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Reterritorializing the Future: Writing Environmental Histories of the Oil Crisis from Tanzania

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This article argues that environmental historians could enrich the postcolonial history of Africa by taking a more central role in narrating the major events of the recent past. It makes the case for this by considering the effects of the oil crisis of the 1970s and 1980s, which has generally been discussed as a transnational political and economic event and has remained peripheral to writing the history of African states, cities, and communities. Yet, by decimating the foreign exchange budgets of non-oil-producing nations, the crisis required reimagining how nations and families provisioned resources for the economy and their lives. Using Tanzania as an example, it explores the ways in which local resources and a new push for South-South cooperation replaced imported raw materials and, more generally, paradigms of development predicated on the continued cheap price of petroleum. This reterritorializing of the future was both an ideological and practical act, as Tanzanians shifted from the horizons of postwar developmentalism to navigating profound scarcity and considering how smaller-scale technologies and intense use of local resources might help sever dependencies on the West.

In 1983, Professor Gerhard Kohler, a technocratic expert from East Germany, arrived at the University of Dar es Salaam in Tanzania to lead a one-week seminar to develop a plan for cutting down on imports. Kohler's visit was part of a larger effort to remake industrial production

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across Tanzania. Just a few weeks earlier, the Ministry of Industries had announced a new committee of experts to “identify ways of reducing dependency on raw materials, capital machinery, accessories, and spare parts” with an eye to using more locally available materials.¹ In Kohler’s seminar on the same topic, he urged citizens of the “Third World” to cut their reliance on foreign imports and “as much as possible be inward looking by exploiting local resources instead of seeking foreign assistance.”² Indeed, animated by different (yet not disconnected) circumstances, the shortages that vexed daily life in Dar es Salaam and much of the Third World in the early 1980s were not unlike those faced by countries in the Eastern Bloc. At a moment when the Tanzanian president, Julius Nyerere, was turning inward and seeking to resist impositions by the International Monetary Fund to open the national economy and devalue the currency, the press coverage of Kohler’s visit and similar conferences was quite purposeful. It was an attempt to draw up the austerity of life in Dar es Salaam as a transnational condition rather than the result of poor governance. Many countries were facing increasing insolvency, and cooperation offered the opportunity to secure a better material future.

It was an inauspicious time to arrive in Dar es Salaam. In the midst of an extreme fiscal crisis, the city was undergoing a thorough transformation. Factories were no longer designated any foreign exchange by the state, and, unable to stock key raw materials, they were operating at 10–30 percent of their capacity.³ Those that still had some store of raw materials, like the Urafiki Textile Mill, nevertheless sat in suspended animation as the city water supply no longer reached their facilities.⁴ Students faced a new school year without any uniforms to wear. Urban sanitation and city transit both lacked vehicles in working order to run services; waste abounded, and frustrated workers struggled to get to work on time. The country’s oil refinery (TIPER), which had allowed the state to purchase cheaper oil and process it into diesel, petroleum, and kerosene, had ceased operations for nearly a month with no oil to refine. Across the country, farmers abandoned cash crop production in favor of “economies of affection,” worsening the foreign exchange budget.⁵ Food shortages meant urban families grew their own food across the hills and valleys in the outskirts of Dar es Salaam. Going to work became a daily battle for a coveted spot on the bus, leaving many to turn their attention to more proximate demands and alternative economies.

The roots of Tanzania's resource shortages can be traced back to the early 1970s when agricultural production collapsed due to a Sahelian drought and massive community relocation programs under the policy of *ujamaa*. These events, paired with the effects of the first oil shock in 1973 and the second oil shock in 1979, led to a foreign exchange crisis. By considering some of the ways that Tanzanians reconstituted local materials to fit the purposes of previously imported goods, this article urges African historians to write about the oil crisis as a significant environmental event. The crisis both inspired and required a reappraisal of natural resources across the nation and continent. Using the example of urban Tanzania and its material transformations in the 1970s and 1980s, this article contends that after 1973, African nations sought to create a new ecological regime to replace the promise of oil-based development, and this forced both communities and states to *reterritorialize the future*. I use this phrase to note the manner in which aspirations for the future were made or unmade by their reliance on environments and infrastructures.

For new African nations, consolidating economic sovereignty a decade earlier at the moment of independence required conscripting nature—as well as people—into the project of nationalism. However, after 1973, the oil crisis marked a break with mid-century developmentalist visions of the future, which had been underwritten by the promise of “cheap crude” and a sturdy belief in the “stages of development” bringing African states into modernity.⁶ In Tanzania, the ensuing decade became a time of chronic shortages as the state tried to revitalize networks of transnational solidarity. Meanwhile, men and women in their jobs and daily lives sought urgent solutions to the increasing impossibility of past visions and plans for the future. Both the state and families turned to natural resources to fill material shortages in ways that doubled down on older patterns of consumption and reimagined the usefulness of local materials.

Like that of many African nations after independence, the historiography of postcolonial Tanzania has generally been periodized in such a way that highlights the 1960s as an era of hopeful growth, with outward-facing, idealistic politics that collapsed by the 1970s to reveal the failure of leadership and increasingly authoritarian domestic policies. The historiography has zeroed in on the folly of ambitious but poorly implemented development policies carried out by agents of the state whose careers rested on conjuring up the illusion of utopian projects in places

without the means to do so.⁷ Tanzania's villagization policy offers a case in point. While ujamaa, Nyerere's vision of an African socialist future, provided crucial forms of social welfare and cultivated national unity, the policy of villagization has been regarded as economically disastrous. And while Tanzania's postcolonial history is frequently written as exceptional, it shares with other African national histories a focus on how politics and leadership in the second decade of independence squandered early inroads to sovereignty and economic growth. These narratives of failure have rightly been critiqued and reevaluated in recent years, but the role of the oil shocks is nearly nonexistent, receiving but a passing mention in three significant recent surveys of the history of international development.⁸ Scholars have treated Tanzania's economic situation by the 1980s as too overdetermined to allow much room for exploring the effects of the oil crisis.⁹ While it would be fruitless to try and isolate the oil shocks from the other problems facing Tanzania in the 1970s, this fact should not relegate them to the historical margins.¹⁰ Their very embeddedness in the economic fortunes of the new nation make their omission by historians surprising.

Despite its modest presence in postcolonial African historiography, scholars elsewhere have more recently begun reassessing the oil crisis in the broader context of the Third World, particularly its role as a galvanizing political moment.¹¹ And while these politics of possibility and solidarity fostered in the aftermath of the embargo deserve more attention, this article explores the material consequences of rising oil prices in shaping livelihoods, environments, and politics, as the ostensibly natural world was marshaled in the absence of oil in daily, mundane ways. What were the environmental conditions and consequences for making the world anew after the end of cheap oil? To answer these questions, this article draws together a variety of social scientific studies of the era to construct an archive of developmental gray literature. Together, these sources capture the shifting relationship between materials and modes of development. I use these alongside newspaper articles that both reflected and produced ideas about the nation's economic crisis. The resulting text moves between everyday practices of popular provisioning, the imperatives of official dictates, and the unwieldy junctures where the two met. The oil shocks of the 1970s forced African countries and communities to shape their material futures in new ways, rupturing the logics of postwar developmentalism. And, as Kohler's visit from East Germany underscores, despite a foreclosure of some forms of

internationalism at the end of the 1960s, negotiating these new circumstances entailed a reconsideration of not just the politics but the materiality of the future.¹²

Territorializing the Nation

At independence, governing elites across a decolonizing continent embarked on a host of projects to carve out and protect their precarious new sovereignty. Like decolonization itself, achieving sovereignty was never simply a date marked on a calendar; it was an ongoing political, economic, and cultural project. Claiming and protecting sovereignty on a global stage included such projects as pursuing rapid import substitution, seeking out new international political alliances, and demanding a new international economic order. In concert with these outward-facing schemes, elites also worked to establish a relationship between the new nation as a territorial construct and as a bureaucratic and economic system. These projects of territorial consolidation from within were an array of developmentalist endeavors seeking to conscript people in far-flung corners into belonging.¹³ The history of these projects is at the heart of scholarship on postcolonial Africa.¹⁴ Often overlooked, however, is the degree to which these projects conscripted and instrumentalized territory. From soil and minerals, to forests and rivers, postcolonial statecraft required recruiting land and its resources into the nation-state. Casting off the colonial past and creating a national economy rested on making new natures as well as new citizens.¹⁵

All modern states are “environment-making” institutions.¹⁶ In making new natures, state ministries, bureaucrats, and foreign experts wrestled with the question of what materials and resources would, quite literally, constitute the nation: the crops that would generate enough foreign exchange for necessary imports; the infrastructures that would help domesticate the production of power or bring new regions into the market; the key materials that could be manufactured domestically rather than imported at great expense.

While these territorial projects were central to articulating sovereignty, in form they had much in common with colonial development enterprises and conceptions of nature.¹⁷ As Cristophe Bonneuil has argued, the “developmentalist state” emerged in the 1930s “when the colonial state gave priority to a form of power concerned with changing (‘improving’) living conditions, so as to disable old forms of life and

subjectivity and to turn African societies into objects of its cognitive apparatus and rationalizing interventions.” Many postcolonial states continued this project as independence was marked by “a spectacular renewal of large technocratic schemes . . . at the initiative of new ruling elites who expected to turn their modernist aspirations into reality.”¹⁸ Even in Tanzania where the project of ujamaa might look as if it sought to reclaim a precolonial past in its embrace of the rural village, President Nyerere explicitly imagined ujamaa villages in a similar vein as many mid-century development planners: a bureaucratic tool where citizens “would be more accessible to experts.”¹⁹ Examples of these large technocratic projects abound: from Sudan’s massive Gezira Scheme to large-scale dams such as the Kossou in Cote d’Ivoire and Ghana’s Volta Dam, and the Cahora Bassa in Mozambique.²⁰

Mastering nature, however, was also a practical bid to rework the position African countries occupied in the global market where they remained vulnerable to volatile price fluctuations for raw materials and the high costs of importing industrial materials and consumer products. New agricultural projects would secure increasing cash crops for export (and foreign exchange) while projects to produce power and domesticate the manufacture of imported goods were all part of an attempt to secure economic sovereignty.

Unfortunately, the transformation of African territories and economies through these schemes did not go as planned. By the 1970s, capital-intensive development projects faced routine failure and could quickly transform into indebtedness. The process of remaking nature into the materials of new nations itself required materials: especially cement and petroleum, which most African states still imported at independence. At the mercy of foreign aid conditionalities and the caveats of lending agencies, new nations frequently had to industrialize by way of expensive technology transfer, paying the high salaries of foreign experts, sharing profits with foreign corporations, and importing machinery and spare parts. These endeavors relied on the continued flow of foreign exchange as well as cheap energy.

Reterritorializing the Future

When the 4th Summit of the Non-Alignment Movement (NAM) convened in 1973, a month before the oil embargo, its explicit focus on “the need for economic independence” underscored these growing

frustrations about foreign investment. The movement's membership had trebled since its inception in 1961, and the seventy-five nations at the Algiers summit penned an economic declaration on "Sovereignty and Natural Resources."²¹ Laying out the vision of the New International Economic Order (NIEO), the Algiers Declaration sought to protect against "any infringement of the right of effective control by any State over its natural resources and their exploitation by means suited to its own situation, including nationalization and the transfer of property to its nationals" and suggested that heads of state should establish "effective solidarity bodies for the defense of the interests of raw material producing countries such as OPEC and CIPEC [Intergovernmental Council of Countries Exporters of Copper] . . . in order to recover natural resources and ensure increasingly substantial export earnings and income in real terms."²² Thus, while states had certainly understood at independence that wresting nature back from colonial forms of extraction would be crucial to economic sovereignty, the 1970s ushered in more urgent conversations about technologies and economies of extraction, the politics of expertise, and what ownership over resources actually looked like. On the cusp of the oil crisis, oil-producing countries and their efforts to nationalize and consolidate their interests offered not an obstacle, but a model for the way forward. After the embargo, that changed.

Tanzania had begun nationalizing its industries in the years before the first oil shock. Public sector manufacturing jumped from 15.5 percent in 1967 to 46.7 percent by 1973 as the state became increasingly critical of the overhead costs of foreign firms running Tanzanian industries.²³ By 1972, Tanzania's economy was "basically in balance" (external and domestic) and appeared to be "moving ahead and showing a sustained development dynamic."²⁴ But just a year later, facing a bad harvest due to villagization efforts and the first Sahelian drought of the 1970s, Tanzania's exports collapsed, and a majority of its foreign exchange budget went to procuring food relief abroad. Then came the embargo. When oil prices quadrupled by the beginning of 1974, it set up "a massive, externally triggered crisis" for the nation.²⁵

Tanzania's producers faced a shortage of an array of petroleum-based products in addition to oil itself. This included cars, buses, tractors, fertilizers, bitumen, cement, paper-mill products, glass, and metals. The scarcity of oil also imperiled domestic forms of energy production since Tanzania relied on oil-based thermal generation for half of its

energy.²⁶ And even as agricultural and industrial production became more expensive, global prices for many of Tanzania's key crops plummeted, resulting in massive trade shortages and, in turn, a "goods famine" as families struggled to find basic consumer products such as cloth. The state's efforts to redress the issue by domesticating manufacturing backfired, as new production facilities required the importation of raw materials and spare parts from abroad.²⁷ When commodity prices for tea and coffee revived due to a 1976 frost in Brazil (quadrupling global coffee prices), it seemed that the economy might recover. But the hope proved short-lived as more economic upheaval arrived in 1978 with the unfolding effects of forced villagization, the returning Sahelian drought, a war with Uganda, and the Iranian revolution leading to the second oil shock.²⁸ By 1981, Tanzania's trade deficit had reached US\$599 million, and it climbed to \$682 million the following year.²⁹ With international lenders reticent to extend loans, many Tanzanians in both the city and country returned to subsistence production, setting up a disastrous feedback loop.

After a decade of large-scale development projects, capital-intensive industrialization, and efforts to expand of cash crop production, many African nations found themselves hamstrung by these very modes of development and territorialization. Some leaders, including Nyerere, sought to address the issue by calling for a "trade union of the poor" that would buy "whatever we can from each other, in deliberate preference to purchase from rich nations."³⁰ Indeed, Nyerere spent much of the remainder of his political career trying to manifest Global South economic cooperation. Across multiple scales—families, states, and the Third World—communities were faced with reconsidering what the future would be made of, quite literally. Tanzania drastically reduced imports and sought technology transfer and assistance from places like India or Hungary. While the state did not stop accepting financial aid and assistance from the West, it tried to buy "only those examples of advanced technology which we need" and turned instead to small-scale appropriate technology and alternative energy.³¹ Among other things, the state limited private car ownership, banned Sunday driving, and severely curtailed the import of anything deemed a "luxury" item. It also campaigned for citizens to donate spare parts in order to rehabilitate public buses and mandated the cultivation of food crops to also lessen the possibility of having to spend precious foreign exchange on food imports. This new resource regime was both the urgent result of "making

do” and an attempt to rewrite the expectations and aesthetics of a now foreclosed future of cheap oil.

Nation Building with Concrete and Bricks

To explore some of the material and ideological transformations that unfolded in Tanzania due to the oil crisis, building materials offer a rich example. The persistent scramble for building materials reflects the physical necessities as well as constraints of “nation building” after decolonization, as they were the essential foundation of any subsequent development activity. Building a hydroelectric dam to power other development projects, for instance, was impossible without cement. The centrality of cement, in particular, led Nyerere to insist on building a plant to produce it in 1962. Completed in 1966, Tanganyika Portland Cement Company (also known as Wazo Hill) was an amalgam of national and private interests formed in association with the Swiss company Cementia and the British Portland Cement Manufacturers. Despite its symbolism as a key nation-building project, the state was only a 10 percent shareholder in the plant until it was nationalized in 1974.³² Initially, Wazo Hill was heralded as a successful “Import Substitution Industry” (ISI) project, in particular because of how heavy and expensive cement was to ship and the abundance of regional soil, clay, and lime for its domestic production. Despite its ability to draw on local resources, the daily operation of the vast factory nevertheless relied on an assemblage of foreign provisions. Cement production required immense amounts of furnace oil to run the kiln, while the electricity used to power its workshops, canteen, hospital, and housing estate also came from oil-based generation. Its workforce, too, was dependent on foreign inputs: by the time the plant was nationalized, there was only one Tanzanian sales manager at the management level and not a single local technician, engineer, electrician, or chemist. Consequently, cement production was expensive, precarious, and contingent on many external factors.

Even before the first oil shock, production at Wazo Hill began to waver, going frequently offline as machines needed maintenance. A pervasive fear began to circulate that this key material of nation building was vulnerable to the whims of imported energy and expatriate employees. The police were dispatched to the plant in 1972 to investigate rumors of equipment sabotage due to recurrent breakdowns and

chronic shortages. Even so, 1972 marked the high point of cement production at 452,000 tons. By 1975 production was down to 323,000 tons, before plummeting precipitously by the 1980s.³³ Rising oil prices also made cement hard to procure.³⁴ Rising transit costs and problems with the national freight parastatal meant that outside of Dar es Salaam it was a scarce luxury.³⁵ Construction jobs lingered half-finished for years. Earmarked for major infrastructure projects, cement became nearly impossible for home builders to purchase. Rising official prices and dwindling stockpiles pushed much of its sales onto the black market where middlemen hoarded supplies and manipulated prices.³⁶ By 1976, a bag of cement that officially cost 18.5 shillings per bag in Dar es Salaam sold on the black market for as much as 120 shillings a bag in other regions.³⁷ Building with cement for most private home builders had become untenable.

Cement's inaccessibility might not seem significant since the overwhelming majority of Tanzanians resided in rural areas where building was mostly made out of wattle and daub, with palm thatch for roofs. But the state's developmentalist narrative rested on a commitment to creating a new material modernity. As Emily Callaci writes in *Street Archives and City Life*, cement was so central to Tanzanian politics that the front page of *Ngurumo* in 1965 asked readers to vote for Nyerere by juxtaposing two images: one of a mud-brick house with a thatched roof and one of a house made with cement bricks and a metal roof. Above the pictures, readers were urged to "remember to make your black mark [on the ballot] for Nyerere. He builds Tanzania."³⁸ Through a variety of educational mediums, the state urged citizens to build in permanent materials (concrete, bricks, tiles, and corrugated aluminum) and abandon traditional materials in order to secure a better life.³⁹

By 1977, however, Nyerere was urging Tanzanians to uncouple their notion of progress and permanence from an attachment to so-called European materials. Accusing citizens of a "widespread addiction" to cement and tin roofs, he dismissed cement as "basically earth." Glossing over more than a decade of state programs that had encouraged such aspirations, he now admonished those who would wait for "European soil" before building as problematically colonial: "If we want to progress more rapidly in the future we must overcome at least some of these mental blocks!" Expressing regret for helping to lead "into the trap of being 'modern' at all costs," Nyerere opined that the nation had invested in "large capital-intensive factories when a number of small labor-intensive

plants would have given the same service . . . with less use of external technical expertise.”⁴⁰

Developing local building materials to supplement industrial cement production was the purview of the Building Research Unit (BRU), established in 1971. Indeed, what made the embargo such a disastrous event for the production of building materials was the region’s historic struggle to supply enough “permanent” housing materials.⁴¹ The BRU’s task was to assist home builders and conduct research on building construction and material technologies. This research was then disseminated through educational campaigns such as *Opresheni Nyumba Bora* (Operation Better House) launched after the oil crisis in 1974 and put into practice through building brigades in rural areas. *The Daily News* also took up the cause, publishing a steady stream of articles encouraging the merits of building with bricks and even instructions on how to make them.⁴² Moreover, Tanzania’s Prime Minister Rashidi Kawawa ordered all public buildings in 1973 to be constructed out of burnt bricks and tiles, suggesting that “every effort should be made to use local materials and the simple techniques for which we already have Tanzanian *fundis* (technicians) and expertise.”⁴³ This included plans to build the biggest brick factory in Africa near the newly planned capital of Dodoma to highlight bricks as a local building technology that also embodied socialist and Third World solidarities. By 1985, there were also plans for the North Korean government to fund a brick factory in Arusha. That plant, however, five hundred miles inland, would rely on oil at a time when, “for significant periods of the year, Arusha region as a whole is without any fuel oil.”⁴⁴

Brickmaking at the factory level, however, still relied on petroleum and remained capital intensive. The only way that “permanent” building materials would be accessible to most Tanzanians in the aftermath of the oil crisis was through the production of mud bricks made in village kilns. Using local clay and communal labor, these burnt bricks required no foreign energy, just mud and trees to fire the kilns. But in doing so, it ran up against environmental limits. According to one study, it took seventy trees to make twenty-five thousand bricks. An “average village” of three hundred and fifty homes would require close to fifty thousand trees, which would have dramatically offset annual village afforestation efforts. Since most families relied on biofuels for cooking as well, this put immense pressure on Tanzania’s forests and woodlands.⁴⁵ Beyond the logistics of immense labor and local resources, cement

blocks and aluminum roofs had also been so faithfully promoted as conduits of modernity that shifting materials asked home builders to recalibrate their aspirational visions of the future. Nonetheless, by 1981, twenty of Tanzania's twenty-five regions had local brickmaking enterprises.

From the outset, postcolonial African states grappled with the question of where state infrastructures ended and "self-help" began. What constituted necessary community labor and "nation-building" activities and what was compulsion? It is a question still relevant in rural Tanzania today, where it remains hard to escape the demands of the state to, in some cases, still make bricks.⁴⁶ As the state drew on local environments to make up the new material shortfalls in cement manufacture, the near future of Tanzania's building material needs was shifted from massive site-specific, petroleum-intensive factories to the distributed production of bricks that relied on carbon output of another kind. Communities bore not just the additional labor burden, but also the ecological consequences of this shift.

The Other Fuel Crisis

The expanding use of charcoal as an urban energy source during the 1970s and 1980s is another example of how communities and states turned to their local environments for relief in the wake of the oil crisis. Charcoal today remains perhaps the most important source of fuel across Africa, particularly in cities and peri-urban areas. As Thaddeus Sunseri's work on Tanzanian forestry has shown, the use of charcoal was not particularly new in the 1970s.⁴⁷ By the 1950s, the colonial state had recognized both the commercial and subsistence value of charcoal production in the peri-urban region around Dar es Salaam. Colonial forestry officials created a modest charcoal industry for export to derive profit from trees otherwise not earmarked for lumber. And by allowing local communities to also produce charcoal, families could seek a "subsidy in nature" to meet their fuel needs.⁴⁸ In short, it allowed the colonial state to avoid the cost of constructing other urban energy infrastructures for African neighborhoods. And after independence, East African states sought to expand the charcoal industry overseas, establishing themselves as prominent global producers.⁴⁹

In the wake of the oil crisis, however, charcoal became an even more vital energy source for Tanzanians. As a woman living on the outskirts of Dar es Salaam noted in 1974, "the shilling began melting like ice and our

life patterns changed.”⁵⁰ For families that relied on a mix of fuels to meet their needs, kerosene shortages put pressure on local forests to provide firewood and charcoal for daily use and as a small business to subsidize wages. By the 1980s, biomass made up 98 percent of the energy used by Tanzanians in their daily lives. In fact, Tanzania consumed less oil in 1979 than it had in 1972, but paid nine times as much for it.⁵¹ As a result, charcoal began to underwrite a new economy in the city, driven by local resources and production. Rather than the “informal sector,” in the case of Dar es Salaam, it would be more apt to define this emerging economy in the 1970s as a nonforeign exchange economy. Charcoal could not replace all the uses of petroleum, but it became the fuel at the heart of a shifting urban and peri-urban economy; it could be produced and distributed without any need for foreign exchange, and it was at the core of producing other goods that similarly worked around these limitations.⁵² While charcoal had long been the central energy in the lives of urban Tanzanians, it now became further entrenched. It was not as some stubborn remnant of an underdeveloped past, but the energy source upon which their future now depended.

Charcoal production was also quintessentially local and diffuse, unlike petroleum or kerosene. At a moment when the lack of foreign exchange imperiled the maintenance of Dar es Salaam’s urban infrastructures for distributing imported energy, charcoal production and distribution never necessitated the use of trucks, pipes, or wires. Charcoal was made by gathering wood, lighting a controlled burn of the wood in a hole in the ground, and then unearthing it a few days later. Made in the periphery of the city, charcoal was then packed into sisal sacks and brought into the city. The bicycle, which required no “modern fuels” and only the occasional and often improvised spare part, was the arch infrastructure of small-scale charcoal distribution. A man on a single-speed bike, heading over the rolling hills into the city, could carry a stack of sisal sacks three or four high strapped on the back of the cycle. Unlike the same size load of wood, a bag of charcoal was light enough to also carry as a head load. A charcoal dealer with a bicycle could, on an ambitious day, make three trips into the city, earning ninety shillings, untaxed, which as one observer noted, “was almost the net daily pay of a Tanzanian University Professor or Senior Industrial Manager in Tanzania.”⁵³

Given its accessibility, with sellers often camped out in the shade of trees across the city’s landscape, charcoal also fueled many urban

economic ventures. Women in particular claimed space in the interstices of the city to sell roasted corn, fried fish, donuts known as *maandazi*, and chapati bread cooked on charcoal stoves.⁵⁴ Coffee sellers walked the streets or camped out under trees with vessels (*mdila*) of coffee warmed by small charcoal-filled canisters attached to the bottom for mobility.⁵⁵ The national women's organization started projects in beer brewing and pottery that relied heavily on fuelwood and charcoal.⁵⁶ Others used charcoal to dry tea leaves, cure tobacco, and smoke fish.⁵⁷ These diverse uses animated alternative infrastructures and economies of distribution across the city.

The state had a more complicated relationship with charcoal than locals. On the one hand, hoping to shift production into small industries, Tanzanian officials began to more avidly support the use of charcoal in cottage industrial settings and to cultivate a charcoal export economy. Factory managers and state officials worked to retrofit the energy needs of domestic industries to bypass a reliance on foreign energy. The Tanzanian finance minister in 1975 explicitly urged the Tanzanian state to cut the high costs of energy importation by focusing on the "production of hydro-electricity . . . and use of charcoal."⁵⁸ In 1983 at a workshop on "Energy for Development" the summarizing recommendations for workshop attendees were to replace oil in industrial manufacture wherever possible with waste agriculture, forest products, coal, solar, or hydroelectric power.⁵⁹ Taking up these recommendations, paper mills decided in the early 1980s to convert their boilers to run on logging wastes rather than fuel oil and coal.⁶⁰ On Tanzania's smaller islands where electricity was hard to access, projects were initiated to also glean fuel from softwood plantations and coconut husks. Expanding the use of charcoal and wood—along with other alternative energy sources—provided a potential escape route from the stranglehold of foreign oil. However, the state sometimes undercut endeavors to develop a charcoal industry. When farmers in the Rufiji river valley in the mid-1970s abandoned their cashew trees (due to increasing producer prices) for charcoal production, the local party secretary took ninety peasants to court, fining them and imprisoning those who could not pay for up to three months.⁶¹ In this case, the necessity of agricultural exports for generating foreign exchange remained a priority. Those banned from making charcoal in the region simply waited until they could sell it again, storing up reserves and causing a glut after the ban was lifted. Charcoal's advantage for producers was that it was largely

ungovernable, unlike foreign energy, and ultimately, the state could not determine the ways in which Tanzanians remade their daily lives to survive in this new material regime.

The increasing reliance on trees for fuel in places like Tanzania attracted the notice of the international community. As the global environmental movement was coalescing and institutionalizing in the early 1970s, several organizations campaigned to address “the other energy crisis.” Organizations like Worldwatch worried that if the world’s poorest residents continued to rely on fuelwood as their populations grew, the planet’s forests would be denuded in a matter of decades.⁶² This concern among environmentalists was compounded in the case of East Africa by the Sahelian drought, which experts worried would lead communities to cut down a dwindling number of trees for fuel, exacerbating erosion in the region.⁶³ The global tree-planting efforts that followed led to the importation of millions of trees to Tanzania and fixed the image of the tree planter as “the responsible African environmental subject” into a generation of citizens.⁶⁴ The Tanzanian state accepted an immense amount of aid to launch an aggressive tree-planting campaign in 1980 called “*Misitu ni Mali*” (Forests are our Wealth), followed by additional village afforestation plans in 1982 and 1984.⁶⁵

Over the course of these projects, Tanzania’s Forestry Division aimed to drive home the importance of tree planting through adult education campaigns, distributing half a million technical pamphlets in Kiswahili across seven of the driest regions of the country and making educational radio programs including a radio play about the importance of tree planting.⁶⁶ They organized seminars and discussion groups and film screenings, made T-shirts and posters, enrolling the assistance of churches, training institutions, and over 1,500 primary schools, forty-nine secondary schools, and thirty teacher training centers.⁶⁷ By one estimate in just two years (1984–85), 18 million trees were planted in nineteen different regions.⁶⁸

While state and international efforts at tree planting converged in Tanzania’s forests, it is less clear that their aims were aligned. The 1980s saw an explosion of international conservation nongovernmental organizations, which, as Kevin Dunn has noted, frequently intervened on behalf of “nature,” challenging state sovereignty over resources in the name of conservation.⁶⁹ Although it also had an agenda of environmental protection, the Tanzanian state saw the possibility of domestic fuel creation as an act of sovereignty in reaction to the oil crisis. Planting

trees, in other words, offered a tentative path to decreasing reliance on foreign energy rather than a conservation end in itself. Local communities, for their part, found that charcoal could function as a sovereign fuel source that helped them navigate their narrowing options under the austerity of both the state and the international economy.

Rethinking Raw Materials

Like many postcolonial leaders, Nyerere believed that developing a robust domestic manufacturing sector would offer a bulwark against neo-colonialism. While an overwhelmingly rural country at independence, he adopted an aggressive industrialization plan by the 1970s. The history written about these efforts is generally marked by acerbic summaries of the dogmatic nature of state industrialization efforts and their inefficiencies.⁷⁰ New factories across the continent faced significant hurdles of finding adequate manpower and capital, especially when many industrializing efforts were expensive “turnkey” operations imported from abroad and built on the assumption of the ongoing abundance of cheap energy and foreign expertise.⁷¹ As oil prices rose, the capital-intensive nature of many of these operations rendered them precarious and vulnerable, as happened with the Wazo Hill cement plant. By the 1980s in Tanzania, there became a string of stories about the failure of these factories. An automated bakery built in Dar es Salaam was more capital intensive than the nearby oil refinery; a Tanga fertilizer plant used only imported inputs and took 167,000 tons of raw materials to make 105,000 tons of fertilizer.⁷² In a survey of thirty-nine plants in 1974–1975, 38 percent were already running at half their capacity, 80 percent felt the pinch of foreign exchange shortages, and more than half imported in excess of 80 percent of their material inputs.⁷³ By the early 1980s things had gotten worse, as many factories could not rely on the regular delivery of electricity or water.

In response, parastatal factory and private sector firm managers who failed to win over the favor of import licensing authorities began to experiment with sourcing their raw materials locally. The Kibo paper factory, for instance, appealed to individuals and businesses to save their wastepaper so it could be remade into packaging materials, otherwise in dire shortage.⁷⁴ Likewise, at the behest of the Ministry of Industries in 1983, plastic firms began making crates from local wood resources instead of waiting for petroleum-rich raw materials. Simba

Plastics Company, the largest plastics manufacturer in East and Central Africa, survived for three years with no foreign exchange. The company collected used plastic from industries and individuals, and in 1984 they produced 572 tons of products from plastic waste and the dwindling remaining stock. Dar es Salaam's aluminum factory, Aluminum Africa (ALAF), inaugurated a widespread salvage campaign to boost its stock, working to locate twenty-three thousand tons of scrap metal yearly to produce its products, which were crucial for the construction industry. The company was aided in this by Dar es Salaam's city council, which gave it permission to collect abandoned motor vehicles, carts, and wagons across the city for conversion into scrap metal. Meanwhile, the textile industry explored new local sources for dyeing cloth such as the bark of mangrove trees, while smaller industries were encouraged to find any way to recycle "industrial and agricultural waste."⁷⁵ Other factories, locked in by their technology, could not change as easily. In one particularly ironic example, a fishing net factory with machines that could only work with nylon could not easily adapt to using sisal, despite Tanzania being the world's largest exporter.⁷⁶ While Tanzania's urban shortages in the 1980s have been narrated as a key reason for the emergence of Africa's "informal economy," the ways in which industrial managers and workers found innovative forms of reuse also deserve a place in the broader history of recycling and reuse that has mostly been written as emerging due to an excess of waste and a dearth of disposal options in the Global North. While the latter has been written into histories of the emerging environmental movement, the former risks relegation to an ahistorical reading of poverty as simply "making do," outside of a larger moment of reckoning over resources, politics, and transnational relationships.

By the time of Kohler's visit and meeting with ministry officials to reduce dependencies on imports, many of Tanzania's infrastructures and industries had ground to a halt. As communities and the state sought new resources to replace old ones, landscapes were reshaped by the cascading effects of chronic shortages and breakdown.⁷⁷ As Carl Death notes, "the orderly, hierarchical state is a doubtful prospect" in managing Tanzania's natural resources.⁷⁸ However, as Michael Sheridan writes in his work on conservation and communities in the North Pare region, his informants recalled Nyerere's order to "farm for life or death" in 1974 and "could quote Nyerere's orders from radio broadcasts during this campaign."⁷⁹ Farmers readily expanded their agricultural practices in

line with state orders, reterritorializing the region in the process, but departed from such mandates when it suited them. For those in proximity to the Kenyan border, the opportunity to smuggle goods and crops when it benefited them proved tempting and undermined state visions of recovery and prosperity. Similarly, while the official gold mining industry floundered in Tanzania, artisanal miners prospered by forming their own labor-intensive “enclave economy,” as Nathaniel Chimhete argues.⁸⁰ By the 1980s, small-scale operations produced between eight and fifteen tons while the formal sector produced .07 tons a year. They did so explicitly because they were not mechanized. Whereas major operators needed fuel and spare parts, small-scale operators dug and processed the ore by hand, using mercury from local goldsmiths in Kenya to amalgamate it, and often illegally traversing the border to sell it. Finding labor-intensive ways around capital-intensive endeavors became the way to survive and sometimes even thrive.

Conclusion

The anthropologist Jane Guyer argues that the 1970s ushered in an “evacuation of the near future” in both religion and economics; the mid-century prospect of impending prosperity evaporated and was replaced by new temporalities. She opens her essay “Prophecy and the Near Future” by recalling how in Nigeria in the aftermath of the debt crisis and structural adjustment, “vistas of long-term growth were invoked in newspapers that were diligently recycled as market packaging, window coverings, mop-up material, and toilet paper.”⁸¹ The very words that sought to reassure Nigerians of developmental progress were useless until turned into scrap by those who “managed the actualities of desperately disturbed everyday life.” Guyer’s imagery here forces us to confront the jarringly incongruent worlds of political promises and lived reality. Over time, politicians and economists started making different promises, abandoning the Soviet-style five-year plan and its more palpable and measurable sense of incremental improvement. With this evacuation of the near future, new temporalities of hope had to fill the vacuum left by the end of cheap oil; African livelihoods volleyed between a state of “enforced presentism” and the far-off promise of economic or even spiritual redemption.

But what are the material transformations that emerged alongside this new temporality, as economic forecasts became market packaging? While the financial crisis that descended on Tanzania in the 1980s

required practical and desperate reinvention, it also became a moment for Nyerere as well as other leaders of the Third World to attempt to reterritorialize the future—at both the state level and as a larger economic bloc—in a manner less dependent on the resources and financial entanglements of Western-led development. This attempt to reenergize Global South solidarities in a world changed by the rising cost of oil was both an ongoing project with roots in earlier imaginings of an emancipatory future and a final attempt in the face of structural adjustment to collectively oppose the economic monopolies of the West. And in seeking to salvage their economic sovereignty, the Tanzanian state and its citizens (sometimes in collaboration and other times at odds with one another) necessarily reworked their relationship with their local environments.

Scholarship on the future in Africa (both futures of the present and the past) frequently invokes the material world. The nostalgia and grief for foreclosed futures are found in traces that embody past promises and projects.⁸² Images of ruin—“cement carcasses,” infrastructures in disrepair, unfinished buildings, promising ventures frozen in time—capture what it might be like to live in a present that seems to be a perverse inversion of past futures.⁸³ More critically, the presence of ruins on the landscape can wordlessly point a finger at the crimes of late twentieth-century capitalism and state power in Africa.⁸⁴ But these images of a ruined future can also sit uneasily alongside past visions of “timeless” Africa.⁸⁵ Together, they can render the continent perpetually at odds with time and its environment. Overlooked in these reckonings with the undone “future” is an engagement with the ecological regimes that come to replace thwarted aspirations. What is left is not simply the absence of progress, but a new material reality.

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Notes

I am grateful for conversations with Kevin Donovan, Robyn d’Avignon, and George Roberts that helped shape this article. I would also like to thank the anonymous reviewers of this journal.

1. “Team Set on Raw Materials,” *Daily News*, January 11, 1983. Portions of this article have appeared in a different form in my recently published book. Those portions

appear with the permission of the book's publisher. Emily Brownell, *Gone to Ground: A History of Environment and Infrastructure in Dar es Salaam* (Pittsburgh: University of Pittsburgh Press, 2020).

2. "Third World Urged to Cut Imports," *Daily News*, January 1, 1983. I will be using the term "Third World" throughout this article because it was the term used by the historical actors I am writing about. This is not to gloss over the problematic nature of the term and all terms used to collectively identify this economic bloc ("Global South," "developing world"). However, it was also a term that captured the emancipatory potential of the postcolonial world to join together and remake global power relations.
3. Ali Mchumo in *Daily News*, January 15, 1982.
4. "Urafiki Closes Down for Lack of Water," *Daily News*, January 8, 1983. Other examples of urban shortage in the *Daily News* headlines in 1983: "Meat Shortages Hit Dar," January 8, 1983; "Keep Towns Clean Says Mwalimu," February 11, 1983; "Care Urged on Materials," March 10, 1983; "Industries Advised on Energy," April 5, 1983; "Parts of Dar without Water," April 5, 1983.
5. Goran Hyden, *Beyond Ujamaa in Tanzania: Underdevelopment and an Uncaptured Peasantry* (Berkeley: University of California Press, 1980).
6. Giuliano Garavini, *The Rise and Fall of OPEC in the Twentieth Century* (New York: Oxford University Press, 2019), 193. Jane Guyer, "Prophecy and the Near Future: Thoughts on Macroeconomic, Evangelical, and Punctuated Time," *American Ethnologist* 34 (August 2007): 409–21.
7. On the failure of ujamaa leadership, see Michael F. Lofchie, *The Political Economy of Tanzania: Decline and Recovery* (Philadelphia: University of Pennsylvania Press, 2014); Leander Schneider, *Government of Development: Peasants and Politicians in Postcolonial Tanzania* (Bloomington: Indiana University Press, 2014).
8. Exceptions include Joshua Grace's new book *African Motors: Technology, Gender, and the History of Development* (Durham, NC: Duke University Press, 2021), and Willard Johnson and Ernest Wilson, "The 'Oil Crises' and African Economies," *Daedalus* 111 (Spring 1982): 211–41. See Corrie Decker and Elisabeth McMahon, *The Idea of Development in Africa: A History* (Cambridge: Cambridge University Press, 2020), 154; Stephen J. Macekura and Erez Manela, eds., *The Development Century: A Global History* (New York: Cambridge University Press, 2018); Sara Lorenzini, *Global Development: A Cold War History* (Princeton, NJ: Princeton University Press, 2019), 124–39.
9. Compare Reginald Green, "A Time of Struggle: Exogenous Shocks, Structural Transformation and Crisis in Tanzania," *Millennium* 10 (March 1980), and John Shao, "Politics and the Food Production Crisis in Tanzania," *Issue: A Journal of Opinion* 14 (1985): 10–24.
10. In *African Motors*, Grace makes a similar point that the "entanglement of oil and sovereignty" should be considered by historians to reappraise a now-old narrative that blames "power-hungry bureaucrats" for not making better decisions about ujamaa and development (231). Grace's recent book is one of the few to engage at length with the oil crisis.
11. Some include: Christopher Dietrich, *Oil Revolution* (Cambridge: Cambridge University Press, 2017); Elisabetta Bini et al., eds., *Oil Shock: The 1973 Crisis and Its Economic*

- Legacy* (London: IB Tauris, 2016); Ljubica Spaskovska, "'Crude' Alliance: Economic Decolonisation and Oil Power in the Non-Aligned World," *Contemporary European History* 30 (August 2021): 528–43.
12. On Global South solidarity and possibility after colonialism, see Adom Getachew, *Worldmaking after Empire: The Rise and Fall of Self-Determination* (Princeton, NJ: Princeton University Press, 2019); Joanna Bockman, "Socialist Globalization against Capitalist Neocolonialism," *Humanity* 6 (Spring 2015): 109–28; Ljubica Spaskovska, "Building a Better World? Construction, Labour Mobility and the Pursuit of Collective Self-Reliance in the 'Global South', 1950–1990," *Labor History* 59 (February 2018): 331–51. Christopher Lee, ed., *Making a World after Empire: The Bandung Moment and Its Political Afterlives* (Athens: Ohio University Press, 2010).
 13. For work on territory and belonging: Julie MacArthur, "Decolonizing Sovereignty: States of Exception along the Kenya-Somali Frontier," *American Historical Review* 124 (February 2019): 108–43. Paul Nugent and A. I. Asiwaju, eds., *African Boundaries: Barriers, Conduits, and Opportunities* (London: Pinter, 1996).
 14. For an introduction to this literature, see Paul Nugent, Daniel Hammett, and Sara Dorman, eds., *Making Nations, Creating Strangers: States and Citizenship in Africa* (Leiden: Brill, 2007).
 15. Timothy Mitchell, "Fixing the Economy," *Cultural Studies* 12 (October 1998): 82–101.
 16. Christian Parenti, "The Environment Making State: Territory, Nature, and Value," *Antipode* 47 (February 2015): 829–48, at 830.
 17. This focus on remaking landscapes as a path to sovereignty was, however, a break with how territory was created in precolonial Africa where, as Achille Mbembe has argued, in many places territoriality was an "itinerant territoriality" where "mastery over spaces" was based on controlling people rather than mastering land. Achille Mbembe, "At the Edge of the World: Boundaries, Territoriality, and Sovereignty in Africa," *Public Culture* 12 (Winter 2000): 259–84.
 18. Christophe Bonneuil, "Development as Experiment: Science and State Building in Late Colonial and Postcolonial Africa, 1930–1970," *Osiris* 15 (2000): 258–81.
 19. "Mwalimu Deplores Laziness," *Daily News*, August 23, 1972. See Brownell, *Gone to Ground*, and Emily Callaci, "'Chief Village in a Nation of Villages': History, Race and Authority in Tanzania's Dodoma Plan," *Urban History* 1 (February 2015): 1–21.
 20. Alden Young, *Transforming Sudan* (Cambridge: Cambridge University Press, 2017). Abou Bamba, *African Miracle, African Mirage: Transnational Politics and the Paradox of Modernization in Ivory Coast* (Athens: Ohio University Press, 2016). Allen Isaacman and Barbara Isaacman, *Dams, Displacement and the Delusion of Development: Cahora Bassa and Its Legacies in Mozambique, 1965–2007* (Athens: Ohio University Press, 2013); Peter Bloom et al., *Modernization as Spectacle in Africa* (Bloomington: Indiana University Press, 2014).
 21. See Spaskovska, "Building a Better World," 342.
 22. United Nations, "Action Programme for Economic Cooperation" (doc A/9330) 22/11/1973.
 23. See Justinian Rweyemamu, *Underdevelopment and Industrialization in Tanzania* (Oxford: Oxford University Press, 1973). Statistics on the industrial sector's proportion of

- GDP from M. B. K. Darkoh, "Tanzania's Industrial Development and Planning Experience," *Journal of Eastern African Research and Development* 14 (1984): 47–80, at 73.
24. On the declining balance of payments, see Green, "A Time of Struggle," 12.
 25. Reginald Green, "'No Worst There Is None' Tanzanian Economic Crisis 1978–?", in *Recession in Africa: Background Papers to a Seminar*, ed. J. Carlsson (Uppsala: Scandinavian Institute of African Studies, 1983).
 26. Tanzania's commercial energy, like other non-oil-producing nations on the continent, was entirely imported. Johnson and Wilson, "The 'Oil Crises' and African Economies," 211–41.
 27. Brian Van Arkadie, *Economic Strategy and Structural Adjustment in Tanzania* (Washington, DC: World Bank, 1995), 4.
 28. Tanzania received at least half of its fuel imports from Iran at the time of the revolution.
 29. Werner Biermann and Jumanne Wagao, "The Quest for Adjustment: Tanzania and the IMF, 1980–1986," *African Studies Review* 29 (December 1986): 89–103, at 90.
 30. Julius Nyerere, "Trade Union of the Poor," in *Freedom, Non-alignment and South South Cooperation: A Selection from Speeches (1974–1999)* (Oxford: Oxford University Press; Julius Nyerere Foundation, 2011), 13–16.
 31. Nyerere, "Trade Union of the Poor," 14.
 32. Masette Kuuya, *Import Substitution as an Industrial Strategy: The Tanzanian Case* (Dar es Salaam: University of Dar es Salaam, Economic Research Bureau, 1976).
 33. *Local Construction Industry Study: General Report* (Dodoma: Tanzania Ministry of Public Works, 1977), 6.
 34. The cement plant required more imported fuel than any other industrial energy consumer in Dar es Salaam. Simon R. Nkonoki, "Proceedings for the Regional Workshop Energy for Development in Eastern and Southern Africa, April 4–13, 1983," Arusha, Tanzania, 1983, 39.
 35. Ngila Mwase, "The Collapse of the National Road Haulage Company in Tanzania," *Journal of Modern African Studies* 23 (November 1985): 703–13.
 36. Between 1977 and 1982, the official price of cement went up 90 percent. The general cost of building materials increased 185 percent, ranging from 550 percent for glass, 250 percent for wood, and 170 percent for concrete blocks. For prices, see Svein Eriken and B. Ronnstedt, *Building Cost Indices, Dar es Salaam* (Dar es Salaam: Building Research Unit, 1982), 2.
 37. "Local Construction Industry Study," 83, 180.
 38. Emily Callaci, *Street Archives and City Life* (Durham, NC: Duke University Press, 2017), 17.
 39. One such pamphlet from the 1980s is titled *Maisha Marefu Katika Nyumba Bora* (Long life in a better house) published by the Institute for Adult Education in Dar es Salaam. There were also frequent newspaper articles outlining the benefits of cement blocks and aluminum roofs.
 40. Julius Nyerere, *The Arusha Declaration Ten Years After* (Dar es Salaam: Tanzania Government Printer, 1977), 29–31.
 41. For more on this, see chap. 3 in Brownell, *Gone to Ground*.

42. W. D. S. Mbagi, "Using Burnt Bricks," *Daily News*, January 21, 1975; T. I. Svare, "Better Burnt Bricks," *Daily News*, January 1, 1975; Lawrence Kilimwiko, "Opting for Burnt Bricks," *Daily News*, July 26, 1978.
43. S. M. Kulaba, *Housing, Socialism and National Development in Tanzania: A Policy Framework* (Dar es Salaam: Centre for Housing Studies, Ardhi Institute, 1981), 60.
44. Raphael Kaplinsky, *The Economies of the Small* (Intermediate Technology Publications, 1990), 91.
45. An estimated total of 152,479 households were producing burnt bricks. The Dar and Coast regions had the lowest number, with only 1,500 households, whereas in Iringa, 25,000 households participated. But in all, only about 4.9 percent of Tanzanian households were making bricks. Simon Nkonoki, *Energy Crisis of the Poor in Tanzania* (Dar es Salaam: Institute of Development Studies, University of Dar es Salaam, 1983), 32–34. See also E. M. Mnzava, "Village Industries vs Savanna Forests," report, United Nations Conference on New and Renewable Sources of Energy, 1981.
46. This form of labor is now known as *michango* (contributions). Kristin Phillips, *An Ethnography of Hunger: Politics, Subsistence, and the Unpredictable Grace of the Sun* (Bloomington: Indiana University Press, 2018).
47. Thaddeus Sunseri, "'Something Else to Burn': Forest Squatters, Conservationists, and the State in Modern Tanzania," *Journal of Modern African Studies* 43 (December 2005): 609–40, and "Fueling the City," in *Dar Es Salaam: Histories from an Emerging African Metropolis*, ed. James Brennan et al. (Dar es Salaam: Mkuki Na Nyota Publishers, 2007).
48. Roderick Neumann, "Forest Rights, Privileges and Prohibitions: Contextualising State Forestry Policy in Colonial Tanganyika," *Environment and History* 3 (February 1997): 45–68, at 60.
49. Tanzania National Archives, Acc.604 FD:39:20:14.
50. Neema Ngware, "Environmental Degradations and Fuelwood Consumption: Its Impact on the Lives of Women and Their Families" (PhD, University of Minnesota), 95.
51. "IMF Rebuffed," *Economic and Political Weekly* 15 (April 1980): 651–52, at 651.
52. For more on Tanzania's black market economy, see T. L. Maliyamkono and Mboya Bagachwa, *The Second Economy in Tanzania* (Suffolk, UK: James Currey, 1990); Aili Mari Tripp, *Changing the Rules* (Berkeley: University of California Press, 1997).
53. Nkonoki, *Energy Crisis of the Poor in Tanzania*, 107–22.
54. Tripp, *Changing the Rules*, 190.
55. Tripp, *Changing the Rules*, 33.
56. E. M. Mnzava, *Tree Planting in Tanzania: A Voice from Villagers* (Dar es Salaam: Forest Division, 1983), 38.
57. The tobacco industry also used woodfuel to cure leaves: 95 percent of Tanzanian tobacco was cured by wood, and it took roughly 2.5 hectares of woodlands to make a hectare of tobacco. Keith Openshaw, "Forest Industries Development Planning," FAO Working Document, Rome, 1971, 4.
58. "Tanzanian FY 75/76 Budget," US Embassy, Dar es Salaam to Department of State, Nairobi, June 23, 1975.

59. Nkonoki, "Proceedings," 49–54.
60. "Tanzania: Issues and Options in the Energy Sector," World Bank Report No. 4969-TA, November 1984, 68.
61. B.C. Nindi, "State Intervention, Contradictions and Agricultural Stagnation in Tanzania," *Public Administration and Development* 11 (March/April 1991): 127–34.
62. Worldwatch was formed in 1974. Their first publication was Erik Eckholm's *The Other Energy Crisis: Firewood* (1975). The United Nations Environmental Program was established in 1972 in Kenya, and one of their first major conferences was on desertification (in 1977), focusing on the role of deforestation and fuelwood.
63. M. Arnold and R. Persson, "Reassessing the Fuelwood Situation in Developing Countries," *International Forestry Review* 5 (December 2003): 379–83.
64. Carl Death, *The Green State in Africa* (New Haven, CT: Yale University Press, 2016), 14.
65. By 1984, 95 percent of the Forest Directorate's budget was funded by foreign assistance. Richard H. Hosier, "The Economics of Deforestation in Eastern Africa," *Economic Geography* 64 (April 1988): 121–36, at 129.
66. Margaret Skutsch, "Why People Don't Plant Trees: The Socioeconomic Impacts of Existing Woodfuel Programs," discussion paper, Resources for the Future, Washington, DC, 1983, 6.
67. Mnzava, *Tree Planting in Tanzania*, 73–74.
68. "18 Million Trees Planted," *Daily News*, May 24, 1985.
69. Kevin C. Dunn, "Contested State Spaces: African National Parks and the State," *European Journal of International Relations* 15 (August 2009): 423–46.
70. Michael Lofchie, *The Political Economy of Tanzania: Decline and Recovery* (Philadelphia: University of Pennsylvania Press, 2014).
71. Thyge Enevoldsen et al., *South-South Trade and Development: Manufactures in the New International Division of Labour* (London: Palgrave Macmillan, 1993).
72. Andrew Coulson, *Tanzania: A Political Economy* (Oxford: Clarendon, 1982), 329.
73. S. M. Wangwe, "Factors Influencing Capacity Utilisation in Tanzanian Manufacturing," *International Labour Review* 115 (January–February 1977): 65–78, at 69.
74. John Waluye, "Kibo Paper Appeals: Don't Burn Waste Paper," *Daily News*, March 9, 1985.
75. Daniel Mshana, "Industries Advised on Energy," *Daily News*, May 4, 1983; "Interview with the Minister for Industries, Basil Mramba," *Daily News*, June 12, 1983; Wangwe, "Factors," 69.
76. Wangwe, "Factors," 69.
77. While the examples I use here are mostly urban, Joshua Grace argues in *African Motors* that rural ujamaa was also deeply dependent on oil and thus faced a significant rupture with the oil shocks of the 1970s.
78. Carl Death, "Environmental Mainstreaming and Post-sovereign Governance in Tanzania," *Journal of Eastern African Studies* 7 (February 2013): 1–20, at 9.
79. Michael Sheridan, "Environmental Consequences of Independence and Socialism in North Pare, Tanzania, 1961–88," *Journal of African History* 45 (2004): 81–102, at 97.

80. Nathaniel Chimhete, "Prosperity in a Crisis Economy: The Nyamongo Gold Boom, Tanzania, 1970–1993," *Journal of Eastern African Studies* 14 (June 2020): 572–89.
81. Guyer, "Prophecy and the Near Future," 409.
82. Paul Geissler et al., eds., *Traces of the Future: An Archaeology of Medical Science in Africa* (Chicago: University of Chicago Press; Intellect Ltd, 2016).
83. Noemi Tousignant, "Half Built Ruins," in Geissler et al., *Traces of the Future*, 35.
84. Caitlin DeSilvey and Tim Edensor, "Reckoning with Ruins," *Progress in Human Geography* 37 (November 2013): 465–85.
85. Tousignant, "Half Built Ruins," 36.