose perceptions and agendas were shaped by their race, nationality, class, gender, and status within the colonial hierarchy. While it is sometimes possible to discern faint echoes of African voices in the written words of colonial personnel—as, for example, in administrators' reports of conversations with African chiefs—teasing out subaltern perspectives from such documents is very difficult. As Premesh Lalu argues, “to claim that subaltern consciousness, voice or agency can be retrieved through colonial texts is to ignore the organization and representation of colonized subjects as a subordinate proposition within primary discourses.”⁹⁴ Thus, one must read even the richest archival documents from the colonial period carefully and critically, “against the grain.”⁹⁵ While archival sources do not present a monolithic image of Cahora Bassa, the dominant narrative that emerges from these writings tends to obscure or disguise the realities of African rural life.

The wall of silence Lisbon imposed around Cahora Bassa during and after its construction compounds the inherent difficulty of utilizing colonial-era archival sources. The Portuguese government buried the findings of its own researchers when they raised concerns about the project and allowed only trusted journalists and international reporters to enter the region, which they classified as a strategic military zone. Even journalists and researchers with official clearance found their movements restricted to Songo and a few model aldeamentos. A Portuguese anthropologist studying the Tawara, a community living adjacent to the dam, acknowledged that he often had to rely on secondhand information, since “participant-observation was reduced to a minimum.”⁹⁶

This policy of secrecy and nondisclosure continued into the postcolonial period. Despite nominal oversight by Mozambique’s energy ministry, the HCB still treated the dam as its own private domain and released almost no information about it. The Frelimo government, fearing Rhodesian sabotage, declared Cahora Bassa off-limits to most foreign researchers and journalists. Ideologically predisposed to pursuing rural development through large state projects, Frelimo’s Marxist-Leninist leadership discouraged public debate about the dam, labeling it a symbol of socialist transformation and modernity. In the 1980s, Renamo military campaigns turned the Zambezi valley into a major battleground whose violence disrupted all local social and environmental research efforts. That Mozambique’s national archives are not yet open for this period and that the Frelimo archives are in disarray⁹⁷ exacerbate the evidentiary limitations. In chapters 6 and 7, when discussing Mozambique’s negotiations with Portugal over ownership of Cahora Bassa, its efforts to pressure the postapartheid South African state to increase the price paid for its electricity, and the status of the projected dam at Mphande Nkuwa, we had to rely on the publicly reported announcements of Mozambican officials. This was because the authorities, citing their confidential nature, were unwilling to speak candidly about these issues.

To address these challenges, we have relied on several reports concerning the feasibility of building a second dam at Mphanda Nkuwa produced by state-sponsored consultants, which include background material on the social and environmental effects of Cahora Bassa.⁹⁸ We have also examined documents and reports commissioned by nongovernmental organizations, environmental groups, and antidam activists, which, while often failing to capture the full complexity of realities on the ground, advance powerful critiques of the hydroelectric project.⁹⁹ The most valuable written sources for the postcolonial period are the meticulously researched hydrological and ecological research about the Zambezi River valley, on whose findings we draw throughout this book.¹⁰⁰

The more than three hundred oral interviews of residents of riverside communities, missionaries, scientists, state officials, and antidam activists provide

the principal evidence for most of this study. We began this project in 1998, while completing fieldwork for a book on runaway Chikunda slaves.¹⁰¹ Two years later, Arlindo Chilundo, a Mozambican historian, and Allen Isaacman directed a research team from Universidade Eduardo Mondlane that studied the social and ecological consequences of Cahora Bassa.¹⁰² Over two summers the team interviewed more than two hundred peasants and fisherfolk, living primarily on the southern margins of the Zambezi, whose recollections were recorded in public spaces, where members of the larger community could offer their thoughts. The interviews were public because, in rural communities, remembering and storytelling are preeminently social acts, in which both performance style and audience play crucial roles. In fact, the audience often intervened—either to elaborate on how their recollections were similar or different or to move the conversation to topics they thought were more interesting or significant.

We encountered several key informants by chance. Cláudio Gremi, an Italian Jesuit priest, was in the audience at the Songo conference. During the question-and-answer session, he wondered why none of the presenters had described the forced removal of peasants living near the lake and their internment in aldeamentos. He also mentioned the harsh working conditions at the dam site. When we approached him at the conference's conclusion, he informed us that he had been stationed at Songo in the early 1970s, where he ministered to the peasants and workers living in the area. Although a critic of Portuguese colonialism, he was committed to historical accuracy and, for that reason, he would only report what he had witnessed firsthand or had heard directly from one of his parishioners.¹⁰³ We have relied heavily on his observations.

Padre Gremi introduced us to parishioners who were, or had been, employed by the HCB. Absent his intervention, many of the aging employees would probably have been reluctant to speak about past or present working conditions. We interviewed them outside the earshot of company officials, at either our residence or their homes, often accompanied by Padre Gremi. These men detailed the harsh labor regime under which they worked, the major industrial accidents that went unreported in the colonial press, and their substandard living conditions. One of the most outspoken was Pedro da Costa Xavier, who had worked for the colonial state and the HCB for more than forty years. Although he had previously been a government tax collector and a company overseer, he described in detail the harsh working conditions at Songo and on the dam site.¹⁰⁴

Our project also benefited from fieldwork conducted by Professor Wapu Mulwafu and three students from the University of Malawi's Chancellor College. The recollections of elders residing near the confluence of the Shire and Zambezi Rivers contained valuable information about the social and

ecological effects of Cahora Bassa on communities along the northern margin of the Zambezi, the effects of South Africa's destabilization campaign on the region, and the plight of war refugees who sought sanctuary in Malawi.¹⁰⁵ Additionally, we draw on the voluminous fieldnotes of interviews British researcher Keith Middlemas conducted with colonial authorities, dam workers and managers, and Frelimo officials in 1970 and 1976.¹⁰⁶

Upon analyzing this material, we realized that we could appreciate the full impact of Cahora Bassa on the peoples and environments of the lower Zambezi valley only if we understood how local communities perceived the proposed new dam at Mphanda Nkuwa. Toward that end, in 2008 and 2009, David Morton, an advanced graduate student at the University of Minnesota, interviewed peasants in Chirodzi-Sanangwe and Chococoma, villages near the dam site. Between 2009 and 2011, to learn more about this project, we also met with antidam activists and officials of the construction company planning Mphanda Nkuwa.

Because our study, above all else, concerns the lived experiences of riverside communities, their stories, memories, and representations figure most prominently. At the outset, we must stress that many of these memories gloss over the challenges and hardships that have characterized life along the Zambezi River for centuries. After all, irregular rainfall, periodic flooding, and other natural calamities, along with the uneven quality of the soils, imposed limits on agricultural production in the region. That many males had to leave the Zambezi valley in order to earn enough to pay their annual taxes and provide for their families clearly suggests the impoverished nature of the region, whose agricultural productivity was often insufficient. While life was less precarious for those who farmed along the alluvial plains adjacent to the river, these problems never entirely disappeared.¹⁰⁷ In fact, even in the rosier accounts of life before Cahora Bassa, there are muted references to seasonal hunger, food shortages, and natural disasters.

Such nostalgia about the predam period is understandable, since the elders with whom we spoke believe that Cahora Bassa is responsible for recent hardships. Given the stark reality of their present existence, it is hardly surprising that they failed to report recollections that ran counter to their characterization of life after Cahora Bassa. Even so, there are hints of such realities even in the more nostalgic accounts, which we do our best to present.

Despite the limitations of such interviews as historical evidence,¹⁰⁸ we are convinced that these oral texts, read critically, not only challenge the prevailing colonial and postcolonial formulations of Cahora Bassa's history but also offer an alternative narrative—a detailed interior view of life before and after the construction of the dam. Taken together, they tell a story about the changing social and environmental worlds of the lower Zambezi—one that would have been completely lost to us were we limited to conventional documentary evidence.

The recollections of the women and men who know the river best provide important evidence of the centrality of the Zambezi ecosystems to African lives and livelihoods. Their stories offer unique insights about the agricultural capacity, biodiversity, and livability of the Zambezi floodplains when the river still ran free. Because of our concern that their nostalgic memories romanticized the predam period, wherever possible we corroborate their stories with earlier or contemporary written accounts.

The elders' recollections also cast a revealing light on the devastating ecological, economic, social, and cultural consequences for peasant households of the colonial state's appropriation of the river's life-sustaining waters. Significantly, peasants' ecological memories of the perturbations in hydrology and ecology wrought by the dam confirm the preliminary observations of environmental scientists, both at the time of its construction and more recently.¹⁰⁹ These accounts also reveal how peasants perceived, explained, and coped with the ecological changes caused by Cahora Bassa and creatively adapted to changing life in the river basin.¹¹⁰

Additionally, oral accounts highlight the ways in which local notions of time were radically different from those of the colonial and postcolonial authorities. In the collective memories of most rural elders, the divide between "life before" and "life after" the dam was a critical temporal marker.¹¹¹ State planners, on the other hand, operated on a developmental time scale. They stressed that Cahora Bassa had a "natural life" of well over fifty years before problems of sedimentation would pose a threat to the mammoth project. During this period, in their view, the dam would remain a potent symbol of state-driven development and an integral part of the drive toward modernity.

Like all oral testimonies, our interviews are constrained by, but also benefit from, their interior positionality. Because there is no single "authentic" voice capable of capturing the tumultuous lived experiences of people living along the river and because the impacts of the harnessed river varied dramatically from one microecological zone to another, we tried to conduct as broad a range of interviews as possible throughout the Zambezi valley. That the dam ended seasonal flooding, for instance, had far greater consequences in the Zambezi delta, where the majority of residents farmed in the vast floodplain, than it did in the area around Tete, where the narrower band of alluvial soil supported only a small rural elite. Gender, age, and occupation further contributed to the variety in rural perceptions of Cahora Bassa, and the testimonies of women and men, old and young, peasant farmers and fisherfolk, hunters and herbalists focused on very different dimensions of daily life.¹¹² Thus, for example, women, who were responsible for the household's food security, stressed that, after construction of the dam, they coped with hunger by planting more cassava and searching the shoreline for roots and tubers—recalling

that *nyika* (water lily) roots pounded into porridge were essential to their families' survival. Fisherfolk, on the other hand, described the steady decline in their catch and their desperate use of finer and finer nets to trap young fish, even though they knew that this strategy would further deplete future fish stocks. Herbalists spoke of their inability to treat the sick, because the floods created by the dam's unpredictable release of reservoir waters destroyed their medicinal plants. All these stories provided rare glimpses of fear, loss, and the indelible memory of impending chaos—moments of subjective reflection that historians have often found difficult to capture.¹¹³

We treat the diverse oral accounts produced through our interviews as significant social texts with hidden, multiple, and often contradictory meanings. Memories, whether individual or collective, do not exist outside the present; and problems of memory loss, repression, and reconstruction compound the challenges of interpretation, as does the impact of the interviewer's perceived social position. Understanding why people remember what they do at particular moments, and why they narrate those memories in particular ways, requires not only recognizing the nostalgia for what it is, but also probing what might have been at stake for the men and women we interviewed at the time of our meeting. As John Collins reminds us, we need to be aware of "the overdetermination of memory by immediate events."¹¹⁴ In the case of Cahora Bassa, many elders may have also romanticized what life was like before the dam,¹¹⁵ either because they were, at the time they were interviewed, involved in ongoing efforts to pressure the government to restore the predam flow regime or because they knew about plans to construct a second dam at Mphanda Nkuwa. Other villagers deployed this claim to support their demand that the ruling party take responsibility for environmental recovery in the Zambezi valley. Similarly, antidam activists and some living near Mphanda Nkuwa invoked a pre-Cahora Bassa golden age, as part of a broader political discourse opposing construction of the new dam.¹¹⁶

This nostalgia probably also explains the tendency of some elders to attribute to the dam's existence a variety of other ills, even when there is little evidence to support them. Several villagers, for example, asserted that, because the uncertain flows of the river discouraged animals from coming there in search of water, the small game they used to hunt had disappeared.¹¹⁷ This explanation failed to consider the impacts of increasingly dense human settlements on the river's margins and the destruction of wildlife habitats by relocated villagers who cleared the riverine woodlands for firewood, building materials, and to make charcoal.¹¹⁸

The politics of forgetting also complicates the present-day meaning of oral narratives. Sometimes individuals and groups forget simply because of the limitations of memory—as when people make the past more manageable by blending the specifics of everyday life into a set of more "generic memories."¹¹⁹ Indeed, accounts of patterned, normative behavior devoid of

daily variations—as reflected in descriptions of “what we used to do”—characterized many of the stories about life before the dam. Forgetting, however, can also be a profoundly political act. As debates regarding memories of the Holocaust remind us, denial and suppression are common ways of reconfiguring both fragments of a collective past and the consciousness of individual historical actors.¹²⁰ Some of the elders we interviewed, for example, tended to downplay the more disturbing elements of their histories, such as the social tensions among aldeamento residents. Many were also reluctant to talk about adultery or witchcraft in these camps, although, when pressed, they acknowledged the presence of both. There was a similar tendency to gloss over the fact that male family members had worked as *sipais* (African police) or had fought in the colonial army. Such distortions require that we listen carefully and critically not only to the multiple voices in oral sources but also to the silences.¹²¹

Interpreting Zambezi valley oral sources becomes even more problematic due to the forced relocation of peasants into protected villages between 1970 and 1975 and the massive displacement of rural communities fleeing from Renamo attacks during the 1980s. These related processes destroyed communities, filled refugee villages with people from many different places, and severed their attachments to the specific physical sites associated with a remembered past. Since many stories about the past were grounded in particular “memory places” or “memoryscapes,”¹²² displacement may have discouraged some from regularly reciting their historical memories—an activity necessary for their retention. Given the extraordinary instability in Mozambique during this period, we must be sensitive to Isabel Hofmeyr’s position that oral traditions lose much of their substance when divorced from the geographical and social setting of their performance.¹²³ That her position may be somewhat overstated is suggested by Heidi Gengenbach’s brilliant and comprehensive study of southern Mozambican women whose lives and communities were ravaged by Renamo attacks which forced them to flee their homelands.¹²⁴ Contrary to Hofmeyr, she found that physically displaced people did not necessarily cease to remember their past¹²⁵ and that, even where some loss of memory occurred, its rate was uneven.¹²⁶ Thus, scholars must be sensitive both to the circumstances under which displaced people manage to hold on to their memories and to the strength of their remaining recollections.

How people reconstruct, interpret, and use the past has powerful relevance for the present and future, and awareness of what might be at stake in speaking publicly about Cahora Bassa certainly influenced responses to our questions. After many of these sessions, outspoken individuals—some angry, others solicitous—asked us to stress to government officials in Maputo how much rural people had suffered because of Cahora Bassa. Beatriz Maquina, for example, expressed her frustrations as follows:

We are very tired of being interviewed. Many people have come here [from the government and NGOs] to ask us questions, and they promised to bring us seeds, corn, other cereals and blankets. But, until today, we have not received anything and we continue to suffer. These promises were made during the time of the war with Renamo and even today. They promised us many things and promised to help us, but nothing ever happened. We do not have schools, a hospital, or anything else. We are tired of all these interviews. We want to know when we will receive these things promised to us. You in the city eat well and live well, and we continue to suffer.¹²⁷

A few raised the issue of compensation, although most simply wanted the authorities to make the river run freely again.¹²⁸ Although we insisted that we were not working for the government and had no direct links to state officials, these exchanges underscore the ways in which research and representation cannot be divorced from relations of power, which meant, at a minimum, that they saw us as having access to and influence with those who mattered.¹²⁹

Whatever the contemporary overtones and difficulties of interpretation, these oral accounts constitute the richest and most accurate body of evidence about both the changing world of the lower Zambezi valley and the lived experience of its rural residents. Like all other forms of historical evidence, however, oral testimonies require careful and critical reading.

THE BOOK'S ARCHITECTURE

This study focuses on the period from the 1960s, when the Portuguese began planning for Cahora Bassa, to 2007, when Mozambique finally gained majority ownership of the dam. We situate it, however, within a broader historical framework, beginning with Portuguese efforts, dating back to the sixteenth century, to dominate the Zambezi River valley and ending with the ever-present effect of Cahora Bassa on the daily lives of people living adjacent to the river.

Chapter 2 documents Portuguese efforts, dating back to the sixteenth century, to conquer and domesticate the Zambezi River and its hinterland. Through the long history of their encounters with the waterway and riverine communities, colonial authorities, travelers, geographers, and development experts forged a narrative that stressed the dangers of the unharnessed river and constructed the region as an insalubrious backwater occupied by primitive people and half-breed Portuguese with neither the will nor the capacity to exploit nature's bounty. This chapter also explores local representations of the river before the dam, in which the idea of the Zambezi as a source of life coexisted with the notion of a capricious river that could flood their fields and destroy both their livelihoods and their lives.

Chapter 3 examines the construction of Cahora Bassa. Here we document the enormous technical problems the Portuguese had to overcome in a remote corner of Mozambique without any infrastructure. The chapter focuses on the labor process at the dam site, the highly racialized and regimented organization of work, and the contrasting experiences of European and African employees.

Chapter 4 explores the forced displacement of more than thirty thousand peasants from their ancestral homelands, which were later submerged under the man-made lake. Reconstruction of aspects of daily life within the aldeamentos relies primarily on the oral narratives of men and women who were herded into these barbed-wire encampments.

Chapter 5 shifts the angle of vision downriver. Cahora Bassa had far-reaching effects on the ecology of the Zambezi River valley and on the communities living adjacent to the waterway. The change in the river's flow regime—above all the unpredictable discharges from the dam—jeopardized the alluvial farming practices on which hundreds of thousands of people had relied in the predam era. The dramatic decline in its sediment load, trapped behind the walls of the dam, also robbed farmlands of valuable nutrients and precipitated massive erosion along the riverbanks. Plant and animal life that had depended on the river for sustenance suffered as well. Our discussion of Cahora Bassa's ecological effects relies heavily on both the oral testimonies and the scientific findings of a handful of researchers. While we have tried to assess and summarize the scientific data, as social historians we lack the technical expertise to explain fully the dam's impact on the ecology of the Zambezi valley.

Chapter 6 focuses on displaced energy. It documents Cahora Bassa's unique role as the largest dam in the world constructed to produce energy for export. Even after the end of Portuguese colonial rule and until today, virtually all its energy goes to South Africa. The chapter also details Frelimo's long struggle to gain control over the dam, which remained in Portugal's hands until 2007—thirty-two years after Mozambique achieved independence.

In "Legacies," the final chapter, we review the impact of the dam on both the riverine communities and the biosphere. Despite Cahora Bassa's traumatic history, the Frelimo government remains committed to a colonial-era plan to erect a second dam approximately seventy kilometers downriver. There are many striking parallels, and several significant differences, between the colonial and postcolonial projects. After examining the current rationale for the second dam, and the opposition that has emerged from a small but vocal antidam movement in the Mozambican capital, we discuss the concerns of and the expected outcomes for the two thousand residents who will have to make way for Mphanda Nkuwa, should this project proceed.

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