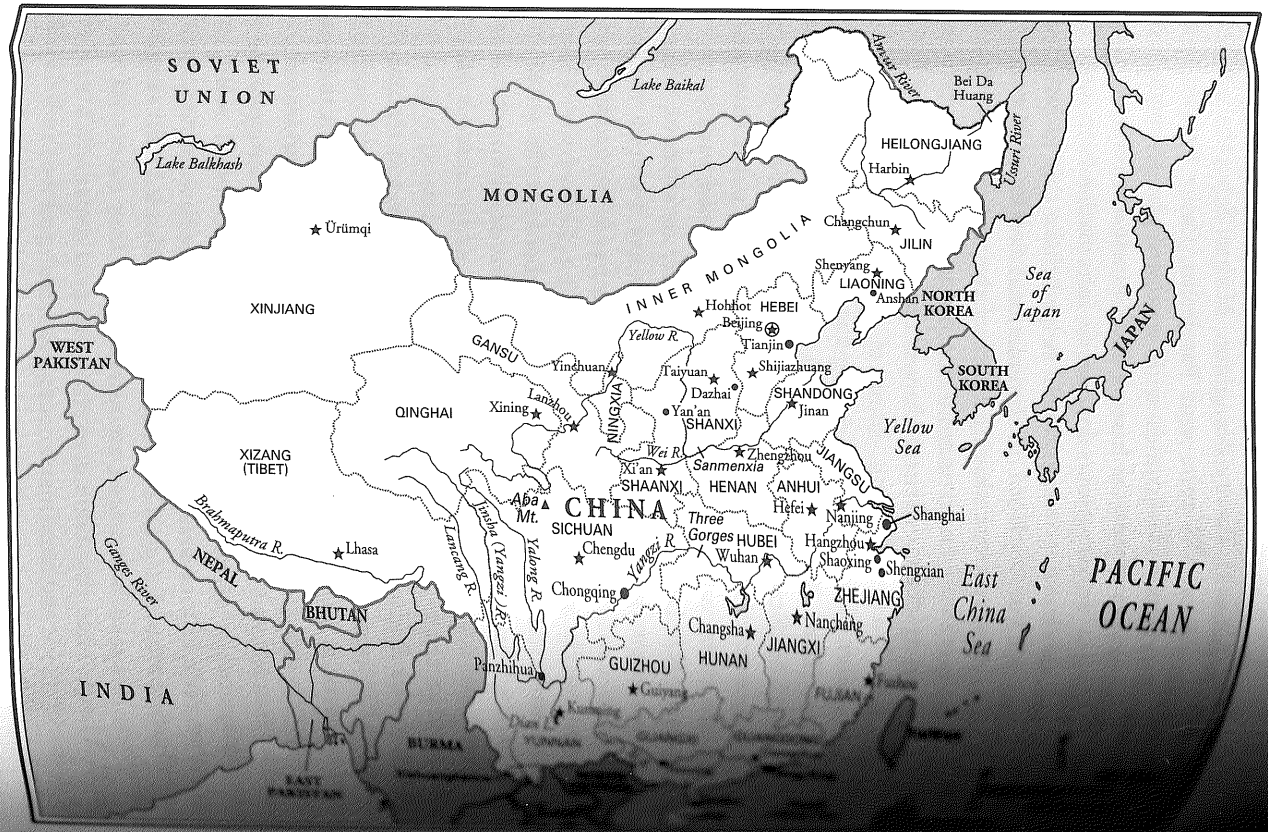
INTRODUCTION

Most environmental problems have roots in human relationships and are ultimately social, political, and cultural problems. Not all environmental degradation is human-induced: natural processes such as floods and droughts can also reduce the earth's productivity, and nonhuman species also alter and transform ecosystems. However, we human beings are far more effective than other species in altering our environments in an effort to satisfy our needs, and our very success often makes us a danger to others and to ourselves. Unlike other species, moreover, we make conscious, contestable choices about how resources are used, who uses them, and how we understand ourselves in relation to nature.

Maoist China provides an example of extreme human interference in the natural world in an era in which human relationships were also unusually distorted. The period illustrates the relationship between political repression and environmental degradation, demonstrating the tragedy of this interface under extreme conditions. The environmental dynamics of the period suggest a congruence between violence among human beings and violence by humans toward the nonhuman world. When the Chinese people mistreated each other through suppression of intellectual freedoms, tyrannical utopianism, political labeling, ostracism, punishment, terror, and forcible relocations, they also treated nature badly.

The political dynamics of the Mao period as they affected nature are complex, however; they do not simply involve coercion of political victims from among the urban intellectual or Communist elite. The degradation of the natural world in revolutionary China cannot be divorced from the often willing participation of millions of Chinese


SOVIET UNION
Lake Baikal
Amur River
Bei Da Huang
HEILONGJIANG
Harbin
Ussuri River
Lake Balkhash
MONGOLIA
Ürümqi
Changchun
JILIN
INNER MONGOLIA
Shenyang
LIAONING
Anshan
NORTH KOREA
Sea of Japan
XINJIANG
Hohhot
HEBEI
Beijing
Tianjin
JAPAN
WEST PAKISTAN
GANSU
Yellow R.
Yinchuan
Taiyuan
Shijiazhuang
SOUTH KOREA
NINGXIA
Lanzhou
Dazhai
SHANDONG
Jinan
QINGHAI
Xining
Yan'an
SHANXI
Yellow Sea
XIZANG (TIBET)
Wei R.
Zhengzhou
Sanmenxia
JIANGSU
Xi'an
SHAANXI
HENAN
ANHUI
Brahmaputra R.
Jinsha (Yangzi) R.
Aba Mt.
CHINA
Hefei
Nanjing
Shanghai
Ganges River
Lancang R.
Yalong R.
SICHUAN
Three Gorges
HUBEI
Lhasa
Chengdu
Yangtze R.
Wuhan
Hangzhou
Shaoxing
Shengxian
NEPAL
East China Sea
PACIFIC OCEAN
Chongqing
ZHEJIANG
BHUTAN
Changsha
Nanchang
JIANGXI
INDIA
Panzhihua
GUIZHOU
HUNAN
Guiyang
FUJIAN
Fuzhou
Kunming
YUNNAN
BURMA
EAST PAKISTAN

people, at all levels of society, whose traditional culture played a critical role in suppressing dissent and in promoting overambitious development projects. Confucian culture fostered obedience to superiors and a limited capacity on the part of both leaders and ordinary people to resist Mao's destructive utopian schemes; it thereby established a foundation for revolutionary excesses. On the other hand, traditional rural customs involved numerous sustainable practices of tilling, water control, nomadic use of grasslands, and sequential harvesting of forest products; local farmers were loath to relinquish these practices when imported "scientific" theories or revolutionary fervor held sway. While local values, knowledge, and practices ought not to be demonized or romanticized, their importance cannot be ignored; they made an important contribution to complicity in, and resistance to, Maoist development projects.

Few social experiments in history have had the scope and penetration of Chinese socialism. From 1949, when the Chinese Communist Party defeated the Guomindang, to 1976, when Mao died, Mao and the Communist Party sought to reengineer Chinese society by remolding human nature. Less well known is their effort to reshape the nonhuman world, with severe consequences both for human beings and for the natural environment. Numerous campaigns suppressed elite scientific knowledge and traditional grass-roots practices concerning the physical world, stifling dissent through political labels, ostracism, and labor camp sentences. In the early 1950s, Soviet-style plans for rapid development of heavy industry started the country down a path of environmental problems. By the late 1950s, Mao was repudiating economists' warnings of the dangers of overpopulation and exhorting the Chinese people to bear children so that, by dint of sheer numbers, they could increase production and withstand Western and Soviet threats. He thus created conditions for later coercive birth control policies and intensified struggles over land and resources. The 1958–60 Great Leap Forward raised farmers' hopes for national transformation through rapid industrialization of rural areas. Despite limited success in small-scale water conservancy and irrigation projects, the Leap failed to reach its goals, decimated China's forests, and caused widespread starvation. "Red experts" were in control, and the labors of rural "armies" were put at the service of utopian projects. Huge hydropower projects removed millions from their

homes but were useless or caused disastrous floods when poorly constructed dams broke.

During the Cultural Revolution, projects and campaigns affecting the environment were driven less by utopianism than by coercion and chaos. Centrally launched earth-transforming campaigns such as "In Agriculture, Learn from Dazhai" (the model agricultural production brigade) were applied nationwide, with scant consideration for local topography and climate. Mao's parable of imperialism and feudalism, "The Foolish Old Man Who Removed the Mountains," a tale about the effectiveness of concerted manual labor, was required memorization; it exhorted the people to reshape the physical world radically, one bucket at a time. In the leadership vacuum that followed Red Guard attacks on Party officials, natural resources became fair game for all. Involuntarily resettled into wilderness and sparsely populated areas, disoriented urban relocatees were induced to carry out reclamation activities that often degraded land toward which they had little sense of connection or stewardship. Trained scientists who uttered words of dissent or caution were often exiled or persecuted to death. Class struggle, which created such adversity in human relationships, thus also created severe environmental damage. The state's battle against individualism, feudalism, capitalism, and revisionism was also a battle against nature.

The Maoist adversarial stance toward the natural world is an extreme case of the modernist conception of humans as fundamentally distinct and separate from nature. If it is true, as some environmentalists argue, that a core cause of contemporary environmental problems is the human failure to see ourselves as part of nature, seeing nature rather as something external to be harnessed or overcome, then this period provides a significant warning about the dangers of such schismatic views and the policies they generate.[2]

Mao's voluntarist philosophy held that through concentrated exertion of human will and energy, material conditions could be altered and all difficulties overcome in the struggle to achieve a socialist utopia.[3] In concert with the militarization of other aspects of life, Maoist ideology pitted the people against the natural environment in a fierce struggle. To conquer nature, the power of ideas was unleashed through mass mobilization in political campaigns, often accompanied by the use of military imagery. Official discourse was filled with references to a "war

against nature." Nature was to be "conquered." Wheat was to be sown by "shock attack." "Shock troops" reclaimed the grasslands. "Victories" were won against flood and drought. Insects, rodents, and sparrows were "wiped out." This polarizing, adversarial language captures the core dynamic of environmental degradation of the era. The metaphor of a "war against nature" thus provides a compelling image for understanding human attitudes and behavior toward the environment in China during the Mao years. While this metaphor has characterized the human effort to dominate nature in other cases (such as the conquest of the American West, when the Army Corps of Engineers tried to "rationalize" the great rivers), the Chinese case involves a deprivation of human volition that makes it one of the most extreme cases of its kind.

The Mao era was nearly three decades long; China is vast and variegated, and its human population huge. As a means of explaining the dynamics of anthropogenic environmental degradation for such a great time span, space, and populace, four core themes can be used as analytical tools and organizing devices. They are: (1) *political repression,* including the repression of intellectuals, scientists, officials, and ordinary people who dissented from the Maoist vision of how humans should treat the natural environment; (2) *utopian urgency,* initiated by Mao and adopted by local leaders and peasants, to remold the landscape quickly and achieve socialism; (3) *dogmatic uniformity,* or imposition of "one-knife-cuts-all" [*yi dao qie*] models that ignored regional geographic variations and local practices toward nature; and (4) *state-ordered relocations,* or reconfigurations of society by administrative fiat, particularly those that sent people into "wasteland" areas in concentrated efforts to convert land into farmland, enhance military defense, and bolster national security by increasing the percentage of Han Chinese in minority areas. These characteristics and their environmental impacts, chronologically represented through a focus on successive political campaigns, provide the analytical and narrative structure for this book. Each of the coming chapters emphasizes one theme and one destructive political campaign. It should be noted, however, that the themes occur throughout the Mao period, with varying prominence, as will become clear.

Focusing on the theme of *political repression,* Chapter 1 treats the 1957 Anti-rightist movement and the political persecution of two distinguished thinkers, economist and Beijing University president Ma Yinchu, who warned China's top leadership about the country's

population growth, and hydro-engineer Huang Wanli, who cautioned against a Soviet-influenced plan to dam the main stream of the Yellow River. Chapter 2 discusses *urgency to achieve utopian socialism* in connection with the 1958–60 Great Leap Forward, when the demand for fuel for "backyard furnaces" caused massive deforestation and Soviet-influenced agricultural schemes impoverished the land, resulting in the greatest human-created famine in history. *Dogmatic uniformity,* or central planning that ignored regional variation and local practices, provides the focus for Chapter 3, describing the misapplication of the Dazhai model during the early years of the Cultural Revolution, the lake in-filling, deforestation, and erosion resulting therefrom, and the human suffering created when the Chinese people were asked to emulate the ambitious projects described in Mao's essay, "The Foolish Old Man Who Removed the Mountains." Chapter 4 discusses the *state-ordered relocations* of the war preparation campaign of the late 1960s and early 1970s, when strategic industries were transferred by administrative fiat to the interior to form a defensive "Third Front" against the American "imperialists" and Russian "revisionists," and millions of "educated youth" were sent to the countryside and frontiers. This phase represents the climactic expression of Mao's war against nature, both literally and metaphorically, as all China came to resemble an army in a state of military alert, and the cult of the People's Liberation Army and Marshal Lin Biao, who was then Mao's designated successor, reached its height.

Military images – discipline, mobilization, regimentation, attack, and redeployment – carry the theme of the "war against nature" into the narrative. Social reorganization along military lines fueled much of the Mao-era drive to realize utopian socialism. With varying degrees of intensity, people were made to work collectively, eat in public dining halls, and sleep in dormitories. Civilians were often organized into detachments, regiments, platoons, brigades, and teams; even nonmilitary leaders were sometimes referred to as commanders, colonels, and lieutenants. During the Cultural Revolution, civilians and soldiers alike often wore olive green military uniforms. Both radical activists and political victims were induced to "volunteer" to relocate to frontier areas and remote rural areas of the interior, where they often slept in single-sex barracks and prepared for war. They dug air-raid shelters and were awakened during the night for

military drills. In major cities, underground rivers were diverted to provide tunnels for use in war. During the height of the cult of Mao, there was strong social support for this state-led reorganization, with virtually no room for dissent. The notion was propagated that China would pick itself up after its long history of humiliation by imperialist powers, become self-reliant in the face of international isolation, and regain strength in the world. Since China lacked modern technology and wealth, the vehicles for its transformation were to be brute labor, defeat of internal enemies through class struggle, collective remolding of human nature through self-criticism, and study of Marxism–Leninism–Mao Zedong Thought.

The militarization of society had multiple purposes. It was one strategy in the Party's attempt to break up the traditional Confucian family structure and create a "new socialist man." It was part of an effort to use mass mobilization efficiently to overcome China's poverty and backwardness, deriving motivation through fear of real and imagined threats to China's security from without and within. "Continuous revolution" was a central tenet of Mao's brand of socialism, requiring constant social upheaval and reorganization. Finally, militarization was a coercion mechanism. Military-style social reorganization facilitated Party control and kept people too preoccupied with the transformations of their individual lives to question or resist Mao's rule. Over the course of the Mao years, the enemy shifted: it was variously said to be the Guomindang, the imperialist West, the revisionist Soviet Union, or land-hungry India. Meanwhile, the struggle against perceived internal threats from counterrevolutionaries, "rightists," and other "black" elements was at times so convulsing that it threatened to bring Chinese society into a state of collapse.

The contrast between the militarized Maoist approach toward the conquest of nature and traditional Chinese values of harmony and sustainability is sharp. Historically, wise leaders were considered to be those who conducted the human–nature relationship well, and legal codes from the Qin (221 B.C.–206 B.C.) to the Qing dynasties (A.D. 1644–A.D. 1911) contain provisions reflecting environmental concerns, such as those prohibiting poaching young animals and birds in springtime, restricting deforestation, and prescribing how land was to be used on hillsides.[4] The mulberry tree/fish farm system is often considered a model of sustainable agriculture, while terraces are often perceived to be

efficient ways to maximize scarce arable land. These themes represent only the best-known examples of Chinese nature philosophy.

In traditional China, there were at least three major schools of thought about how humankind should behave in nature: a Daoist tradition that tended toward accommodation to nature's way, a Buddhist tradition of reverence for all living beings, and a Confucian tradition that actively sought to manage, utilize, and control nature.[5] These varied understandings of nature, by turn adaptive, respectful, and confrontational, are almost as old as Chinese civilization. Of the three, the anthropocentric Confucian tradition, which leans toward mastery of nature, has been by far the dominant one. While Confucianism has many principles prescribing what amounts to "wise use" of natural resources, its emphasis is on the regulation and ordering of the nonhuman environment for the good of human society.

China's geographical conditions help explain these preoccupations, for the country has long been at the mercy of natural disasters. Ancient legends speak of floods and droughts; China's legendary first ruler, Yu the Great, is said to have built hydro-projects for flood control more than four millennia ago. Vulnerability to the forces of nature helped establish the importance of water conservancy projects and granaries to ward against famine as primary responsibilities of imperial administrators. Early successes of engineering and coordination in the struggle against nature can be seen in massive waterworks projects such as the Dujiangyan irrigation works, built during the Qin dynasty, and the Grand Canal, built in the seventh century to link North and South China.

Despite China's many successes in tempering nature and molding landscapes to make them more suitable for human life, environmental degradation is far from a recent Chinese invention. A powerful national drive toward expansion, mastery, and resource exploitation, fueled by population growth and new technologies, has contributed for millennia to widespread destruction of nature and ecosystems. China's efforts to reshape lands and waters, open up forests, and feed a growing population extend into prerecorded time. A pattern of "exhausting the earth" through deforestation, erosion, siltation, desertification, land reclamations, habitat loss, and human-caused extinctions has been noted for centuries and has recently been the subject of innovative scholarly studies.[6] Even the notion of battling against nature, which provides the central image for this book, can be found in late imperial times:

> The local peasants in defence of homesteads and of farms
> Willingly commit themselves to contending with the waters:
> From west to east, and east to west, along both river margins,
> Dykes are constructed, strand by strand, the way they re-weave hawsers.[7]

By the Mao years, China's most fertile and readily arable land had been thoroughly transformed by centuries of human use, and large areas of China were parched and eroded from deforestation and overexploitation. Extinctions and pressures on rare species were already common. By the early eighteenth century, for example, tiger attacks were no longer recorded in Lingnan in southern China, as the tiger habitat had been destroyed.[8] Thus, official public values of sustainability and human–nature harmony did little to protect China from a pattern of overuse and destruction that predated the Mao years by millennia.

The Mao-era effort to conquer nature can thus be understood as an extreme form of a philosophical and behavioral tendency that has roots in traditional Confucian culture. Many of the themes sounded in this book – including state-sponsored resettlements and waterworks projects, extensive and excessive construction of dikes for land reclamation, political campaigns to change agricultural practices, and environmentally destructive land conversions in response to population shifts – can be found in imperial times.[9]

Despite such continuities with pre-Mao practices, however, the relationship between humans and nature during the Mao era was distinctive in Chinese history. Maoism rejected both Chinese tradition and modern Western science. The effort to conquer nature was highly concentrated and oppositional, motivated by utopianism to transform the face of the earth and build a socialist paradise, and characterized by coercion, mass mobilization, enormity of scale, and great human suffering. The articulation of Mao's war against nature is striking for its overtly adversarial expression and disregard of objective scientific principles, while its implementation stands out for focused destructiveness and mass coordination. Maoism strengthened problematic aspects of Chinese tradition, such as the tendency to see nature through a purely utilitarian lens. At the same time, through suppression of local knowledge, it undermined aspects of traditional practice that fostered sustainable relations with nature. In these respects, the Mao era represents a

sharp departure from what came before and from what followed with the economic reforms.

A Chinese scholar from Yunnan province, a man in his sixties whose life has been buffeted by the numerous political campaigns of the Mao years and who has observed their environmental consequences at close hand, spoke in confidence to me about the role of Mao. He voiced what many thoughtful intellectuals of his generation say in private but cannot publish in the current political climate. His comments, as follow, are worth quoting at length, for they touch on many of the themes that will be treated in depth in the coming pages:

> Under the influence of the Soviet Union and his own peasant background, Mao adopted a series of unsuitable policies. Mao was always struggling in war, so he continued to struggle after the war ended. Class struggle – everything was a struggle. In his youth, he wrote a line of poetry, "To struggle against the heavens is endless joy, to struggle against the earth is endless joy, to struggle against people is endless joy" [*Yu tian dou, qi le wu qiong, yu di dou, qi le wu qiong, yu ren dou, qi le wu qiong*]. His whole philosophy was that of struggle. Not everyone in the Party thought as he did. Zhou Enlai opposed the population policy. Peng Dehuai opposed the Great Leap Forward.[10] Destruction of nature during the Mao years was connected to the cult of Mao.
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> Traditional Chinese philosophy emphasizes moderation and adaptation, "Harmony between the Heavens and Humankind" [*Tian Ren Heyi*]. But Mao took another view: "Man Must Conquer Nature" [*Ren Ding Sheng Tian*]. For him, building China meant transforming China's face. To improve the lives of the poor, nature should be defeated [*zhansheng ziran*]. Mao didn't respect nature. This struggle mentality was there from the beginning, with Marxism. Marxism rests on struggle.
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> Although Mao was supposedly a peasant, he had little farming experience. Mao's attitude toward nature was an oppositional relationship. It influenced China for decades. Population policy and national construction were influenced by his military mentality. With respect to population, Mao said, "With Many People, Strength is Great" [*Ren Duo, Liliang Da*], and he suppressed those who disagreed with him. The Great Leap Forward of 1958 did not

respect the laws of nature or science. Mao wanted to catch up with Great Britain in steel production, and many trees were cut down to fuel furnaces. By 1959, the people had no grain, and in 1960 and 1961 there was a great famine. So Mao said, "open the wilderness to plant grain" [*kaihuang zhong liangshi*], and it was another disaster for the forests. The forests were cut without restraint so as to plant grain in the mountains. During the Cultural Revolution, there were even more crazy things. Everything was collective and nature belonged to the country, so there was no individual responsibility to protect nature. Tradition was destroyed. Because of the "Take Grain as the Key Link" policy in agriculture, only grain was planted and other crops were destroyed. Officials were ordered to cut down fruit trees. If they resisted, it was terrible. Some cut down trees with tears in their eyes. The third great cutting took place in 1980–82, after Mao's death. The farmland that had been state-owned was contracted out to families, as were the forests. But people feared they wouldn't have the right to use the land for long, so there was terrible cutting.[11] So we can speak of "three great cuttings" [*san da fa*]: the Great Leap Forward, the Cultural Revolution, and the early 1980s.

Because of their lack of a democratic, scientific approach, and their philosophy of struggle, the leaders didn't know how to build China. They had ideals, but if you struggle against your own people and against nature, and don't allow people to express their opinions, it suppresses people and harms nature.

As this experienced and thoughtful Chinese intellectual indicates, the changes in attitude toward nature of the pre-Mao, Mao, and post-Mao periods can be conveyed, in broadest outline, by the set phrases of which Chinese are so fond. Traditional China is associated with *Tian Ren Heyi* [Harmony between the Heavens and Humankind]; this core apothegm yielded in the Mao era to *Ren Ding Sheng Tian* [Man Must Conquer Nature]. In reform-era China, both have been largely supplanted by the popular saying, *Yiqie Xiang Qian Kan* [Look Toward Money in Everything], as commercialization and the market have become predominant. Under Mao, conventional commitments toward mutual accommodation in human relations, and between humans and nature (however ineffective in practice) were publicly abrogated, and a

"war" to bend the physical world to human will was launched. This war continued in altered form after the death of Mao, as the market replaced ideological mobilization as a driving force for the transformation of nature. As we will explore further in the final chapter, a vacuum in shared public values left people eager to seek meaning in material consumption and the pursuit of wealth. Although many rapidly developing societies engage in environmentally damaging behavior, the destructive influence of the Mao years on traditional values has facilitated China's plunge into the current phase of materialistic exploitation of nature. This story is not, therefore, merely a cautionary tale of historical significance, but also an exploration of the social and historical roots of behavior patterns that affect environmental health today, not only of China but of the world.

Since this book often stresses public discourse and Maoist philosophy, it must be cautioned that attitudes and values do not translate directly into policy or behavior. Other powerful influences such as geographic conditions, the inertia or activism of institutions, enforcement capabilities, population pressures, and economic incentives also shape the human–nature relationship. Clearly, philosophical traditions espousing harmony with nature have not saved other Asian countries from degrading the environment, even when they are embraced by the state; Asia's polluted and congested cities and exhausted natural resources warn against an easy equation between beliefs and behavior. However, values, attitudes, behaviors, and policy do interact and influence each other over time, even as they are constrained by the institutional structures and cultural frameworks within which they arise; behavior and policies can be indicators of attitudes and values, and vice versa.[12] In essence, this book is about how Maoist values came to dominate and govern the human–nature relationship, and about what happened as a result.

Environmental degradation under Mao can be linked to such problems as population explosion, arable land limits, poverty, misguided policies and mistaken beliefs, and irrational price structures due to state ownership. However, the underlying dynamics of such degradation lay in a nationwide war against nature expressed through a pattern comprised of the four motifs described above: political repression, utopian urgency, uniformity that ignored regional variation and time-tested local practices, and state-sponsored relocations into wilderness areas.

The militarization of Chinese society in a war against foreign and domestic enemies was matched by a militarization against nature that helped promote modernization projects that transformed the landscape and degraded the environment. This militarization included reorganization of society through attacks on traditional culture and the family structure.

Factors that allowed Maoism and political struggle to take root included a traditional culture of patronage and obedience to authority, a coercive organizational apparatus, the aspirations of the Chinese people to end their suffering at the hand of man and nature, and the disproportionately influential decisions and actions of a few individuals, particularly Mao and his loyalists. China's historically strong, centralized imperial system provided a generous entryway for Leninist party organization and its propensity for centrally orchestrated political movements. At the same time, in many parts of China, clan-based village institutions provided the foundation for a complex and personalized range of local and regional power centers that sometimes promoted and sometimes resisted the dictates of a center that was itself often wracked with dissension. A fear of lagging in political fervor worked in concert with belief and hope that Maoist development ambitions would at last raise China out of its poverty and achieve socialist paradise. These were key elements in a complex set of interactions between humans and the natural environment during which Mao-era utopian modernization projects were variously contested, implemented, and distorted by the Chinese leadership and people.

The effort to supplant traditional values and behavior with mass campaigns and Marxism–Leninism–Mao Zedong Thought represented an unprecedented intervention by the state, eclipsing previous attempts to harness nature and accelerating the degradation of China's natural resource base. Environmental degradation under Mao was likewise connected with Mao's growing sense of his own mortality as he weakened physically. His urgent wish to mold China to his revolutionary vision rode roughshod over tradition, politicizing agricultural and industrial activity and exacerbating environmental degradation. China's uneasy foreign relations, and Mao's conviction that China was surrounded by sworn enemies, led him for security reasons to promote imbalanced industrial development in China's remote areas. The ideology of Marxism–Leninism–Mao Zedong Thought, with the conviction that

nature was conquerable through military mobilization, attack, and victory, shaped the human–nature relationship, as did a traditional culture that provided the conditions under which such models and leaders could take hold.

It should be noted that revolutionary China's environmental problems resulted primarily from overextraction of resources, impoverishment of the land's productivity through intensive farming schemes, and drastic reshaping of the physical landscape, often beyond the ability of ecosystems to recover or adapt. An exploding population and massive human transfers into wildlife habitat altered fragile ecosystems, while overhunting and overfishing further pressured the nonhuman living world. Intense efforts to increase arable land failed to compensate for declines in agricultural productivity due to other unsustainable activities such as deforestation, excessive well-digging, and reclamation schemes that led eventually to desertification. A 1982 *Beijing Review* article acknowledged, for example, that between 1957 and 1977, China had a net loss of 29 million hectares of farmland despite reclamation of 17 million hectares from "wasteland."[13] According to Qu Geping and Li Jinchang, "From 1957 to 1980, the annual net loss of cultivated land averaged 545,000 ha [hectares]."[14] Moreover, because of time lags between activities that degrade the environment and their consequences, subsequent generations are still paying for the effects of Mao's policies. Ironically, Mao's failure fully to realize his goals of industrialization may have spared his era some of the pollution that has become so severe since the economic reforms. Some have argued that, to the extent that it slowed down economic development, Maoism actually delayed degradation from rapid industrialization.[15] Mao's well-known vision of a Tiananmen Square filled with magnificent smokestacks is surely closer to being realized today than it ever was under his watch. Nonetheless, industrial contamination of air and water became pronounced in many areas under Mao. Party planners urged construction of heavy industry as a focus of development policy during the First Five-year Plan, while during the latter Mao period, industry was promoted in rural areas as a way to eradicate social differences, carry out a policy of regional and national self-reliance, and protect national security.[16]

Mao's death in 1976 and the institution of deep reforms a few years later brought a sharp change in the character of China's environmental problems, as explosive economic growth created what some analysts

have called an environmental crisis.[17] Economic growth has supplanted Maoist authoritarianism as a central force in China's growing environmental difficulties. But without taking social conditions and historical background into account, economic growth alone cannot account for the high levels of environmental degradation that have plagued the country in recent years. The reaction to the Mao years has promoted disillusionment, uncertainty over land tenure and other property rights, and problems with corruption and enforcement that have often exacerbated the negative effects of industrialization and deterred investments in sustainable development. The Maoist experience continues to affect contemporary political life through the people's "crisis of belief" in socialism, their mistrust of Communist Party leadership, and their turn toward materialism, short-term profits, and apparent venality in human relations, all of which encourage rapid and unsustainable exploitation of nature. Despite China's public commitment to resolving its environmental problems, the shadow of the Mao era hangs over China's environmental policies, including the Three Gorges Dam on the Yangzi River, which some consider to be a monument to Communist Party hubris.

This effort to explain the dynamics of the environmental experience of the Mao years can be seen as part of an ongoing concern over the primary causes of ecological destruction.[18] Many contend that overpopulation, or exceeding carrying capacity, is the critical factor, whereas others emphasize industrialization and use of fossil fuels, arguing that technology facilitates depletion of natural resources at rates beyond nature's ability to replenish itself.[19] Paul and Ann Ehrlich have combined these elements into a famous IPAT equation: Impact = Population × Affluence × Technology.[20] Green economists emphasize faulty pricing, arguing that destructive practices can be curbed through valuations that include formerly ignored environmental services such as carbon-fixation and pollination, and through the use of accounting methods that credit conservation and debit degradation.[21] Others focus on poverty, desperation, and ignorance in the developing world, or on overconsumption in developed countries. A materialist school, drawing on Marxist insights, focuses on injustices in land and resource distribution and on position in the world economy, arguing that land reform, equal access to resources, and international justice can solve environmental

problems. Disagreement over the role of ideas finds some suggesting that an ideology of greed and quick profit associated with capitalism has worked against sustainability.[22] Others contend that Judeo-Christian anthropocentrism has steered humankind toward an ethos of domination of nature, whereas biocentric traditions that respect all life, or ecocentric traditions that see humans as part of complex organic and inorganic systems, point the way toward a more harmonious path.[23]

For those who focus on human relationships, some factors mentioned above may be understood as proximate causes; ultimate causes can be better understood by examining social, political, and cultural issues. This book attempts to describe a contextual ecology that seeks explanations for environmental degradation in a complex interplay of political relationships, social structures, economic and geographic conditions, cultural traditions, linguistic understandings, and historical influences. During the Mao years, the core dynamic, delineated in the following pages, lay in the relationship between two sorts of mistreatment: the misuse and abuse of humans through exploitation and political repression, and the misuse and abuse of nature through misguided policies and interference with local practices.

Environmental case studies, whether historical or contemporary, enhance our understanding of both particular and general ways in which the human–nature relationship has been constructed. Identifying behavioral themes – such as the Mao-era effort to conquer nature through political repression, utopian urgency, dogmatic formalism, and state-sponsored relocations – may foster an inquiry into whether these themes occur in other settings, and if so, whether they can be understood as part of broader patterns. The Mao era is unique, with its specific set of historical factors, ideological influences, utopian dreams, and coercive political structures. However, many of its themes, such as the dangers inherent in constructing the human–nature relation in oppositional terms, shed light on other cases, including China's own imperial past and reform-era present, as well as numerous regions beyond China's borders. The transparency of Mao-era human–nature dynamics thus makes the period valuable both for insight into China's environmental past and present and as a starting point for reflection on environmental degradation in other societies and eras.

An additional preliminary reflection concerns the role of Mao Zedong. For many years, it was believed that the Chinese Communist

Party controlled the Chinese people from above, through intrusion into the totality of every aspect of life and thought. With the opening of China to foreign researchers after Mao's death and the publication of fieldwork and memoirs by Chinese scholars, this view has been discredited. The model of a top-down relationship between center and grass roots has yielded to one characterized by interaction and influence among numerous political actors at many levels, with centers of power and interests throughout the bureaucratic hierarchy. Policies and campaigns were distorted and rewritten in the service of rivalries and alliances, and were often resisted and modified according to local political conditions. While this book often focuses on the critical role of Mao and Maoism, I am not arguing that Mao alone was responsible. True, without Mao, environmental degradation in the era would not have taken the form that it did, but the implementation of his ideas varied according to the locale and the individuals living there. People resisted political repression and irrational policies that threatened their freedoms and livelihoods as best they could, even as they promoted such repression and policies when it furthered personal goals. Even at their weakest, peasants have always had "weapons" of passive resistance.[24] The central Party–state was not the only power center; government bureaucracies at various levels implemented, interpreted, and sometimes distorted policies to further their own interests.[25]

While the picture is more complex than that of a coercive system manipulating a pliant people into utopian or revolutionary insanity, there were powerful limits to resistance under Mao. As the story of the degradation of the environment shows, more often than not, people had little say in their fates or their behavior. The importance of these limits in creating conditions for environmental and social disaster has been suggested by James C. Scott, who has identified four key elements in some of history's greatest disasters of social engineering (including Soviet collectivization and Tanzanian "villagization"): the administrative ordering of society by the state, faith in modernist ideals of progress, an authoritarian regime prepared to use coercion to further the modernist project, and a civil society too weak to resist. Scott argues that while the former two elements can be found in most contemporary societies, the addition of the latter two provides a recipe for catastrophe.[26] In Maoist China, all four elements were present, and they actively contributed to the period's environmental disasters. By the late

1950s, political repression had silenced much dissent; utopian urgency, set in motion by Mao and supported by the desires of local leaders and people, swept away the voices of more realistic leaders and pulled most ordinary Chinese into the Great Leap Forward; dogmatic formalism in the implementation of the model Dazhai Brigade, which transformed a distinctive local landscape of ravines and rocky hillsides into terraces and fields, made it difficult to oppose the imitation of Dazhai's practices despite their frequent lack of relevance to local conditions; finally, state-sponsored relocations during the War Preparation campaign clearly demonstrate the coercive aspects of Mao-era environmental behavior, and the link between the degradation of nature and the Communist Party's willingness to reconfigure society by fiat.

The official success stories of these campaigns hide another narrative. Policies went woefully awry and local people resisted as well as collaborated. Behind the public discourse of battles and conquest, bumper harvests, and victory lie tales of displacement and human suffering, as well as a toll on nature still observable as in-filled lakes, silted rivers, increased flooding, and denuded and eroded hillsides. Stories of repression and coercion, as well as of cooperation and complicity, tell different versions of the truth than do official narratives of revolutionary sacrifice and glory. Although these stories show the strength of the Party's organizational control apparatus, they also reveal how a culture that stressed collectivity, social harmony, hierarchy, and obedience to authority sometimes acquiesced to, or even fostered, violations of the human and natural world.

Finally, it must be noted that although this is a book about the human–nature relationship under an authoritarian socialist system, the environmental records of capitalist and socialist systems indicate that neither form of government is inherently good or bad for the environment. Positive and negative examples of environmental behavior may be found across a range of political systems. Several social welfare states (particularly the Scandinavian countries) have impressive environmental records, while some capitalist countries, including the United States during its "conquest" of the West, have distinguished themselves for destruction of nature.[27] Strong property rights may also protect the right to degrade. While public property ownership, with its frequent link to public indifference and lack of sense of stewardship, is relevant to excessive resource exploitation during the Mao years, even more

significant is the widespread disruption of land connections through forced migrations. The "tragedy of the commons"[28] may often have less to do with ownership than with lack of connection, responsibility, and good governance. Particularly important is whether the relationship to the land is perceived to be a lasting one. Elements often *associated with* democracies – such as intellectual freedom, political participation, government accountability and transparency, and local self-governance – are more important to sound environmental behavior than the form of government per se.

Environmentally responsible behavior appears to involve restraint and sacrifice. If human excess has caused the current level and rate of degradation, as some have argued, curtailment of human freedom to despoil and exploit seems to be called for.[29] This viewpoint implies a tension between Western-style political freedoms and environmentalism; Singapore, a politically, if not economically authoritarian state, can point to one of the greenest records in Asia. However, Singapore may be the exception that proves the rule. While coordination and central control indeed may have beneficial effects on the environment, this book aims to show how those tools can become dangerous when they fall into the wrong hands. Clearly, much remains to be learned about what modes and degrees of state involvement and intervention on environmental issues are desirable.

In general, the negative example of the Mao years points toward the importance of political participation, public deliberation and oversight, intellectual freedom and rule of law, respect for regional variation and local wisdom, and land tenure systems that give people an understanding of their responsibility for the land and of a shared future with it. These principles may not in themselves suffice to shift China, or any nation, from the destructive path that the growing global human population is pursuing. Nevertheless, more responsible behavior may be promoted by free speech, participation in land-use decision making that respects the principle of subsidiarity, development of civil protections and enforceable regulatory frameworks, and respect for learning and information. Clearly, the importance of these principles as conditions for environmental sustainability is not limited to China alone.

As this book's final chapter will show, China is increasingly concerned with pollution, water and food supply, deforestation, soil erosion, desertification, biodiversity loss, and a host of other environmental

issues, and is attempting to take strong measures to deal with them. The four core themes around which this book is structured have become attenuated or transformed. Political repression has decreased, and there is more room for dissenting views. Urgency is no longer "utopian" – its source lies in the marketplace. Localities have more freedom of self-governance and are less likely to be forced to apply inappropriate development models to their own landscapes. The Chinese people are at far greater liberty to choose their occupations and places of residence. Nonetheless, the elements that contributed to environmental degradation under Mao remain present, if in different guises and to different degrees. They continue to contribute to China's environmental problems even as powerful new factors such as commercialization and the rush to development have emerged to hasten destruction of the natural world.

The issues raised by the Mao years thus remain deeply relevant. China's contemporary environmental problems are still linked to its authoritarian system, recent history, cultural traditions, and national character. The dynamics of the human–nature relationship in China under Mao provide important lessons for China to consider in its struggle toward a more "sustainable" relationship to nature. As we shall see in coming chapters, repression of expression and other intellectual freedoms, urgency to achieve progress, suppression of local traditions, and disruption of connections to the land exacted an enduring toll on the human and natural worlds. Maoist coercive, state-sponsored experiments for social improvement came at a dangerously high price.