

MEGA-DAMS IN WORLD LITERATURE

Literary Responses to Twentieth-Century Dam Building

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1

Introduction

“I came, I saw, and I was conquered,” declared Franklin Delano Roosevelt in 1935 at the dedication of Hoover (then Boulder) Dam, voicing in his paraphrase of Julius Caesar’s widely known exultant exclamation a belief that large hydroelectric dams embodied a victory of the most cherished modern values and aspirations (figure 1.1).¹ Such dams, sometimes termed megadams, were a quintessential physical and cultural feature of the twentieth century and have remained so into the twenty-first century. Writers from a variety of countries have portrayed their construction and environmental, social, and political impact in numerous literary works. This literary representation—which engages readers in a range of important themes related to dams, both directly and subtly—is the central topic of this study.

Initially and at times still hailed as icons of modernism and triumphs of development, throughout the twentieth century and into the new millennium, big dams were and often still constitute objects of desire, envy, and emulation across the world. Since their inception, they have borne important political implications of varying stripes. As structures sought after by



FIGURE 1.1. *President Franklin D. Roosevelt at the Opening of Hoover Dam*, photograph, September 30, 1935. Franklin D. Roosevelt Library, <http://www.fdrlibrary.marist.edu/daybyday/resource/september-1935-5/>.

eager engineers and often greedy politicians alike, they have reinforced ideologies by improving navigation, helping prevent disastrous flooding, and enabling a financially rewarding and broader use of irrigation. They have transcended the particularity of political systems in their obvious visual and societal appeal. Democratic, socialist, communist, authoritarian, developed, developing, underdeveloped—no matter the nature and contours of its government and society, every country that could afford dams or borrow funds to build them had long craved them (and still do), and the bigger, the better. A large dam constitutes an imposing national status symbol, an indication that a country has truly arrived on the world scene or, as Bret Benjamin puts it, acquired one of the critical “fetish objects” of nationalism.² Literature, both fiction and poetry, helps underscore this symbolic importance, giving voice to perceived engineering, social, and political victories.

The evolving perspectives of large dams that took place during the course of the twentieth century were remarkable; an understanding of the

dilemmas, social and natural, presented by dams is essential to comprehend their importance in literature. This chapter provides an overview of such problems, and subsequent chapters will expand on these issues in relation to the literary works discussed. As the twentieth century progressed, the initial unadulterated enthusiasm such as Roosevelt's comment was tempered by recognition of the immense social and environmental costs of dams, and literature often shifted from appreciation and adulation to reservations about and even hostility toward mega-dams. At every point along this complex path, poets and writers of fiction played a significant cultural role—initially as key propagandists or cheerleaders and later as influential critics and denounciators—in raising public consciousness about the virtues and vices of structures like the American Hoover, Glen Canyon, and Grand Coulee Dams, the Egyptian Aswan High Dam, the former Soviet Union's Dneprostroi and Bratsk, various Indian dams, and China's Three Gorges Dam. Readers who might not tackle scientific articles and books on dams and their consequences may be attracted to novels that touch on the same topics. This means that the subject of dams in all its complexity would reach a larger audience and acquire a more humanized form. A comparative analysis of the literary treatment of dams over time in American, Russian, Ukrainian, Chinese, Indian, and Egyptian writings provides important insights into the cultural apprehension of the benefits of development and industrialization, as well as the subsequent understanding of the deleterious impact of big-dam construction on disadvantaged populations, the environmental damage they have wrought, and the multiple possibilities for corruption and fears of terrorism that accompany large-scale hydroelectric projects. Novels and poems about dams and their construction offer cultural snapshots of technological and political progress and settler colonialism construed as both dream and nightmare. They demonstrate the central role literature can play in expressing and influencing a wide range of popular and political views of mega-dams and provide, for example, a broader corollary to the visual images discussed by Donald C. Jackson in *Pastoral and Monumental: Dams, Postcards, and the American Landscape* (2013). They personalize the impact of dams in all their complexity in a way scientific treatments cannot do.

An appreciation of the potential importance of dams, small and large, goes back thousands of years. Literary works afford some understanding of this long-standing attitude, of the consistent and constant human desire to

subordinate nature to human inclinations and the belief that such a desire is divinely endorsed or politically justified. The human longing to control water and waterways has, as in so many other instances involving nature, often included a combination of deprecation of, even contempt for, nature and a desire to dominate it. With hydroelectric dams, such feelings became particularly acute.

By the nineteenth century, an attitude toward nature marked by barely concealed contempt and an inclination toward self-serving usage was firmly in place in many circles. An eagerness to improve upon navigation in early nineteenth-century Germany, for example, led to a program of “rectification” of the Rhine (*Rheinkorrektur*), the literal straightening out of the river, or correction, to facilitate shipping; such processes would be replicated, for example, with the Mississippi River. The United States Bureau of Reclamation, founded at the beginning of the twentieth century, was intended to manage water resources in the American West, particularly as far as irrigation was concerned. The very terms *rectification* and *reclamation* reflect a sense that nature calls for remediation or exploitation and that it is a human right, perhaps even a divinely, biblically enjoined obligation, to engage in this water-obsessed process. As David Owen comments, “In the 1920s, ‘conserving’ river water meant extracting as much profit from it as possible before it flowed into the sea.”³ Not, one might note, saving or protecting as much of it as possible, in today’s conventional meaning of conservation.

As sentient, intentional beings, humans frequently considered themselves superior to unconscious, wild, and dangerous nature. Humans had plans and constructive ideas. Nature, in contrast, often seemed careless and unimaginative and was implicitly or explicitly an object of condescension. A character in Oscar Wilde’s dialogue “The Decay of Lying” disparages “nature’s lack of design, her curious crudities, her extraordinary monotony, her absolutely unfinished condition.”⁴ A harsh denunciation indeed. Nature, many educated nineteenth- and twentieth-century observers thought, was often outright wasteful in its unconscious and correspondingly insensitive ways. Rivers afforded a prime and very visible example of such waste. An increasing awareness of the possibilities hydroelectricity afforded only strengthened this perception.

At the turn of the twentieth century, the Indian civil engineer and statesman Mokshagundam Visvesvaraya supposedly declared on seeing the

impressive Jog Falls on the Sharavati River in western India: "What a waste of energy."⁵ A few years later, standing at Owens Falls on Lake Victoria, Winston Churchill was likewise driven to exclaim "so much power running to waste . . . such a lever to control the natural forces of Africa ungripped."⁶ Implicitly, an assumption of a colonialist imperative, with the notion of settler colonialism lurking in the background, underwrites this statement. In his 1935 address, Roosevelt declared: "The mighty waters of the Colorado were running unused to the sea. Today we translate them into a great national possession."⁷ Again there is an emphasis on the rights of nations. Several decades later, the Canadian premier of Quebec, Robert Bourassa, lamented that "Quebec is a mighty hydroelectric plant in the bud, and every day millions of potential kilowatt-hours flow downhill and out to sea. What a waste."⁸ Human beings could and should, often implicitly as a moral directive, address this perceived shortcoming on ignorant nature's part by seizing control of natural forces. Settler colonialism embodied this directive on a large and obvious scale.

It was only a short cultural step from a perception of nature as wasteful to an assumption of the right to dominate and control nature, to exercise what Oswald Spengler called "the Faustian technics, which . . . thrusts itself upon Nature, with the firm resolve to *be its master*."⁹ As Lewis Mumford commented a few years later, "The dream of conquering nature is one of the oldest that has flowed and ebbed in man's mind. Each great epoch in human history in which this will has found a positive outlet marks a rise in human culture and a permanent contribution to man's security and well-being."¹⁰ The Enlightenment era in particular had added force to such ideals, feeding the dreams of later thinkers like Spengler and Mumford. Subordinating nature to human needs, in other words, leads to growing wealth and eminently deserved happiness. A vehement late nineteenth-century exponent of this attitude was the industrialist Andrew Carnegie, who asserted in the 1880s: "Man is ever getting Nature to work more and more for him . . . Ever obedient, ever untiring, ever ready, she grows more responsive and willing in proportion as her lord makes more demands upon her."¹¹ Note the gendering of nature as female, as a compliant object of male attention, and the casting of the male in question as a lord. In 1941, David E. Lilienthal, one-time chair of the Tennessee Valley Authority and author of the immensely influential tome *TVA: Democracy on the March*, expressed similar thoughts at

the beginning of his text when he spoke of “a wandering and inconstant river now become a chain of broad and lovely lakes which people enjoy, and on which they can depend, in all seasons, for the movement of the barges of commerce that now nourish their business enterprises. It is a story of how waters once wasted and destructive have been controlled and now work, night and day, creating electric energy to lighten the burden of human drudgery.”¹² Implicitly, nature is a servant of human beings, if not an outright slave.

At the Twenty-second Congress of the Communist Party of the Soviet Union in 1961, Nikita Khrushchev agreed with this forceful and human-centered assessment, giving it an explicitly socialist coloring: “Our party will succeed in saving man from the influence of the elements, in making him the master of nature.”¹³ As had begun even earlier because of Western fears of socialists and socialist conviction regarding the evils of capitalism since the inception of the Soviet Union, competition between the United States and the Soviet Union during the Cold War brought the issue of human control over nature to the forefront. Even later, after the possible detrimental effects of large dams had begun to be recognized at a 1991 conference of the International Commission on Large Dams, Otto Hittmaier, former president of the Austrian Academy of Sciences, continued to argue vigorously for the benefits of large dams and asserted: “Man’s first duty is to his species. We should obey the biblical command to go forth and subdue the Earth.”¹⁴ As the biblical reference (see Genesis 1:28) suggests, the desire to control nature and the religious conviction of the right to do so go back to the earliest civilizations. Further, such a desire was by no means limited to particular types of political systems. As Murray Feshbach and Alfred Friendly observe, a “view of nature as a cornucopia to be pillaged” does not observe political boundaries.¹⁵ Despite religious appreciation at times for nature’s beauty, the idea that nature should serve humanity has always been driven by a range of religious and political ideologies. At every step of the way, literature has provided support for these ideologies and designs, helping convince large numbers of people that human beings should by right seize control of nature.

The desire to dominate nature could take various metaphorical forms. As Carnegie’s comments suggest, nature could be imaginatively construed as a potential (female) laborer on behalf of (male) humans. This thought became a dominant refrain in the twentieth century. In 1962, Allen H. Cullen, author

of the suggestively titled *Rivers in Harness*, emphatically stated: "All dams . . . serve the same basic purpose: to help man, to work for him, to aid him in the mighty job of conquering his environment."¹⁶ On the other side of the Cold War world, in a very different political context but a similar symbolic vein, Vladimir Sinedubsky, writing about Soviet hydroelectric dams, declared: "The Angara [a Siberian river] hydro-system . . . will turn the wayward daughter of Lake Baikal [the Angara River is the only river that flows out of Lake Baikal] into a diligent labourer."¹⁷ Thus, in very different political contexts, the notion that nature should submit to and work for human beings is a consistent one.

An equally common and logical belief deriving from the conviction that human beings should dominate nature's existence is that nature may emerge as an enemy against which it is necessary and proper to wage war; nature might selfishly not wish to be dominated, but it should be—its potential agency subsumed to human desires, no matter the aggression and force necessary. Martial analogies were frequently employed in discussions of rectification of the Rhine.¹⁸ In France after World War II, hydroelectric development of the Rhône was represented as an "epic 'battle against nature.'"¹⁹ Judith Shapiro mentions the extensive use of military imagery in regard to the Chinese communist attempt to subordinate nature.²⁰ Paul R. Josephson comments on similar linguistic usage in Brazil in discussions of development of the Amazon region and in the Soviet Union in regard to Siberia.²¹ Europe, Asia, Africa, the Americas—it did not matter. Nature was an enemy to defeat; indeed, nature deserved to be overcome by human beings. Nature might possess agency, but it stood in need of human management and even suppression.

Human beings have been trying to dominate nature in myriad ways for eons. What gave particular ideological impetus to this desire starting in the late nineteenth century and continuing throughout the twentieth century was the growth of attitudes exemplifying what has been termed *high modernism*. Drawing on David Harvey's work on postmodernity, James C. Scott defines high modernism as "a strong, one might even say muscle-bound, version of the self-confidence about scientific and technical progress, the expansion of production, the growing satisfaction of human needs, the mastery of nature (including human nature), and, above all, the rational design of social order commensurate with the scientific understanding of natural laws."²²

In other words, modernity became an assumption of human superiority on steroids, a sense of warranted mastery of docile or resistant nature. Any aspirations to agency on nature's part evoked disdain and a conviction that such desires should be overcome by human beings.

Scott and others have stressed that high modernism recognizes no ideological boundaries.²³ The Cold War bore out the accuracy of this observation. Scholars have also emphasized the deep links between modernization discourse, with its preoccupation with reason, science, and domination of nature, and the legacy of the Enlightenment, with its unrelenting emphasis on rational behavior.²⁴ In turn, as Hittmaier's comment above suggests, the Enlightenment's instrumentalist attitude toward nature may have had "ideological taproots in the Christian doctrine of dominion"²⁵—a doctrine, one might note, far from unique to Christianity. Many other religions have aspired to dominate nature, and it often remains very difficult to separate religion and politics. As for the relationship between mega-dams in particular and modernization, in her comparative study of the Volga and the Mississippi, Dorothy Zeisler-Vralsted comments on the centrality dams assumed in the modernization project: "Building monumental dams became the currency of modernization."²⁶ To modernize meant to build a mega-dam in one's own nation, preferably more than one.

High modernism transcended nationalism and went hand in hand with a preoccupation with agricultural, industrial, and social development; the glorification of technological advances; and the assumed concomitant physical and social role nature played as a kind of handmaiden to technology in the improvement of the human condition that would occur.²⁷ Dams, it was thought, could greatly facilitate both agricultural and industrial development and, by permitting a higher standard of living, lead to a more broadly engaged and sophisticated society—indeed, to superior people. Such people might be capitalist or socialist, but they would share a capacity for domination of and superiority to thoughtless nature. Hence Vladimir Lenin's famous assertion that communism is Soviet power plus electrification of the entire country, an electrification implicitly linked to hydroelectric potential. Hence also the subtitle of Lilienthal's treatise on the Tennessee Valley Authority (TVA): *Democracy on the March*. As David Ekbladh has pointed out, the TVA "was a grand synecdoche, standing for a wider liberal approach to economic and social development both domestically and internationally."²⁸

On the other side of the world, in a very different political context, Soviets also believed in the unmitigated virtues of development. It was long assumed that development could only bring good. The uncomfortable and generally unacknowledged truth that the pursuit of development often provided cover for rapacious neo-colonialism—both domestic and foreign, socialist and democratic—was unrecognized or studiously ignored. As Steven Hawley puts it, “Water . . . began flowing uphill toward money.”²⁹ In this ambiguous process, literature played an important role in bolstering the supposedly indubitable benefits of development. Rivers and the land were waiting for human intervention, and literature could describe this process in a manner unlike any other.

Hydroelectric dams ostensibly provided a key and highly visible piece of evidence for the virtues of development. Sanjeev Khagram argues that big dams were “socially constructed during the twentieth century as premier development activities and symbols.”³⁰ Worldwide, this led to the entrenchment of powerful dam-building bureaucracies operating under the auspices of a wide range of political and financial systems. Institutions like the World Bank were eager to finance dam construction, and the detrimental social and environmental impacts that might follow in the wake of big dams were long overlooked. As Gilbert Rist describes it, this process was driven by “the idea of a natural history of humanity: namely that the ‘*development*’ of *societies, knowledge and wealth corresponds to a ‘natural’ principle*.”³¹ In other words, development is manifestly righteous, ordained by a wide variety of political and religious thinking. Blanket assumptions of such attitudes—a justification for settler colonialism, among other processes—fed into an uncritical acceptance that dams were an uncontested good. After all, look what dams could do. Writers of various political persuasions were happy to describe the rapture dams engendered, no matter whether they were built in capitalist or communist, authoritarian or democratic societies.

The creation of the United Nations and the World Bank took place at the end of World War II. The UN, it was hoped, would help prevent future wars and act as a more effective institution than had the League of Nations. Over time, the UN shifted from an emphasis on peacekeeping to a focus on economic and social development, from idealism to pragmatism. The World Bank played an increasingly important role in this process, and the notion of assistance gave way to what was often a pretense of cooperation, despite

the fact that the real division of labor was between Washington-based international financial institutions and UN agencies.³² Such an approach did not always have happy results. By the end of the twentieth century, some countries in the Global South were convinced that there was too much interference stemming from the North, too much exploitation, much of it engendered by haughty and self-centered colonialist practices. With new environmental concerns, a new kind of division in thinking arose: “North-South divisions led to a new conceptualization. Developed countries were mainly preoccupied with the negative impacts of industrialization, while developing countries viewed the North’s environmentalism as a blatant threat to their development objectives. They explicitly proclaimed the right to economic and social development and said that environmental concerns could not be used to limit this right.”³³ In other words, everyone has an equal right to exploit nature, no matter the consequences. Settler colonialism has no national limits.

It is impossible to overestimate the ideological significance large dams gradually assumed in the twentieth century. Large dams “epitomized the conquest of nature by technology.”³⁴ Repeatedly, this conquest assumed a national coloring that trumped the peculiarities of individual political systems: “The control of a great river through a mega-dam is one of the most emphatic advertisements of collective human prowess, national clout and the muscle of the central state.”³⁵ Dams are “political symbols: symbols of the conquest of nature, of progress, and of the modern state. And, especially, symbols of national empowerment and achievement.”³⁶ Dams could be and were cited as examples of the superiority of any and every type of political system or regime. Once again, Lilienthal’s title is a case in point. In the former Soviet Union, Josephson observes, the first massive hydroelectric project, Dneprostroi, “became a symbol of what centralized economic planning and political will could accomplish”; in the United States, before Lilienthal so baldly stated their broader significance, dams were initially “symbols of the New Deal rebuilding of America.”³⁷ In the mid-twentieth century in newly Communist China, writes Simon Winchester, “the dam was seen by Mao and his allies as perfect propaganda for the promotion of his authority and power.”³⁸ In revolutionized Egypt in the 1950s, explains John Waterbury, “the new regime [of Gamal Abdel Nasser] sought a spectacular gesture to signal its visions and intentions to the Egyptian people and to the world.”³⁹ The

Aswan High Dam project was precisely the kind of gesture desired. Dams represented political and economic success, whatever the system of government that had produced them; literature stood ready to assist in fostering such ideas, bringing a human coloring to technological achievement.

In retrospect, it seems inevitable that large dams, in their massive apparent simplicity, began to evoke comparisons with the Great Pyramids of Egypt or at the very least with large temples—often to the detriment of the pyramids and temples. Grand Coulee Dam on the Columbia River gained fame in part because its volume was the first to exceed that of the Great Pyramid of Cheops.⁴⁰ In Egypt, a comparison between dams and pyramids was de rigueur. The British magazine *The Spectator* declared that the Aswan Low Dam, built at the very beginning of the twentieth century, was “as great a memorial as Cheops’ Pyramid, and of considerably more use to Egyptians.”⁴¹ In the mid-twentieth century, Nasser was said to have frequently observed: “In antiquity, we built pyramids for the dead. Now we will build new pyramids for the living.”⁴² In other words, dams were obviously superior to pyramids; they were functional, not memorial. At about the same time, in India, Jawaharlal Nehru liked to describe dams as the “temples of modern India.”⁴³ Some thought dams resembled Buddhist stupas.⁴⁴ In France, the Donzère-Mondragon Dam, completed in 1952, evoked comparisons with great cathedrals. Such comparisons were still being made decades later. In his study of rivers, dams, and the conservation movement, Tim Palmer observes that “tourists stand awestruck at the face of [Hoover] dam as at an Egyptian pyramid.”⁴⁵ Dams were “America’s cathedrals, its castles, its pyramids,” declares Stephen Grace in his study of the role water played in the American West.⁴⁶ In another work on water in the American West, Marc Reisner speculates that “when archaeologists from some other planet sift through the bleached bones of our civilization, they may well conclude that our temples were dams.”⁴⁷ Dams played a role in both colonization and postcolonialism, symbolically and in actuality, a role that continues to exert a profound influence.

While simple embankment dams had been constructed for thousands of years, by the twentieth century there were multiple possibilities—some novel—for containing rivers and various reasons to do so. In many places, the desire for flood control or improvement of navigation was paramount. In others, the facilitation of irrigation and creation of reservoirs was most important. Use of dams for power, especially hydroelectric power, was a later

but critical development. Initially, there were embankment dams of earth, rock, or a combination of the two. Later came solid masonry gravity dams, like Hoover and Grand Coulee, made of immense quantities of masonry or concrete and situated in the most appropriate geological locations—provided, very important, that their construction did not threaten the existing achievements of the affluent. No dams were to be built in places inhabited by wealthy landowners. There were also hollow masonry gravity dams, timber dams, steel dams, and arch dams. Hollow masonry dams required more elaborate engineering design; arch dams, like the Swiss Mauvoisin Dam, can only be built in narrow canyons and demand the greatest architectural sophistication.⁴⁸ Engineering enthusiasm accompanied these important technological shifts in a wide variety of political arenas.

Earlier dams were generally built with a single purpose in mind, like flood control. In the twentieth century, multi-use dams that could, for example, simultaneously improve navigation, assist with irrigation, provide flood control, and serve to generate hydroelectric power became popular. There was no limit, it appeared, to what mega-dams could do. Ultimately, the notion of river basin planning, of the building of multiple, sometimes dozens of dams, became highly influential. River basin planning involves the construction of a series of dams along a river and possibly its tributaries; it pursues not only dam building but the industrial and agricultural development of the areas adjoining the river. The TVA became a worldwide poster child for river basin planning; as such, it exerted tremendous influence in the second half of the twentieth century and evoked the jealousy of, among others, the Soviet Union. The TVA provided a development model that could supposedly be adapted to any geographic circumstances and often was, albeit usually in a rushed, ill-conceived, and uncritical fashion. All that was necessary for success, supposedly, was funding and the national will to engage in technological development for the supposed good of a nation's inhabitants. As Lilienthal proudly declared about the TVA, "For the first time in the history of the nation, the resources of the nation, the resources of a river were not only to be 'envisioned in their entirety'; they were to be developed *in that unity with which nature herself regards her resources*—the waters, the land, and the forests together."⁴⁹ Nature was thus hijacked as a partner to modernity, as a patron of development. Such enthusiasm on the part of Lilienthal and others inspired the creation of literary works devoted to the primacy of development and

the subsidiary role played by nature, works that captivated the attention of a variety of readers and helped convince them of the virtues of modernity.

The TVA was a federally authorized project launched in 1933 in connection with the much-touted New Deal. Even at that point, before the Cold War developed, fears of socialism helped inspire developmental aspirations. The Tennessee Valley was an economically disadvantaged and depressed region even before the Great Depression. The project was designed to improve navigation, assure flood control, generate electricity, and foster economic development, both agricultural and industrial. As a regional planning agency, the TVA encompassed most of Tennessee and parts of Alabama, Mississippi, Kentucky, Georgia, North Carolina, and Virginia. It was the first federal project of its kind and was highly controversial because of disputes over the pros and cons of government ownership of the utilities involved. This was denounced by naysayers in some quarters as a form of incipient socialism, but they were quickly silenced. Others—many writers among them—convinced that private utility companies were unregulated and rapacious, welcomed the move because of its apparent potential for changing society. A new and improved society, an implicitly model democratic one, was a desirable goal.

More than a dozen dams were constructed during the first decade of the TVA's existence. By the end of World War II, the agency had become the largest supplier of electricity in the United States. As “the first modern, large-scale effort in the world to plan and finance integrated regional development,” the TVA quickly gained fame in the postwar years and played an important role in Cold War politics.⁵⁰ Visitors came from many countries to admire the awe-inspiring achievements of the democratic US government. Lilienthal founded an engineering and consulting firm that worked with clients from Iran to Nigeria to India in developing TVA-type projects. The concept of river basin planning was adopted with enthusiasm throughout what was then termed the Third World and became an important part of the US Cold War arsenal, a way of showing that capitalism could empower any nation's growth. What has been called “hydroelectric envy” dominated world politics,⁵¹ much like “missile envy” in regard to nuclear weapons. Dams, dams, dams—the more, the better.

It was not only the United States that led the way in the worldwide hydro-power competition. The former Soviet Union had been an equally significant player ever since the construction of Dneprostroi in the 1930s; in the postwar

years, as the Cold War gained greater traction, the Soviets too began to engage aggressively in river basin planning—in part in competition with the United States—initially on the rivers of central Russia like the Volga and soon on the massive rivers of Siberia. Technology, it quickly became apparent, was a great leveler of political beliefs. Just as an ideological commitment to the domination of nature knew no political or national boundaries, so did river basin planning lend itself to adoption by a variety of political perspectives. As Josephson points out, Soviet hydroelectric power stations could reveal “the advantages of the Soviet system over those of capitalist countries and symbolized the qualitative difference between peaceful Soviet electricity and imperialist, militaristic capitalist energy.”⁵² No one political system had a lock on modernization. As an added plus, the Soviet projects were often gleefully, if carelessly, accomplished in much less time than similar projects had been in the United States. Those who wanted dams in other countries took notice. Later India, a would-be example of high modernism, provided a postcolonial model to emulate. The Hindi Indian feature film *Mother India* (1957), which glorifies big-dam construction, was widely viewed across the world for decades, making India’s dams “a symbol for hope and progress across postcolonial Asia and Africa.”⁵³ What India could do, an entire range of countries of diverse political persuasions could implicitly accomplish, following in US or Soviet footsteps—not as victims of colonialism but as political agents in their own right. Everyone could assume a colonialist role, either internally or externally.

The 1930s have been described as the “go-go years,” the “glory days” of dam building.⁵⁴ After this auspicious beginning, dams’ heyday lasted several decades. In *Silenced Rivers: The Ecology and Politics of Large Dams* (2007), the environmentalist and writer Patrick McCully analyzes in detail data collected by the International Commission on Large Dams (ICOLD). The numbers are staggering. There are more than 40,000 large dams (dams with a height of 15 meters or more) in the world. The 1960s witnessed the completion of an average of 1 such dam per day.⁵⁵ There are more than 300 major dams (defined as having a height of 150 meters or more, a volume of at least 15 million cubic meters, reservoir storage of at least 25 cubic kilometers, or electrical generation capacity of at least 1,000 megawatts). Tellingly, McCully points out that a volume of 15 million cubic meters is six times that of the Great Pyramid of Cheops.⁵⁶ Such gargantuan structures can be found on

every continent but Antarctica and in dozens of countries; they surpass the pyramids because of their obvious usefulness, not just their size, and implicitly because they reflect a dramatic change for the better in society.

Inevitably perhaps, such large-scale and expensive undertakings as megadams attract political maneuvering, spawn large bureaucracies, and foment corruption in their wake. Bribery, pork barreling, price fixing, reckless cost cutting—big-dam projects invite it all and, unfortunately, to a great degree. The political prestige associated with large dams encourages government officials to underestimate expenses and downplay potential problems. The money involved may fuel corruption and subvert sensible business practices. As the twentieth century wore on and the number of geologically ideal, usable dam sites gradually diminished, such problems became more acute and the costs increased. Sadly, the very fact that the negative consequences of dams were becoming increasingly obvious paradoxically also fostered a readiness to gloss over or even conceal difficulties that might obstruct lucrative and prestigious construction plans. Here too some writers were eager to echo political goals in their work, to serve as cheerleaders for new technological developments.

In the middle of the excitement associated with the building of big dams, the uncomfortable truth that such construction often meant relocation of and tremendous financial harm to people whose farms and villages would be inundated by rising reservoir waters was initially frequently downplayed or ignored. Dams have not typically been built in areas inhabited by wealthy and politically influential elites; quite the contrary, in fact. There is a parallel here with the construction of superhighways in US cities. The usual twentieth-century dam site had a poor rural population, whose impoverished members, in turn, represented an ethnic or social minority. For the TVA, this meant impoverished Appalachians, who were indeed in dire need of economic assistance. In the American West, a more common pattern emerged. Native Americans with little political agency—such the Yakama in the Pacific Northwest and the Mandan, Hidatsa, and Arikara in North Dakota—often inhabited lands where dams were built. In Canada, members of First Nations, like the Cree in the James Bay area between Ontario and Quebec, had to move because of dam construction. Indigenous peoples were the ones generally affected by projects in Brazilian Amazonia and Soviet Siberia. In India, it was peasants from Indigenous populations referred

to by the Indian government as “scheduled tribes,” also known as Adivasi, or the Dalits, formerly known as “untouchables” in the Indian caste system. In Egypt, it was the Nubians, tellingly long regarded by many Egyptians with barely concealed contempt and overt racism. The ethnicity of those who need to move because of dam construction is rarely the same as that of those who will benefit from a hydroelectric project—a phenomenon typical of settler colonialism, which favors the colonizers and gives little thought to Indigenous peoples already on the scene but regarded as dispensable.⁵⁷

Relocation or resettlement because of dam construction has multiple implications and consequences. Most obvious is the loss of one’s home, which in the case of rural populations often also means loss of their source of livelihood, profound cultural upheaval, and psychological distress—particularly for the elderly and for women, who are often dismissed as collateral damage in the march of progress. When dams are built, communities may be fragmented, treasured cultural sites inundated. Graves need to be dug up and bodies transferred or cemeteries may be flooded, causing family members unspeakable trauma. When compensation is paid for lost land and homes, it may be far from adequate or appropriate and be provided only to those whom dam construction most obviously and directly affects. For example, in calculations of compensation, the incomes of people living downstream from a dam site, whose losses are less visible but whose livelihoods suffer as a consequence, are generally not considered. The number of people who have to move may be underestimated, in some instances deliberately, to facilitate implementation of a project. The process of resettlement and allocation of new land and homes may be poorly organized and subject to corruption. Little advance warning of the need to move may be given, leading to economically damaging chaos. Relocation sites may be of inferior agricultural quality, and possibilities for engaging in crucial economic activities like fishing disappear. New homes may be not just different from but inferior to the old. Many of those who are relocated, unable to sustain themselves economically in their new place of residence, may become migrant laborers or drift into urban slums.⁵⁸ In the second half of the twentieth century, such developments began to provide particularly fertile ground for literary diatribes whose intensity matched that of earlier panegyrics to modernization. In such contexts, supposed opportunities for the bereft often became increasingly difficult to identify.

For much of the twentieth century, the issue of relocation and its consequences for those directly affected received little attention. As Katrine Barber expresses in a study of relocation linked to hydroelectric projects on the Columbia River, it was generally “a backburner issue.”⁵⁹ On the Columbia, the destruction by dams of salmon runs that century-long treaties with Native American peoples supposedly protected was widely ignored, as was the need to move some reservations.⁶⁰ Professionals with appropriate expertise involving human impacts were long uninvolved or saw their importance downplayed in planning for relocation: “Dam design is dominated by hydrology, engineering, geology and economics. Disciplines like sociology or anthropology or development studies are rarely given a professional role to play, and if they are it is too often a token one.”⁶¹ Until the 1990s, the World Bank, which is heavily involved in funding large dam projects, only occasionally enlisted the services of resettlement experts in appraising plans for mega-dams; after all, controlling nature was more important than coddling people. At a hearing held in 1989 by the United States Congress Human Rights Caucus, the Bank could not provide a single example of successful rehabilitation of relocated populations.⁶² The demands of other priorities seemed far greater. In his environmental history of the twentieth-century world, J. R. McNeill suggests that “their political utility helps explain why so many uneconomic and ecologically dubious dams exist.”⁶³ In his study of dams, Fred Pearce concludes: “It is the rural poor, along with their environment and natural resources of remote regions, that suffer in order for a few to benefit. By their nature, large dams and hydroelectric projects are amongst the least likely of ‘development’ initiatives to generate improvements in the lives of the rural poor.”⁶⁴ The rural poor, it was long thought, should make sacrifices in the name of progress, even though they were unlikely to partake of that progress. The Australian journalist and Egyptologist Leslie Greener, writing in the 1960s about the efforts to salvage archaeological sites due to be inundated by the waters of the Aswan High Dam, commented bitterly: “Yesterday, little was known of Nubia, even by the archaeologists. Today there is world-wide interest in Nubia. But it too is largely theatrical: the dramatic threat of drowning; last-minute United Nations effort at rescue; the spectacular attempt to elevate spectacular Abu Simbel [Egyptian temples from the thirteenth century BCE]. It’s enough to make you forget that people lived in Nubia too.”⁶⁵

Greener's sarcasm is both obvious and appropriate. In the context of neo-colonial thinking, Indigenous inhabitants have little value.

The economic, social, and psychological upheaval caused by relocation was often rationalized as the acceptable suffering of the few for the benefit of the many, a long-standing argument used by exploiters from a wide range of political systems to justify the sacrifice of ethnic others. This argument was sometimes presented directly and unabashedly to those being resettled. In 1948 Nehru informed villagers affected by a dam project, "If you are to suffer, you should suffer in the interest of the country."⁶⁶ Two years later an Indian official, writing to a government minister about local objections to a project, explained that he had informed the local population that "they should not stand in the way of the construction of the project but should consider it a great sacrifice on their part, since by the sufferings, if at all, of a small number the country is going to prosper."⁶⁷ This self-serving logic, which was touted in many nations, must have sounded very hollow to listeners and impeded their efforts to practice agency in a new world.

The numbers of people affected worldwide by dam construction are truly staggering, if inexact. McCully declares, "Although the dam builders have not bothered to keep count, the number of people flooded off their lands by dams is certainly in the tens of millions—30 million would be a conservative estimate, 60 million more likely."⁶⁸ A leading expert on dams and relocation, the anthropologist Thayer Scudder, writes, "According to WCD [the World Commission on Dams] the number of those resettled in connection with large dams exceeds 40 million and may be double that number."⁶⁹ Even more explicitly than McCully, Scudder insightfully points out that the very absence of accurate numbers is itself indicative of a gross lack of institutional and governmental concern.⁷⁰ India and China provide particularly egregious examples of mass relocation. As of 1999, China had more than 10 million officially classified "reservoir relocatees."⁷¹ McNeill suggests that in India alone, "dams and reservoirs displaced perhaps 20 million people between 1947 and 1992."⁷² More recently, the figure of 40 million for India has been suggested.⁷³ Sadly, projects involving displacement of populations often had worldwide political and bureaucratic support; as dam building increased, so did the population impact. In his study of the World Bank, Bruce Rich—an American writer and lawyer who received an award from the United Nations for his exposure of financial development—masked greed—says that between 1978

and 1990, in India alone, the Bank funded projects that required the forced displacement of more than 600,000 rural poor.⁷⁴ Writers everywhere noticed such displacement and its concomitant alienation and began to write about it, often in highly moving terms that humanized the costs of displacement.

The social impacts of large dams cannot be easily separated from the environmental impacts, which in many instances are unanticipated and only gradually emerge. Most immediately obvious is deforestation and ensuing erosion and the loss of fertile bottomland, which, in turn, may have severe economic consequences. Deforestation may involve not only the reservoir site itself but adjacent land that is newly cleared by displaced inhabitants. In recent years, there has also been increasing recognition of the significant quantity of greenhouse gases emitted by reservoirs because of massive decomposition of rotting vegetation that was not removed from the reservoir site, grew up later, or was washed into the reservoir from upstream.⁷⁵ Despite the theory that large hydroelectric dams offer the cleanest energy, particularly in tropical areas, the emissions can be massive. Twenty years ago, Canadian researchers estimated that “reservoir emissions contribute 7 per cent of the total global warming impact of other known human-related releases of carbon dioxide and methane.”⁷⁶ As the water quality in reservoirs declines, algae and water weeds may thrive. Among the most seriously undesirable of these are water hyacinths, which in tropical areas can rapidly infest reservoirs, stifling productive animal growth.

The creation of huge reservoirs also has a dire impact on species diversity, resulting in the disappearance of many kinds of fish, plants, and animals. The presence of a dam fragments ecosystems and interferes with breeding and other cycles, often to the point of destruction. One of the best-known examples in the United States is the detrimental effect dams on the Columbia River have had on the anadromous migratory salmon, which are born in freshwater, live much of their lives at sea, and return upstream to their birthplace to spawn. The ambitious and overly confident creation of fish ladders on dams, investment in hatcheries, and physical transportation of fish around dams has had limited success, contributing to a significant loss of income for fisheries and those who make their living fishing—many of whom are Indigenous victims of minimally honored or simply ignored nineteenth-century treaties made with settler colonialists. Plants and animals that grow and live beside rivers also suffer from the creation of large reservoirs and unseasonable discharges

of water from them and are forced into ever greater competition with one another. All these subjects became rich topics for literary writings, for bringing environmental destruction to the forefront of readers' imaginations.

The problems relating to dams became clearer and more pronounced over time. Increased salinity of land and water is linked to dams. Large reservoirs may experience massive evaporation, which leads to greater salinity—a danger for agriculture and potability of water alike. The process of irrigation itself often promotes salinity of the soil, and the draining of irrigation water into reservoirs and rivers results in even more salinity. This is particularly a problem in hot, dry areas. The fact that the same water may be used repeatedly for irrigation creates a vicious cycle that leads to rapidly declining yields, especially from land near the mouth of a dammed river, where salt accumulates most dramatically.

Upstream especially, the increase in shallow and still water associated with dams has had an impact worldwide on the prevalence of certain diseases, such as schistosomiasis and malaria. The snails and mosquitoes that serve as vectors for these diseases thrive in warm, stagnant water. As with efforts to address the decline in fish populations associated with dam construction, attempts to control schistosomiasis and malaria have had limited success. Many thousands of people die annually from these two diseases.⁷⁷ This too has attracted the attention of writers.

It is also important to recognize that despite their impressive appearance, dams do not last forever, and their planners often overestimate how long they will function effectively. Siltation and sedimentation gradually undermine a dam's efficiency. Siltation refers to the sand, clay, or other types of soil found in running water. Excess siltation, which can be exacerbated by deforestation and erosion, is a form of pollution. Behind a dam, siltation leads to sedimentation. As the sediment increases, the storage capacity of the reservoir decreases. This process occurs inevitably with all dams; it is simply a question of how quickly it happens. Sediment removal is costly and complicated and thus rarely occurs. As a result, dams generally have a finite life span, which is often fifty years or less; dams are not pyramids in more ways than one. In addition, dams may be threatened by earthquakes, particularly in the case of very deep reservoirs, because of stress due to the weight of the water or unanticipated geological problems. A number of literary works have addressed such problems.

Downstream from dams, other problems arise. Perhaps to state the obvious, the fertile silt that backs up behind dams is lost to the river below a dam. This may lead to massive erosion, to what is termed the scouring of a riverbed. This, in turn, has a negative impact on downstream ecosystems; because of the increased flow of the river, ironically, this process worsens, not lessens, episodes of flooding. Scouring occurs surprisingly rapidly; riverbeds may become several meters deeper within a decade of closing a dam.⁷⁸ At a river's mouth, a delta may gradually shrink, and there may be further erosion along the nearby coastline. This in itself may have a range of undesirable and unexpected consequences. The erosion of the Nile delta, for example, has contributed to a tremendous decline in the sardine catch in the eastern Mediterranean.

Given the many negative impacts associated with dams, it is not surprising that resistance and outright protests—some literary—have increased in the past few decades. As McCully says, “The days when dams were seen as so obviously of great benefit to humanity that anyone who questioned them was immediately branded a communist / counterrevolutionary / anti-nationalist / outside agitator / deluded romantic / foreign spy are gradually dying.”⁷⁹ Increasing protests have focused on both the social and environmental costs of dams. Such protests have sometimes emerged most powerfully in literary form.

In Western Europe and the United States, widespread objections to dams beginning in the 1950s came primarily from conservationists concerned with aesthetics, with the preservation of scenic wilderness areas.⁸⁰ A crucial effort was the successful lobbying led in the 1950s by David Ross Brower, executive director of the Sierra Club, against the construction of Echo Park Dam on the Colorado tributary Green River, which would have inundated Dinosaur National Monument. But this success was undercut by the almost simultaneous failure to prevent the construction of another dam on the Colorado River, Glen Canyon, about which Brower wrote: “Glen Canyon died in 1963 and I was partly responsible for its needless death. So were you. Neither you nor I, nor anyone else, knew it well enough to insist that at all costs it should endure. When we began to find out it was too late.”⁸¹ Finding out too late continues to be an operative concept where dams are involved.

Elsewhere in the world, the social impacts of dam construction were initially a greater cause for opposition than were the purely environmental

impacts. In India, for example, peasants forced to relocate had been resisting dams since the 1920s, but generally with little effect or visibility, given their lack of political clout.⁸² By the 1980s and 1990s, however, popular resistance had become more vocal and in some instances more effective. An important milestone in India in the 1980s was the creation of the coalition of environmentalists, students, and local peoples called the Narmada Bachao.⁸³ The Narmada River Project was a massively extensive plan for river basin development. The protests, led by the social activist Medha Patkar and at times involving 60,000 people, eventually led to the withdrawal of financial support by the World Bank—a tremendous path-breaking symbolic shift in priorities. In China, in contrast, in 2000 a protest by 1,000 relocated peasants over corruption involving the Three Gorges Dam project resulted in violence and military intervention.⁸⁴ Obsessed with development, the Chinese establishment has yet to fully acknowledge the potential human and environmental harm that may result from dams. Both the Narmada and Three Gorges projects continued, but unquestioning support for big dams has increasingly waned in recent decades, and the social and ecological concerns have often coalesced and gained political attention—although by no means everywhere.

Tellingly, even some of those who had previously waxed enthusiastic about large dams began to have doubts. The enthusiasm for mega-dams expressed in the United States and the Soviet Union in the 1930s and 1940s began to wane, beginning in the United States. Elsewhere, as early as the end of the 1950s, Nehru surprisingly expressed fears that “we are suffering from what we may call ‘disease of gigantism’” and argued for small irrigation projects and hydroelectric plants.⁸⁵ Gone were the invidious comparisons with the pyramids. Many writers were among those whose opinions of mega-dams began to shift in a negative direction. In a new preface to *The Colorado* written in 1984, the American author and devotee of the Southwest Frank Waters writes about Hoover Dam: “A mammoth technological marvel, it evoked my own extravagant praise and admiration with that of the entire country. Since then I have come to regard it as the first of our misguided attempts to dominate the entire natural world of the river.”⁸⁶ Perhaps the most succinct criticism comes from the poet, scientist, and activist Kenneth E. Boulding: “The more we dam the rivers, then the sooner we are damned.”⁸⁷

The striving to dominate nature may not be the best approach to life on earth adopted by human beings. Literary interest in dams has been great and

widespread, from the glory days until the present. In the United States, the rivers whose dams have generated the most literary interest are the Colorado, the Columbia, the Missouri, and the rivers of the Tennessee Valley. In the former Soviet Union, the dams of the Ukrainian Dnieper, the Volga, and the Siberian Angara have been written about repeatedly. In Africa, the Aswan Dam and its impact have evoked responses for more than half a century, in part because of fears of terrorism. In China, the dams of the Yangtze, especially the Three Gorges Dam, often occupy pride of place. Dams on various Indian rivers have been featured in novels, songs, and films—at times in ugly and contemptible ways.

This study examines numerous literary works published over the past century that focus on dams and their social and environmental impact. Most of the novelists, poets, and essayists who have been responsible for these works are North American and Russian. As a Slavacist, I can read what has been published in a handful of European languages. Some of the exciting literature about dams that Egyptian writers of Nubian descent, as well as Chinese and Indian writers, have produced has fortunately been accessible to me in translation. Such works, at times written by representatives of those most negatively affected, are critical to understand the worldwide literary response to the growing impact of large dams—numerically, socially, and environmentally.

Chapter 1 has provided background information needed to understand the growth in the desire for mega-dams worldwide and has stressed literature's unique ability to promote such understanding. I have discussed attitudes expressed toward nature over time, in particular the insidious development of high modernism and the decision made to attempt to control nature, of which large dams are a prime example. I have also discussed in general terms the relocation of peoples made necessary by dam construction, often a primary consequence of settler colonialism; the negative environmental impacts of large dams, many of which were initially unknown or underestimated; and the role literature can play in drawing attention to and humanizing such problems. In the following chapters I will return to these topics in more detail and provide specific literary examples of thoughts expressed. Chapter 2 considers the predominantly North American, Russian, and Ukrainian works produced in the early and mid-twentieth century that endorsed dam-building projects in the United States and the former Soviet Union, often

in the dramatic and grandiose, even pompous manner that became routine during the Cold War. In such works, dams assume a manifestly heroic aura. Chapter 3 is devoted to writings that focus on the trials and tribulations of the massive numbers of peoples dispossessed and displaced in the United States, Siberia, Egypt, India, and China—often as the victims of settler colonialism or its descendants. The largely detrimental social consequences of such dispossession and displacement warrant, and have gained, great literary attention. Chapter 4 examines various literary depictions of the environmental damage caused by dams, a huge and often underestimated problem that has social impacts as well. Chapter 5 looks at literary representations of acts of terrorism directed against large dams, including ecoterrorism. Ecoterrorism, or ecotage, to use the more neutral term, is perhaps a logical outcome of the harm produced by mega-dams in the twentieth century. Writers have paid attention to this development, with its vast, as yet unrealized potential for chaos and harm, on the one hand, and its dramatic way of drawing attention to environmental damage, on the other hand.

In recent years, a few dams have been successfully decommissioned. It would be simplistic to demand that all existing dams should be decommissioned and no new dams built. As many scholars and activists have argued, however, in the future dam construction needs to be approached critically, honestly, and with open eyes. My hope is that this study will assist in fostering an awareness of the complex history and complicated problems that have marked the impact of large dams worldwide and the future need for caution, care, and great thoughtfulness in considering the construction of more dams. Scientific environmental studies of dams are important, but many people do not read such works. Literary writings and their analysis in a broad, international cultural manner offer more accessible, personalized, and humanized views of the virtues and vices of mega-dams. A nuanced analysis of such works will help demonstrate dramatically what the general population is learning and can learn through literature about the construction of big dams and their profoundly poignant environmental, social, and human consequences.