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Irrigation Infrastructure, Technocratic Faith, and Irregularities of Vision: Canada's Prairie Farm Rehabilitation Administration in Ghana, 1965–1970

SHANNON STUNDEN BOWER

Between 1965 and 1970, Canada's Prairie Farm Rehabilitation Administration (PFRA) took on an international development project in the newly independent African nation of Ghana. The PFRA was an agency of the federal government responsible for driving mid-twentieth-century agricultural adjustment on the Canadian prairies. This paper explores how the PFRA's technical experts conceptualized and experienced their involvement in the development of irrigation projects in northern Ghana, both in early optimistic moments and in the face of mounting challenges. I examine the strategies through which PFRA experts sought to manage unfamiliar professional contexts and, along with the families that traveled with them, to adjust to changed personal circumstances. Challenges ensued largely from the PFRA's failure to adequately grasp the environmental and cultural circumstances in which it operated, and these ultimately contributed to the agency's decision to abandon the project. Left in the PFRA's wake was a changed landscape defined in part by exacerbated risk of endemic disease. By examining PFRA efforts in northern Ghana, I demonstrate how a broad analytical approach—one that documents and contextualizes the irregularities of vision characteristic of what Michael Latham has called technocratic faith—contributes to nuanced understandings of international development processes.

BETWEEN 1965 AND 1970, CANADA'S PRAIRIE Farm Rehabilitation Administration (PFRA) took on an international development project in the African nation of Ghana. The PFRA was created by the Canadian federal government in response to the environmental crisis of the 1930s across the northern reaches of the North American Great Plains (known as the Canadian Prairies). Over subsequent decades, the agency overreached its initial

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mandate in various ways, expanding its capacity for water resources engineering and gaining recognition for a particularly effective administrative model. The PFRA became involved in Ghana at a time when Canada's mid-twentieth-century foreign aid efforts were still taking shape. This essay examines the PFRA's efforts to export to Ghana both technical expertise and administrative practices. It contributes to scholarly understanding of technical expertise within international development, as well as of Canadian involvement in such overseas endeavors.

Generations of scholars have debated how best to conceptualize the relationship between the wealthier countries of the global west and north and the comparatively poor countries of the global east and south. While presented as a means of exporting progress and prosperity, Arturo Escobar has argued, "the discourse and strategy of development produced its opposite: massive underdevelopment and impoverishment, untold exploitation and oppression." Other scholars such as Vinay Gidwani and Joseph Hodge have advocated a more nuanced view, one that recognizes the harms of development while accommodating its varied mechanisms and specific effects. One of the key characteristics of the development era was the construction of large dams. While the PFRA built large dams on the Canadian prairies, and while Ghana was transformed by the building of a large dam toward the southern end of its Volta River, the PFRA was but peripherally involved in large-scale dam-building in Ghana. Instead, the PFRA provided the technical expertise to further the development of medium-sized and, later, small-sized water conservation projects in northern Ghana, a region geographically removed from both the Volta River dam project and the nation's centers of economic and political power. In focusing on international development efforts by a state that was not a major Cold War power and in a region that was not at the center of Cold War geopolitics, my work responds to scholars like Gidwani and Hodge who desire a nuanced understanding of development derived in part from diverse case studies.¹

Within and beyond the realm of international development, technical expertise has been seen as a central component in ambitious mid-twentieth-century projects to transform human lives and nonhuman nature. This essay focuses on the experiences and actions of technical experts in possession of specialized knowledge generated through instrumentation, conveyed largely through numbers, and applied to the planning and, at least potentially, the construction of infrastructure. This specialized knowledge pertains to the particular techniques inherent or related to the engineering profession. Tech-

nical expertise was a key element in James Scott's influential concept of high modernism, a mid-twentieth-century ideology inspiring ambitious attempts to reorder societies and ecologies in ways consistent with what advocates saw as progress. It has also figured in the works of other scholars examining the realization of massive infrastructure projects, with results ranging from catastrophic to equivocal. Regardless of the results, technical experts at work overseas often exhibited what Michael E. Latham termed "technocratic faith," a belief in "technological solutions with little regard for the conditions in which they would be deployed."²

A focus on the PFRA's activities in Ghana provides an opportunity to consider Canadian involvement in international development. Recent years have seen numerous scholarly examinations of Canadian engagements in mid-twentieth-century development processes, with military, diplomatic, and humanitarian efforts emerging as key themes. The PFRA became involved in Ghana at a time when Canada's external aid program was still taking shape, and the PFRA's overseas activities helped determine the parameters of early Canadian development efforts. The experiences of Canadian technical experts at work in Ghana demonstrate that the technocratic faith animating American overseas efforts was also evident among Canadian experts involved in international development.³

In English idiom, faith is often paired with blindness to underline how it can operate as a barrier to full and accurate perception, as in "blind faith." Technocratic faith, however, seems to involve not blindness but irregularities of vision, with experts in the field of international development responding to some aspects of the circumstances they encountered but overlooking others. This article, then, explores the irregularities of vision that helped define the PFRA's efforts in Ghana: broadly, the agency's inadequate attention toward distinctive aspects of local environments and cultures and its preoccupation with the experiences and perspectives of overseas Canadians. My discussion of these irregularities of vision emerges from substantive engagement with the involved environments, peoples, agencies, and nations. This reflects my effort to maintain a productive tension between recognizing technocratic faith as broadly characteristic of mid-twentieth-century international processes and undertaking a nuanced investigation of one of development's particular manifestations.

The Prairie Farm Rehabilitation Administration was created in 1935 as a response to major economic depression and what was seen as an extended

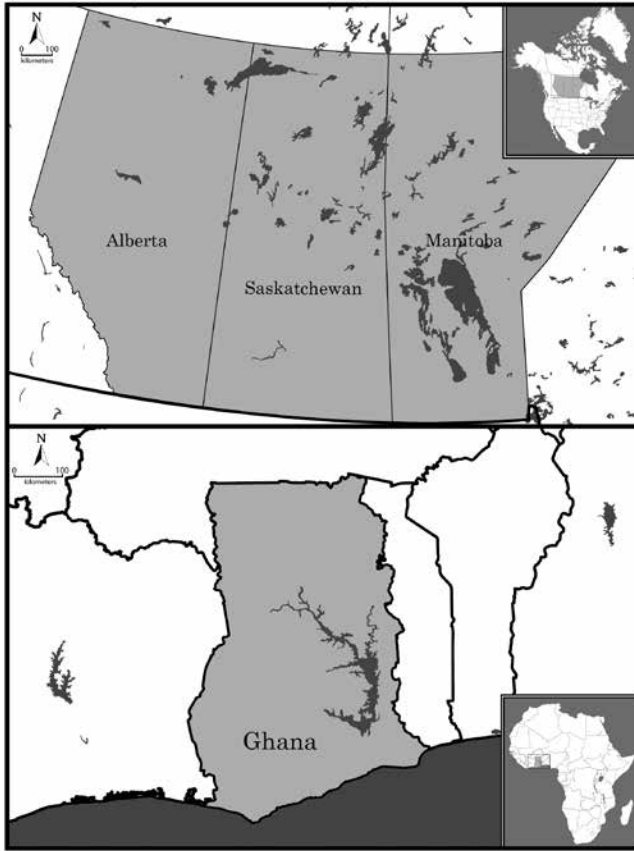


Figure 1. Map of the Canadian Prairie Provinces and the African Nation of Ghana. SOURCE: Adapted from “Canada with Provinces—Multicolor,” “North America with US States and Canadian Provinces—Multicolor,” “Africa with Countries,” and “Ghana,” all from FreeVectorMaps.com. Map by Sean Gouglas.

drought. While the PFRA was supposed to be decommissioned as the prairie region recovered environmentally and economically, it was instead expanded, first as a vehicle for postwar reconstruction and then as a mechanism of agricultural adjustment. The agency that went to work in Ghana is best understood as one that was shaped by the environmental, economic, and political contexts prevailing on the Canadian prairies (Figure 1, upper section).⁴

The PFRA operated as an agency of a settler colonial government. The colonization of the northern Great Plains was already underway by 1867, when an act of the British parliament created the Dominion of Canada. Particularly after Canada gained control over much of the continent’s northwestern ex-

pense in 1870, a suite of federal government policies drove the dispossession of the Indigenous peoples of the region and promoted agricultural settlement by non-Indigenous newcomers. Through racialized and discriminatory immigration policies, Canada encouraged immigration from the British Isles and other purportedly desirable source nations but discouraged immigration from Asia, South Asia, and Africa, with exceptions when these groups were viewed as needed sources of labor. Capitalism had already influenced northwestern North America through the fur trade and other mechanisms, but the transition to colonial agriculture amplified the local significance of this economic model.

The agricultural colonization of Canada's prairie west took place under what climate science has indicated was, in a timeframe oriented to centuries, a particularly wet interval. The drier conditions of the 1920s and 1930s, though still today often conceptualized as drought, are better understood as a return to a longer-term climate norm. On its creation in the mid-1930s, the PFRA developed a set of programs oriented to climate-related regional challenges: moving farmers out of too-dry areas, establishing community pastures to help farmers include more livestock in their operations, and creating small water control infrastructure to safeguard local supplies, to name a few. Insofar as they built on the ideas of farmers themselves, the PFRA's early activities resonate with the insights of Daniel Immerwahr and Jess Gilbert, who have examined US mid-twentieth-century rural reform efforts that seem at odds with the notion of high modernism. Particularly in the most westerly prairie province of Alberta, the PFRA became involved in the improvement and administration of existing irrigation infrastructure, much of which was in disrepair and proving uneconomic. The PFRA operated in concert with other units of government: the federal government's system of experimental farms, provincial branches governing land and water management, and local administrative entities like municipalities and irrigation districts, for example. As time passed, the PFRA evolved. In the postwar period, the agency became increasingly oriented to technical expertise, taking on the construction of larger water management infrastructure even while continuing some of the agency's earlier smaller-scale undertakings. In a Canadian context, the PFRA came to serve multiple modernisms, both high and low.⁵

Federal administrators and politicians considered the PFRA worth emulating. The federal government's Agricultural Rehabilitation and Development Act of 1961, legislation targeting a diverse array of agriculture or resource challenges across Canada, was in some ways inspired by the agency's prece-

dent. For Canadian administrators and politicians, the agency represented a model of how public efforts could be directed at particular problems, largely those bearing on resource management and susceptible to technical solutions. The PFRA's work in Ghana represented an instance in which technical expertise and administrative practices honed on the prairies seemed potentially useful in a dramatically different context.⁶

In contrast with the settler colonialism at play on the Canadian prairies, Ghana emerged in the aftermath of exploitation colonialism, in which the colonizing power (Britain, in this case) exploited people and resources but did not establish a substantial local settler population. The bottom section of Figure 1 locates Ghana within the continent of Africa. Notably, some Canadians served within the British administration governing colonial exploitation in Africa, including in the area that would become Ghana. This practice reflected a shared racialized identity between Britain and the local elite in settler colonial Canada, many of whom continued to take pride in affiliation with the British empire. In mid-twentieth-century Canada, as in many places under imperial influence, and notwithstanding growing pushback by colonized and racialized groups, peoples not perceived as white were subject to various forms of oppression. While African-Canadians were not subject to a legally codified regime equivalent to Jim Crow in the United States, they nevertheless endured discriminatory practices and encountered prejudiced views, even while some Canadian politicians took anti-racist stances in the international arena.⁷

In 1957, Ghana became the first nation in sub-Saharan Africa to emerge as independent, uniting the former British colony of the Gold Coast (along the Gulf of Guinea) and the former British Protectorates of Ashanti (further north) and the Northern Territories (even further north) under the presidency of Kwame Nkrumah. Nkrumah sought to drive forward a process of social, political, and economic change that he described as "jet propelled," striving to bring Ghanaian standards of living more in line with those in the United States and Britain even while seeking to assert African independence amid an international context polarized by Cold War tensions. Though united within a newly independent state, Ghana's north and south were distinguished by multiple factors. The north had a lower population, less cacao growing, and little urbanization or industrialization. Northern Ghana also represented a different political landscape, one characterized by what authorities both beyond and within Ghana saw as comparative isolation and impoverishment. As Catherine Boone has argued in her study of state building in rural West Africa, some zones were largely left to their own devices even as others were brought under

rigorous state control. Northern Ghana was among the former.⁸

The development trajectory for northern Ghana owes much to the final decades of the colonial period, in which British authorities became increasingly concerned about what they saw as the worrying state of the environment in the Northern Territories. Authorities solicited input from external experts, including American Walter Lowdermilk, a conservation expert with extensive international experience. Lowdermilk spent two weeks in 1949 touring what he called "the beautiful country" of the Northern Territories and assured his colonial hosts that the land was "well suited for farming" using "methods of conservation." Despite Lowdermilk's enthusiasm, satisfactory progress on land management was slow in coming. Colonial officials hoped to quickly implement conservation efforts on 7,200 square miles of land, but by 1953 they were addressing concerns on only 147 square miles.⁹

Nkrumah's efforts to drive change in Ghana intersected with the efforts of the United States to exert influence in the context of the Cold War. As Michael E. Latham put it, "the ideal of rapid development provided a framework through which Ghana and the United States found a mutual interest." Ghana desired access to American funds, while the United States sought to influence the new nation's development, to ally itself with emerging African states, and to limit communist influence in postcolonial Africa. While some aid flowed from the United States to Ghana under the presidency of Dwight Eisenhower, the relationship was strained by Nkrumah's increasing engagement with states such as the USSR and China. The situation was exacerbated as Ghana and the United States assumed starkly opposed viewpoints on the civil war underway in the Congo, with what Nkrumah saw as "the defense of African unity, nationalism, and nonaligned sovereignty" seen by the United States as "complicity with Soviet expansionism."¹⁰

Despite continued tensions, the coming to power of US President John F. Kennedy offered an opportunity to Nkrumah, who desired US support for the construction of a massive hydroelectric dam along the Volta River. This project was conceptualized to bring rapid industrialization to southern Ghana and to serve as the centerpiece in the transformation of lifeways across the nation. Kennedy confirmed financial support for the Volta project in mid-1961. That same year, Canada became involved in training the Ghanaian military, due in large measure to the Ghanaian desire to withdraw from direct British influence. Also in 1961, Canadian engineer Frank J. Dobson was appointed as the first chief executive of the Volta River Authority, the entity created to administer dam-building along the lower Volta. Canada had been involved in

aid programs directed at Ghana since the late 1950s, but even as Ghana continued to seek Canadian and US aid in 1961, the limits to western influence were becoming clear. Nkrumah adopted a program of state planning and central management of the economy modeled on the techniques of communist and authoritarian states. This program included the creation of state farms using Eastern European machinery and the nationalization of key sectors of the economy, and it contributed to increasing distance between Ghana and western nations such as Canada. By the mid-1960s, relations between Ghana and the US had completely unraveled, with the Americans becoming actively involved in efforts to seek the overthrow of the Nkrumah administration. With opposition to Nkrumah cohering around the Canadian-trained military, Canada was deeply implicated in this process.¹¹

Even as high-stakes geopolitics swirled around the issue of the Volta Dam, the United States was also involved in Ghana's north. Between 1957 and 1964, a US mission to northern Ghana sought to improve water supply throughout the region, primarily through the "construction of ponds and reservoirs to store excess water from the wet season for later use." Some 192 dams and dugouts were built, with a combined storage capacity of 14,744 acre-feet. A 1964 report on the project by Charles Magee saw this American effort as revolutionary in effect. Enumerating the livestock reliant on stored water constituted a primary means of quantifying the benefits of the program. According to figures from local animal health offices, this included over 56,000 head of cattle, 31,000 sheep, 30,000 goats, and 2,000 donkeys, as well as horses, swine, and poultry.¹²

The United Nations' Food and Agriculture Organization (FAO), which was created at the end of World War II, also took on a project in northern Ghana. This effort aimed to "produce an operational plan for the more efficient use of the natural agricultural resources of the Northern and Upper Regions of Ghana with a view to improving the agriculture and the livelihood of the people." The methods were threefold: to conduct hydrological, agronomic, and sociological investigations; to produce plans for implementation by the government; and to train Ghanaian personnel so as to build capacity for future undertakings. The emphasis on information gathering and plan development puts into sharp relief the earlier US effort, which had emphasized immediate action in the construction of dams and dugouts.¹³

As international diplomacy hinged on events in the new nation's south, technical experts charted ways forward for the nation's northern reaches. The PRFA picked up on this technical momentum. The PFRA became involved

through the initiative of Director M. J. Fitzgerald, who in addition to his position with the PFRA maintained an affiliation with the FAO. Canada's External Aid Office (EAO), established in 1960 within the Department of External Affairs, welcomed the PFRA's interest in overseas work given its experience at home. Its involvement would be especially helpful in EAO Director-General H. O. Moran's desire to develop a set of principles to guide Canadian overseas aid. In a March 1961 letter to the Canadian High Commissioner in Ghana, Moran advised avoiding "a 'buckshot' approach to aid," one based on the mistaken idea that "the needs of Africa are so great that anything which we do is bound to be beneficial." A targeted approach was also likely to be less costly, which would have appealed to Moran. Considering a Canadian aid program still under development and a desire to deliver aid in an efficient manner, collaboration with the PFRA seemed attractive. As the EAO saw it, the PFRA's involvement in Ghana helped compensate for "the lack of technical support and direction" that characterized Canada's aid programs at this stage.¹⁴

The PFRA's involvement in northern Ghana began with a 1963 assessment trip undertaken by Fitzgerald in the company of two other Canadian experts, W. L. Foss (an engineer with the PFRA) and K. Kristjanson (an economist with Manitoba Hydro, a provincial Crown corporation with involvement in hydropower development). The visitors found little current use of irrigation but much potential. Further development of northern Ghana's water resources would, the three Canadians claimed, help ensure adequate food throughout the year by permitting the growth of a second crop to mature in the dry season. While irrigation looked promising, the Canadians recommended a gradual approach, one "starting with the smaller, pilot type of project as opposed to the more costly, large scale type of project." This approach was presented as realistic "in relation to the reasonable needs of Ghana and the country's ability to finance." The caution exhibited by these three Canadians bears out Christopher Sneddon's observation that technical experts served as sources of friction within the development process when, in their opinion, ambitious undertakings were not warranted.¹⁵

While some Canadians worried that Ghanaians would be put off by this caution, Ghana accepted all of the 1963 recommendations. Soon thereafter, the Ghanaian government formally requested that Canada bring the plan to fruition, and a two-year agreement was signed in January 1966. The PFRA's commitments to Ghana were twofold. First, the Canadian agency was "to investigate and design irrigation projects in the Northern and Upper Regions."

The PFRA would take a closer look at promising sites for medium-sized undertakings (irrigating 1,000–6,000 acres each) the FAO had identified and develop plans for how to capitalize on these opportunities. At this stage at least, there was no explicit guarantee of Canadian involvement in construction efforts. Second, the PFRA committed “to establish training programs for Ghanaian staff” through a system of counterpart relationships. A Canadian would share a line position with a Ghanaian in the Ghanaian civil service, with the ultimate aim “of developing the Ghanaian who occupies the position with him to handle the position alone.” In a 1966–1967 annual review published by EAO, the PFRA’s activities in Ghana were presented as characteristic of “twinning” arrangements whereby Canadian efforts promoted the development of greater domestic capacity within aid-receiving countries. Notably, twinning arrangements were consistent with Canadian leaders’ desires to mentor decolonizing regions in their transitions to nationhood, desires that turned in part on the paternalistic and racist assumption that Africans were in particular need of such tutelage.¹⁶

Fulfilling the commitments in the 1966 agreement meant deploying Canadians to Ghana. The original complement of staff was to be four engineers and eight technicians. The PFRA was pleasantly surprised by the amount of interest among its staff in going overseas. About ninety applications were received for twelve available positions. A few years later, participating staff identified a variety of motivations driving their interest: side-trips to Europe, professional ambition, curiosity about unfamiliar places and cultures, and desires for economic or material gain. Figure 2 shows a PFRA employee and his family happily engaged in learning about Ghana. The first staffers were on-scene by late 1965, even prior to the formal signing of the governing agreement. An early letter back to PFRA staff in Canada rings with optimism: “the meals at the hotel are wonderful”; “the homes seem to be quite nice with beautiful yards”; “the climate is no where near as bad as we had anticipated.”¹⁷

Good food aside, challenges soon became apparent. As PFRA employees saw it, the major professional challenge they confronted in Ghana was effectively deploying technical expertise in an environment they understood poorly. How the agency pressed forward in this situation sheds light on the pressures on technical experts in the context of international development, as well as on the strategies used by these experts to cope. The actions of Canadians overseas reflect their conviction that what they knew about irrigation on the Canadian prairies was enough to compensate for what they did not know about the Ghanaian environment. Canadian experts were more con-



Figure 2. In what is likely a posed publicity shot, a PFRA employee and his family prepare for their upcoming travel to Ghana. SOURCE: Ghana Project [family and Ghana book], © Government of Canada, reproduced with the permission of Library and Archives Canada (2016), Library and Archives Canada/Department of Agriculture fonds/file 26196, File: e011166301.

cerned with the consequences of not moving ahead on the planned work than with those of moving ahead armed with insufficient information about local environmental conditions. PFRA agents had no more understanding of the cultures and economies of northern Ghana than they did of the local environment. In effect, the PFRA failed to perceive the potential consequences of its agents' scant local knowledge.

PFRA staff arriving in Ghana bemoaned the absence of the basic information through which engineering and technical professionals typically made sense of a landscape. But they and their Ghanaian counterparts soon set to work taking the sorts of measurements required to make the local environment intelligible (Figure 3). Not all necessary information was readily gathered. A major concern was recording stream flow, which would have served to outline the scope of regional environmental variability in terms of minimum and maximum discharges. Few streams in northern Ghana were metered, and even those that were had established records of short duration. There was no



Figure 3. An employee takes measurements in a photograph also including a PFRA vehicle and the Ghanaian landscape. SOURCE: Ghana Project [Rodman and PFRA Truck], © Government of Canada, reproduced with the permission of Library and Archives Canada (2016), Library and Archives Canada/ Department of Agriculture fonds/file 85028[-5], file: e011166300.

technical way to produce in the present moment what amounted to historical information. Additionally, due to difficulties in the collection of stream flow data such as the challenges of maintaining gauging stations, there was no guarantee that useful information would accumulate as the years passed. PFRA technical staff simply lacked the data they considered fundamental for understanding a landscape. And they quickly came to see that they could not expect to work with “the same basic investigation data which we would normally obtain.”¹⁸

The absence of data was not, however, considered grounds to slow progress on the design work the PFRA was to undertake. Both the Canadian and the Ghanaian staff felt pressure to deliver. For instance, one Ghanaian trainee

who spent time with the PFRA both in Ghana and Canada, Robert Ankrah, wrote in a draft report that while “the records are less satisfactory than desired, the forces acting to push development are great!” In this context, as Ankrah put it, “hydrologists cannot become obstructionists.” While Ankrah did not clarify his understanding of the forces at play, certainly pressures came from multiple places, some linked to local conditions in northern Ghana and others to the tense international Cold War context of the mid-1960s. Pressures also emanated from a global humanitarian crisis related to hunger. Food was understood among western nations as a hinge on which development turned, with sufficient quantities seen as essential to western Cold War success. Food was also a key plank in early Canadian foreign aid policy. Canadian engineer N. L. Iverson expressed the imperative deriving from hunger in his 1967 assertion that the land and water of Ghana represent “such tremendous natural resources that they cannot remain undeveloped forever in a world short of food.” While Canadian technical experts Fitzgerald, Foss, and Kristjanson had initially proposed the PFRA undertake what they saw as an appropriately modest scope of work, agency officials found it difficult to maintain a cautious approach. Once fully engaged in northern Ghana, the expectation was that technical experts would act as a vehicle for development, not a brake on it.¹⁹

Such varied pressures meant that work in northern Ghana moved ahead even in the absence of basic information about the local environment. Despite concerns about their reliability, the FAO reports were the PFRA's starting place. Working from a list based on FAO investigations, the PFRA identified fourteen promising dam sites, and then narrowed it down even further to focus on Bontango, Pasam, and Kamba. These three sites were selected for their proximity to economic and population centers, as well as on the basis of existing hydrologic, agronomic, and climatologic data. Much of the agency's early work in Ghana focused on developing plans for medium-sized water conservation infrastructure suitable to these locations.²⁰

How did the PFRA proceed with design work in the absence of the basic information they felt they needed? A major technique was the construction of parallels between the overseas landscape they sought to understand and the landscape they knew best: that of the Canadian prairies. These parallels were rooted in what experts perceived as broad similarities between northern Ghana and the Canadian prairies: “gently rolling plains, slowly winding river valleys, with rainfalls, although heavy at times, limited to 30 to 45 inches a year.” On the basis of such similarities, a PFRA guidebook for use in land evaluation, titled *Handbook for the Classification of Irrigated Land in the Prairie*

Provinces, was shipped to Ghana. The construction of parallels also operated at smaller scales. With respect to investigations underway at the Pasam site, for example, a particular environmental feature (“swelling shale”) was contextualized with reference to its similarity to circumstances at the site of the Morden Dam, a PFRA project in southwestern Manitoba.²¹

PFRA staff understood they were in the process of comparing environments that were, in many ways, dissimilar. For instance, they recognized that wood could not be used in the construction of Ghanaian infrastructure because of the risk of destruction by termites or theft by locals for whom wood was a scarce resource. Staff also sought to fill in the blanks in their environmental data through other geographical comparisons, such as between Ghanaian watersheds and better-documented watersheds in adjacent African regions. And many recognized that constructing environmental parallels represented a way forward that merited caution. As put by Project Engineer N. L. Iverson, the most senior PFRA official in Ghana at the time, in such circumstances, “the general procedure is to guess and use a large factor of safety.” Still, through the practice of compensating for what technical staff saw as inadequate information, a projected future for the lands of northern Ghana was extrapolated in part from the history of irrigation on the Canadian prairies.²²

PFRA workers recognized they were missing environmental information of importance, but there is little indication they perceived themselves to be similarly hampered by lack of information about local cultures and practices. A great number of linguistic and cultural groups existed within or maintained ties to what is now northern Ghana. While the region’s complex human landscape is beyond the scope of this paper, a brief look at a representative example suggests how local culture defined agricultural practices. Recent work by anthropologist Alexis B. Tengan sheds light on the significance of the hoe-farming work of the Dagara people of northwestern Ghana. As Tengan presents it, hoe-farming signified “an inter-personal relationship between humans and different aspects of the universe personified as beings.” For the Dagara, hoe-farming represented not just a means to subsistence, but also a practice that involved maintaining appropriate relationships with other people and the nonhuman world. Casual comments in less formal correspondence contained within PFRA archival materials makes clear PFRA staff maintained a general interest in what they considered as the exotic cultural practices of northern Ghana. But there is a telling silence in the agency’s professional records relating to cultural practices bearing directly on the viability of irrigated agriculture. Engaged in the design of infrastructure that was to

anchor the development of capitalist agriculture in northern Ghana, PFRA agents saw little professional reason to attend to local farming practices they expected to help render extinct.²³

PFRA agents also had little understanding of the broader circumstances of the lives of Ghanaians with whom they were twinned. They regularly expressed concerns about the work ethic of their Ghanaian counterparts, with erratic attendance and inconsistent effort seen as particular problems. Project Engineer C. A. L'Ami noted in 1968, for instance, that PFRA staff took a variety of approaches to maintaining what they saw as appropriate work discipline, with one staff-member "exercising more or less unauthorized general policing," while another was "very put out by the antics" he perceived to be "harming work progress." There is no evidence the PFRA considered whether absenteeism and inefficiency—potential "weapons of the weak," to evoke James C. Scott's phrasing—may have amounted to protest against a foreign agency advancing work begun in the colonial period. It is unclear if the Canadians recognized that, for Ghanaians, regular attendance could actually detract from their capacity to provide for a family. Scarcity in essential goods prevailed in mid-1960s Ghana, with many necessary items available only through the time-consuming process of accessing black markets. Economically necessary second jobs further shrank the amount of time and focus any Ghanaian could invest in a primary occupation. As it was put by Jack Goody, an anthropologist who spent time in Ghana during the period in question, locally "it was understood that everyone had to make a living," but outsiders found these practices inimical to proper procedure. PFRA staff seem not to have understood the contexts in which their Ghanaian counterparts made decisions about how to prioritize their commitments to the PFRA project. Racialized conceptions about the work ethic of Africans were a factor here, with the racist ideas prevailing in mid-twentieth-century Canada making it more likely that Canadians would assume Ghanaians were simply inadequately committed to their jobs.²⁴

Canadian agents in Ghana not only faced unfamiliar professional challenges but they and their families also coped with difficult personal circumstances that bore directly on their work. Many PFRA staff took wives and children with them to Ghana. In choosing team members, the agency made selections "not only on the basis of technical qualifications and personal suitability, but also on the basis of the individual applicant's family situation." Men with "large families" or partners "apprehensive about living in an under-developed country" were left off the team. But even such an approach failed to fore-

stall the development of circumstances that, while not directly related to the PFRA agents' professional activities or technical expertise, nevertheless affected the operation of the project.²⁵

The issue of housing became an immediate point of contention. Canada originally understood that Ghana would provide newly constructed houses to lodge Canadian personnel, to be ready on their arrival in the country. Even prior to the arrival of the majority of the team, concerns were raised about this commitment. Materials shortages barred the construction of new dwellings, though Ghana continued to offer assurances that all staff would be appropriately housed. Ultimately, new staff members arriving in Ghana were obliged to spend up to six months in hotels. The absence of the cultural and social buffer of familiar housing was seen as a significant hardship. Particularly for staff with families, there were also early logistical problems, like how to provide young children food and play space in keeping with Canadian norms.²⁶

One plan to ease the cultural transition was an arrangement by which PFRA staff would be permitted, even encouraged, to import substantial quantities of familiar foodstuffs and goods not readily available in Ghana. While Canadian staff would pay for the materials, the Canadian federal government would foot the bill for shipping them to Ghana. Ghana granted such import privileges in the memorandum of agreement governing the project, signaling the extent to which this arrangement was fundamental to the entire endeavor. This arrangement both provided access to familiar staples and helped compensate for the generalized shortages affecting Ghana at this time. Imported products included many brand-name goods, such as Campbell's beef soup and Sunkist Lemon Juice.²⁷

Even considering assured access to familiar food, Canadians in Ghana coped with disruptions to their normal state of health. Preparing for travel to Ghana meant vaccinations against illnesses not of concern in Canada and ongoing precautions against malaria. It also meant coping with intestinal disruption. This was evident from the earliest stages of the project. Kris Kristjanson, in a letter sent to Fitzgerald about a week after his return to Canada, reported having had that morning his first "good solid _____." The comment clearly follows up on an earlier dialogue the two had been having on their intestinal function. Canadians overseas coped not just with unfamiliar personal and professional contexts, but also with how these new contexts affected intimate bodily processes. However, minor health upsets such as digestive problems were ultimately dwarfed by worries about access to appropriate medical care. There were no Canadian doctors serving in Ghana, and the "shortage of

Canadian medical services is of great concern to the families of the PFRA team." Even the presence of Canadian military medical personnel was not, in the view of PFRA team members, sufficient to safeguard the well-being of Canadians overseas.²⁸

Both Canadian and Ghanaian project leaders took a keen interest in how the experiences of Canadian staff and their families might affect their work. The relation between the experiences of Canadians and the work underway was conceptualized primarily through the notion of "morale," which could be invoked to suggest how circumstances not directly related to conditions of work could nevertheless have a significant bearing on the success of the project. Inadequate housing was problematic because of how "the morale of the team greatly suffered as a result." Canadian project leaders made the case for adjustments to the team (through the addition of "a small medical service," for instance) based on the argument it would boost morale. Proposed restrictions on imports by Canadians were opposed on the grounds that morale would be damaged, even potentially creating "difficulty in maintaining a staff in Ghana."²⁹

Both Ghanaian and Canadian leaders were of two minds about the topic of morale. Some felt inappropriate expectations were the problem, with a prominent Ghanaian administrator reportedly noting that some aid personnel "seemed to forget that they were in an underdeveloped country when making demands related to housing conditions." Canadian officials concurred that the "over-optimistic impression" team members received in Canada was at least partly to blame for discontent. Still, project planners understood that the personal experiences of foreign staff affected their professional contribution and thus needed to be addressed. Decisions regarding where to locate PFRA staff, for instance, were based on the expectation that the Canadians would be "happier and therefore give more to the country if put in a place where living conditions are easier."³⁰

Addressing the experiences and needs of PFRA staff and their families became an important part of the agency's work in Ghana. PFRA efforts were calibrated not only to promote the agency's vision for development in northern Ghana but also to safeguard the morale of a small number of foreign technical experts. To frame this in terms of the irregularities of vision associated with the technocratic faith operating among Canadians in Ghana, focus by overseas Canadians on their own experiences rendered it less likely they would respond to, or even perceive, certain local considerations.

Facilitated in part by efforts to ensure the comfort of Canadians, work

in northern Ghana moved ahead, with Canadian officials marking progress through regular project evaluations. A series of reports issued from mid-1967 through 1968 reflects efforts to adjust the project to better position it for success. The first formal evaluation of the project was undertaken by N. L. Iverson. Iverson's report identified the PFRA's contributions to research and planning for dam projects such as those anticipated for the Pasam and Bontanga sites. Based on the first year's experience, Iverson also suggested some changes to the project. Ghanaians had voiced a desire for assistance with existing small-sized undertakings (irrigating 10–100 acres each), and Iverson saw potential in that approach. Based in part on Iverson's recommendation, the PFRA effort was expanded to include small-sized projects, and PFRA Field Engineer W. K. Dobson was put in charge (no apparent relation to Frank J. Dobson).³¹

W. K. Dobson began his assignment with the onerous task of enumerating small dams or dugouts throughout northern Ghana to assess how existing infrastructure was being used. Dobson's findings were not encouraging. As he saw it, "[n]o efforts have been made to conserve, measure or utilize water efficiently." Of the 267 small dams he located, only 17 were being used for irrigation, and of those only 5 were working to capacity. Notably, Dobson's worries echoed those of others who had voiced concerns about water control infrastructure in the absence of the expertise, workforce, machinery, and funds necessary to ensure appropriate upkeep. Despite his troubling assessment of the physical infrastructure, Dobson thought the more serious deficits related to the administrative structures needed to support water development. Focusing on the Ghanaian bureaucracy, Dobson found insufficient institutional commitment to practical training in irrigation; few meaningful opportunities to apply existing knowledge; lack of appropriate supervision for staff; and the absence of supplies as fundamental as gasoline. As a result of what he considered an inadequate commitment to promoting water conservation on the part of Ghanaian leaders, Dobson felt it was "almost impossible for an advisor from a foreign country to achieve anything."³²

Dobson's personal frustration reflects something of the PFRA's broader experience. The PFRA, successful in a Canadian context partly for the effective ways it built on the capacities of other federal and provincial government agencies, found itself flailing in the absence of Ghanaian entities positioned to take on the many aspects of regional water development that did not fall under the purview of the PFRA project. The agency was operating in the hinterland of a country undergoing significant political turmoil. The overthrow

of the Nkrumah government in 1966 heralded a period of political instability but brought no change to the mandate of the PFRA: the agency was to accomplish the same goals in what had become a far more volatile situation. Considering Canada's alignment with the western powers that supported the coup, and especially Canada's role in training the Ghanaian military that drove Nkrumah's overthrow, the bureaucratic black hole that frustrated Canadian PFRA staff was partly their own country's creation. But the perversity of the situation was unapparent to PFRA staff frustrated at what they took for lack of support and cooperation in service to both the immediate task of improving local water conservation and the broader goal of establishing capitalist agriculture across Ghana's north.³³

A second significant evaluation of PFRA efforts in Ghana took place in fall 1968, when PFRA official J. E. Beamish weighed in. After an investigation, Beamish determined that "regardless of the good intentions of this project," it exhibited some basic problems. In fact, he went so far as to express significant doubt that the project as currently conceived "warrants the cost in resources and manpower." As Beamish saw it, the project had failed dramatically in one of the key goals established in the original memorandum of understanding: to develop something like the PFRA within the Ghanaian civil service in the form of a professional staff capable of continuing irrigation after the withdrawal of the Canadians. In response, PFRA officials laid out what they saw as the reasons for the "twinning" effort's failure. They had trouble finding sufficient qualified men to train, especially for the most advanced engineering positions. They perceived their agency's experience as part of broader circumstances affecting Ghana as a whole, where a shortage of qualified Ghanaian staff meant that technical expertise was often supplied by foreign personnel. Additional challenges stemmed from the fact that opportunities with the PFRA were field positions in remote locations. As a PFRA staff member put it, for Ghanians, "[p]restige is gained by sitting behind a desk, not in getting their hands dirty." Notably, the agency's replies to critiques of its efforts to mentor Ghanians were presented in ways that resonated with racist ideas about the ambitions of African peoples, with a purported disinclination toward field work taken for laziness.³⁴

Beamish was not entirely pessimistic about the PFRA effort in Ghana. Rather, he argued that a "reorientation of Canada's aid program" could "provide a lasting benefit to Ghana." Beamish argued that the PFRA should take on particular projects on what he called a "package" basis. Rather than merely focusing on project investigation and design, Canada would also undertake

other aspects of promising projects, such as agronomic and water management support, construction expertise, and operational capability. Notably, the changes proposed by Beamish were linked not only to the perceived needs of northern Ghana but also to those of Canadian project staff. Growing discontent among the Canadians was attributed in part to their inability to drive projects through to completion, including the construction phase. Degradation of existing infrastructure was also recognized as potentially disheartening. As put by PFRA official C. A. L'Ami, there was reason for concern about "the effect on the Ghanaian public, Canada, and the Division staff of further failure or disuse of constructed projects." In the ultimate expression of the significance of the morale of PFRA staff, the issue figured in the decision to revisit the fundamental principles on which the northern Ghana project was based.³⁵

Beamish's recommendations were accepted, and by this point, Canada's External Aid Office had been remade into the Canadian International Development Agency (CIDA). Created in 1968, CIDA was, in the view of Molly Kane, an effort to establish "greater autonomy and clarity of mandate" than had been available through the External Aid Office. To better operate on what Beamish termed a "package" basis, the Ghana project was to be moved from its initial location in CIDA's "advisers" program to its "capital assistance" division. The new vision was for the PFRA to act as "a consulting engineering firm engaged by the Ghana Government" instead of as "an aid organization."³⁶

While Beamish ended his evaluation of the PFRA project with optimism, W. K. Dobson's report on water conservation in northern Ghana served as a springboard to a broader critical appraisal. In a letter that ended up in the hands of CIDA president Maurice Strong, Dobson engaged the international context that was often missing from PFRA explanations for project shortcomings. Armed with previous experience in Africa, knowledge gained through his tour of Ghana's north, and a personality that his superiors recognized as inclined to be critical, Dobson developed a far-reaching critique of PFRA efforts. Dobson felt the agency operated not out of concern for the well-being of the local population, but out of a desire on the part of both involved nations to demonstrate technical prowess and financial resources. Dobson thought the PFRA's continued efforts would only "add to the wasted aid" being "given so liberally to Ghana by many countries." While Dobson's critique stands out within records left by Canadian PFRA employees, it resonates with comments made by Robert Ankrah, a Ghanaian trained by the PFRA. In a personal letter to N. L. Iverson, Ankrah wondered "if aiding countries were more interested in developments which would reflect to their

glory than in those which might provide the best approaches to the country's orderly development." Ankrah and Dobson both possessed a deep understanding of local circumstances, in Dobson's case at least in comparison with other PFRA employees. It is noteworthy, if not surprising, that penetrating critiques of international development emerged from those who, for reasons of identity or experience, had a broader understanding of Ghanaian realities than did most Canadian PFRA employees.³⁷

Skepticism about project goals aside, Ankrah worked hard to fulfill his responsibilities to the PFRA. Dobson's professional fate was different, with what superiors saw as his tactless approach likely contributing to the decision not to extend his term in Ghana, which ended in January 1969. But dismissing Dobson did not entirely constrain his influence. Dobson's critique, combined with the administrative adjustments required to shift the PFRA program from the "advisers" program to the "capital assistance" division, prompted CIDA to conduct yet another program evaluation. This third examination of the PFRA project, dated March 1969 and authored by T. M. Pallas with the "capital assistance" division, amounted to little more than a list of project shortcomings. As Pallas summed it up, "when one attempts to relate the total cost of this project with the physical achievements and the training of Ghanaians the price appears to be very high."³⁸

In the aftermath of Pallas' critical report, while continuing to blame project shortcomings on purportedly insufficiently committed Ghanaians, the PFRA began to threaten withdrawal. Eventually, what had first seemed even to Canadians an idle threat evolved into a reality, with both CIDA and the PFRA agreeing to undertake what they termed "a 'gracious withdrawal.'" By the early 1970s, the PFRA was sending its project team home. While PFRA officials and their CIDA correspondents discussed the withdrawal as the logical outcome of an unsuccessful project, other factors including administrative and conceptual change that took place as EAO was remade into CIDA may have rendered it particularly convenient to back away at this point. The PFRA withdrawal from northern Ghana occurred even as parliamentary appropriations for international development continued to rise in Canada through the early 1970s.³⁹

By the time PFRA agents were on their way home, fifteen years of international development had significantly changed the landscape of northern Ghana. The dams and dugouts that resulted from water conservation efforts led to important improvements in the realm of public health, with the potential of increased food production for locals as a major achievement. But

the infrastructure that allowed for a second crop also came with significant risks. In a landmark study published in 1970, Charles C. Hughes and John M. Hunter documented the association between development projects in Africa and the exacerbation of other public health problems. Irrigation development was associated with increased risk of schistosomiasis (both *Schistosoma haematobium* and *Schistosoma mansoni*) because dams and dugouts created habitat for the snails that spread the disease and because this infrastructure promoted concentration of human populations. Irrigation was also associated with increased prevalence of several additional health concerns including malaria, onchocerciasis, and elephantiasis. In one important study of the northeastern region of Ghana, Hunter determined that locals perceived elevated rates of elephantiasis in areas where small dams were constructed in the late 1950s and early 1960s. He also noted that disease rates were perceived as particularly severe in areas with more extensive irrigation infrastructure. Hunter went so far as to call elephantiasis a “disease of development.” Dealing with schistosomiasis, Hunter argued that high rates of infection in northern Ghana were at least partially “an artefact of agricultural interventions, specifically the building of dams in the immediate post-colonial years.” The negative health effects of water development in northern Ghana are attributable not to the actions of one nation or agency but to the cumulative effects of multiple engagements by foreign agents, with all involved parties complicit in the outcome—including Canada’s PFRA.⁴⁰

While on the Canadian prairies irrigation is not associated with increased risk of such devastating human diseases, the health hazards related to irrigation in Africa were established well before the PFRA went to work in Ghana. A 1949 study of Egypt’s Aswan dam project, for instance, highlighted a rapid increase of schistosomiasis. The World Health Organization held a conference in Ghana in 1954 at which experts discussed measures to be used in treating onchocerciasis. There are some indications that PFRA officials recognized the health implications of their activities. In 1968, as the PFRA was considering expanding its mandate to include work on small projects, Iverson argued that Canada’s investment in irrigation development in Ghana entailed an obligation to attend to health concerns “so that we merely do not replace one hardship with another.” Despite such comments, there is little evidence that PFRA officials modified their activities to account for potential health risks, even as they adjusted them to boost the morale of Canadian participants. The closest the PFRA seems to have come to safeguarding the health of local people was as a by-product of Iverson’s efforts to advocate for

a dedicated medical team to serve PFRA staff. Iverson bolstered his main argument about the importance of the medical team for Canadian morale by also suggesting that there was some possibility of using a medical team for purposes of disease prevention among the local population.⁴¹

International development after World War II proceeded in diverse and multifaceted ways, even as its cumulative effects were overwhelmingly negative for the targeted areas. Grappling effectively with the operation within international development of what Michael Latham called technocratic faith requires scholars to heed the calls of Vinay Gidwani and Joseph Hodge to attend to development's varied mechanisms and specific effects. The perspectives and actions of PFRA officials demonstrate that technocratic faith led adherents to worry intensely about some aspects of their undertakings and not much at all about others. Technocratic faith is not blind, but the faithful may be inclined to focus on some things and to allow others to recede from view. Attending to these irregularities of vision—to what was seen as important and what was not in any particular instance—is an essential part of a nuanced study of expert involvement in international development.⁴²

The PFRA was created to respond to an environmental crisis on the Canadian prairies. Over time, it developed an orientation toward water conservation work, particularly through the provision of technical expertise related to infrastructure construction. The agency provided options to Canada's External Aid Office at a time when EAO did not have sufficient technical expertise at its disposal. In deploying to Ghana, the agency went to work in the northern reaches of a recently decolonized nation, one in which Cold War tensions hinged on political and economic dynamics in its south. The PFRA was to contribute to agricultural transformation in northern Ghana through the planning of water control infrastructure and the training of Ghanaians. Agency staff worried about their limited knowledge of the local environment, even as they found reasons and ways to press ahead. Staff seemed unconcerned with their equally limited understanding of the local cultures that were to be displaced by northern Ghana's anticipated incorporation into a global system of capitalist agriculture. Racist ideas figured within Canadians' assessments of project shortcomings, and the morale of Canadians serving overseas became a factor in decisions about how to recalibrate PFRA efforts. Ultimately, the project was deemed unsuccessful and Canadians were shipped home.

The most striking and disturbing outcome of the irregularities of vision associated with the technocratic faith animating PFRA activities is the agency's

complicity in the tragic exacerbation of health risks in northern Ghana. In their 1970 article, written the year the PFRA withdrew, Hughes and Hunter asserted the need for development to be considered within “a comprehensive ecological framework” if the result was to be “an overall betterment of social and economic conditions of life.” Making sense of the PFRA’s activities in Ghana indicates the value to historians and allied scholars of engaging a broad analytic perspective in understanding the work of technical experts within international development. Through something like the “wide angle vision” recommended by Hughes and Hunter—a perspective attentive to the agencies in which technical experts operate, the cultures and environments from which they emerge, and their particular activities and experiences overseas—we might bring into relief the specific causes and consequences of the irregularities of vision characterizing technocratic faith in the varied times and places in which international development played out.⁴³

NOTES

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