Upstream, Downstream, China, India: The Politics of Environment in the Himalayan Region

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There is a long history of debate about the changing Hindu Kush-Himalaya (HKH) environment, but with important disjunctures between research, international environmental agendas and institutions, and various different domestic policies at the national level. Within academe, a retreat from the Theory of Himalayan Environmental Degradation (THED) since the late 1980s has not been reflected to any degree in domestic policy agendas of India and China. Here, we make a comparative analysis of the "upstream downstream" debates (which claim that the resource use practices of upstream users have serious detrimental costs to those downstream) in two of the most powerful and populous countries of the HKH region: India and China. We find that the rejection of THED is, on the whole, contradicted but sometimes appropriated by different national players within important political arenas, and in this sense it becomes a discursive pawn in "games of the state." Parts of the retreat from THED are simply ignored, and others are actively resisted. Set against these discursive maneuvers within domestic politics, the academic "state of the game" has undergone profound changes, shifting away from technically derived and science-led imperatives of environmental management toward issues of plural environmental truths, environmental justice, and hybrid knowledge. However, national debates have taken their individual routes, shaped largely by national political events. Thus, the poststructuralist turn in the social sciences in the academy and in some policy arenas, too—the deconstruction of one grand environmental narrative after another (e.g., deforestation, the wood fuel crisis, overstocking), the faltering claims of positivist science to deliver truth, and growing attacks of uncertainty—all this has had a contingent, but usually peripheral, impact upon national academic, political, and policy agendas in China and India. Some conclusions about policy studies are drawn. *Key Words: environment, politics, policy, science, epistemology, political ecology, land tenure, forestry, natural resources, soil erosion, natural disaster, floods, Hindu Kush-Himalaya, China, India.*

Himalayan Environmental Crisis—State of the Game or Game of the State?

This is an account of an imposing environmental narrative of some seventy years standing within Asia, developed and refined during the past thirty years by international academic research, and then rapidly rejected from the mid-1980s within international academic and policy circles, though not within most national ones. In this article, we trace parallel national academic and policy debates, both highly political, in two major Asian countries, India and China. We examine the interactions of the international and the two different national discourses about this environmental narrative, focusing on disjunctures, contradictions, and appropriations between the national and international. We draw conclusions about the role of science in environmental policy in two national settings and the ways in which national and subnational politics shape and are shaped by these seemingly technical issues within the environmental narrative. Finally, the rational model of policymaking ("truth," here the scientific substance of the environmental narrative, talking to "power," or policymakers) is critically examined.

In briefest outline, the Theory of Himalayan Environmental Crisis (THED) asserts that anthropogenic or accelerated erosion is a serious and general problem in the steep-sloped and fragile natural environments of the Hindu Kush-Himalaya (HKH) region (see Figure 1). It is driven by population growth of humans and livestock and less-than-effective agricultural technologies of local resource users. Extension of cultivation onto steeper slopes, clearance of forest both for agricultural purposes and (subsequently) overgrazed pastures, and unsustainable use of the forest for fuel wood and fodder have been identified as the major land management practices which have caused accelerated erosion, sedimentation of river beds, and increasingly severe flooding downstream. The main rivers allegedly bearing the sins of upland resource users in India are the Kosi (and its upper tributaries), Brahmaputra, Sutlej, Beas, Ganges, and Upper Yamuna; and in China the Yangtze and other rivers in
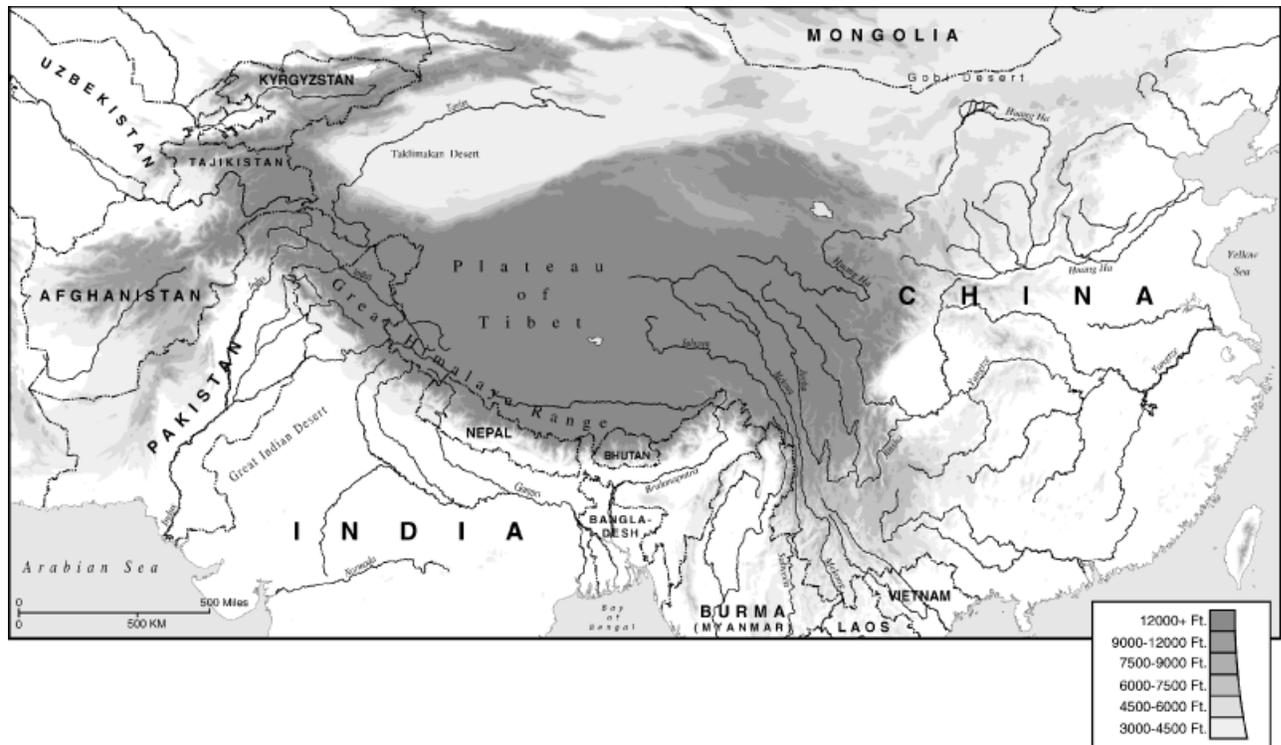
Figure 1. The Hindu Kush Himalaya (HKH) region and rivers.

Yunnan, and south and southwestern China including the Red River, Nu River, Brahmaputra, Gar Zangbo, Salween, Mekong, Sang Qu, and Black Rivers.

THED must be distinguished from other, more wide-ranging and holistic diagnoses of environmental degradation and its socioeconomic causes. Studies of environmental change in the HKH are legion, although the range of pessimism is considerable, from predicting imminent environmental catastrophe (e.g., Eckholm 1976) to admitting some local environmental problems that natural resilience and human adaptation can solve. For example, Turner, Kasperson, and Kasperson (1995) and Kasperson, Kasperson, and Turner (1999) define what is meant by the key term "criticality," and identify nine exemplary regions in the world that exhibit criticality, of which one is the Nepal Middle hills (Jodha 1995). They identify a condition of "endangerment," not "criticality," for the HKH region as a whole and note "continued environmental degradation and some adjustments that are lowering the rates of degradation" (Turner, Kasperson, and Kasperson 1995, 532). Further, they note that, as yet, "no indication exists of an impending overall collapse of the regional human use-environment system" (p. 532). Their view, therefore, is inconsistent with THED. However, it can be said that THED is only one particular aspect of the wider issues of environmental

change, although an extreme one. Also, there is a degree of overlap in the relative seriousness with which different writers view environmental change in the HKH region. Turner, Kasperson, and Kasperson (1995) view this region as exhibiting endangerment, but THED implies a broader and more imminent crisis. The upstream-downstream issue on which this article focuses is a central but not exclusive aspect of THED. We take the view that the HKH region is suffering from a degree of environmental degradation, poverty, and vulnerability (in terms local people would recognize and agree with) that may be quite widespread, but spatially patchy, and that there are much smaller areas that may have reached a stage of endangerment using Turner and colleagues' criteria, but that predictions of a more general environmental catastrophe and the existence and future aggravation of THED are overplayed.

THED was based largely on work in the natural sciences (see a well-summarized account by Rieger 1978/9), but its explanations in terms of human causation drew upon notions of backwardness, technological incompetence, and neo-Malthusianism. Developed during the 1970s, THED became the dominant environmental narrative of the HKH region in the international arena for at least two decades. Still, an increasing stream of evidence started to question this hypothesis (Blaikie and

Brookfield 1987), and it was marshaled in a remarkable book by Ives and Messerli (1989), which drew upon a conference organized by these authors and other like-minded skeptics of THED at the Mohonk Mountain House in New York in 1986 (titled *The Himalaya-Ganges Problem*). No less than a paradigm capsize was brought about, and THED became one of the first grand environmental narratives to be comprehensively interrogated and, in large part, rejected. A reading of back numbers in *Mountain Research and Development* 1984–1988 and other international journals shows that the established repertoire of studies indicating accelerated erosion due to deforestation and backward agricultural technologies had ground to a halt by 1988 in the international arena, though it continues to the present in India and China. Most of the evidence was drawn from the natural sciences, and in barest outline, the broad conclusion was that the anthropogenic causes of erosion had been grossly overplayed and they were dwarfed by natural causes (a high natural rate of erosion due to rapid orogenic uplift leading to mass wasting and large scale, episodic delivery of sediment to river systems, and high natural erosivity). Upstream farmers and pastoralists were therefore largely (though not entirely) exonerated by most international researchers from any visitations upon downstream victims of flood, sedimentation of reservoirs, rising river beds, accelerated bank erosion, and sudden changes in river alignment (see also post-Mohonk writings on the subject: Chapman and Thompson 1995; Höfer 1998; Calder 1999; Zurick and Karan 1999, and a review of the research of the United Nations University in the region, Ives, Messerli, and Jansky 2002).[1] However, we do not imply that the Mohonk Conference and the above subsequent publications replaced falsehood with truth, but only that many of the earlier scientific generalizations of THED (and some of the more popular representations) had seriously underestimated the complexity and spatial variability in the region, and had overgeneralized and overdramatized the sense of environmental crisis (see, for example, the chapter in Eckholm 1976 titled "Refugees from Shangri-La"). A second point is that THED had been well established in India (and other countries with mountainous or hilly territories in the HKH region) since the beginning of the twentieth century in more technocratic terms that emphasized the vital role of the conservation of forests in watershed protection, which had been compromised, not so much by local forest users but by forest contractors (Punjab Erosion Committee 1932; Farooqui 1997; and the Forest Act of India 1894, which stipulated the importance of protecting forests on hill slopes in the face of deforestation).

These findings resonated with a wider change of mood in the social sciences, which had more far reaching implications for environmental narratives in other varied social, political, and environmental circumstances. The wood fuel crisis, desertification, and the overstocking controversy in subtropical Africa were other narratives that found themselves under attack from both social and natural scientists (Leach and Mearns 1996; Leach, Fairhead, and Amanor 2002). In the case of THED, Thompson, Warburton, and Hatley (1986) exposed the often-ludicrous degree of scientific uncertainty surrounding estimates of the rate of soil erosion, deforestation, and wood fuel requirements in the HKH region. The authors deftly exposed the institutional and political origins of so-called scientific measurement and proposed that "the institutions *are* the facts" and suggested, "Do not ask what the facts are, ask what you would like them to be" (1, 73). Other deconstructions of THED and its critics followed (e.g., Guthman 1997). However, these deconstructions of THED and other environmental narratives by social scientists, it could be argued, indulge in a degree of epistemological casuistry. They decry the powerful deployment of authoritative scientific knowledge claims about environmental change and its causes. They attribute a political and cultural framing to this knowledge, a self-serving exercise by powerful institutions such as aid agencies, international conservation institutions, and governments, both regional and distant, and avow a skepticism of all truth claims emanating from these institutions and the "science" they shape and control. However, when these claims of THED are substantially overturned by natural scientists, using the same logical positivist methodologies as before, their results are either ignored altogether by social scientists or not subjected to the same epistemological critique as those that produced THED in the first place. This point too, can be argued for the debates about overstocking, livestock densities, and range degradation.

However, the new dispensation of knowledge about environment-society relations in the region resonates with a more poststructural mood in the social sciences as well as a parallel neopopulist turn in development orthodoxy (Blaikie 2000). Upstream farmers are not the backward, technologically inept culprits and thoughtless destroyers of the forest after all, nor are their terraces the engineering anachronisms as once thought (see Johnson, Olson, and Manandhar 1982). Farmers are no longer identified as the problem but are now a significant part of the solution(s) (Ives 1998). No longer does watershed management feature prominently in international development projects, and the custodial role of

the Indian Forestry Service, for example, in protecting the forest from local farmers, receives increasingly critical attention. Furthermore, analysts have focused on *how* the knowledge of environmental degradation and its anthropogenic causes was generated and the authoritarian and monopolistic manner in which the state brought it to bear on policymaking. Most recently, persuasive (and in these authors' views, timely) calls have been made for "hybrid knowledge," the democratization of expertise, a more participatory and locally appropriate development, and a more socially embedded contribution of natural science (Forsyth 1996, 1998, 2003; Peet and Watts 1996; Leach and Mearns 1996; Batterbury, Forsyth, and Thompson 1997; Bryant and Wilson 1998; Muldavin 2000).

International research on environmental change in the HKH region since the Mohonk Conference has continued to support the substantial rejection of THED, but has also been tempered by identification of some environmental problems of more limited extent and importance (Ives 1998). For example, at higher altitudes in the Middle Hill Districts of Nepal, Jackson et al. (1998) have suggested that, currently, there may well be serious loss of forest cover and loss of catchment stability in certain locations. Other problems, focusing more on socioeconomic changes with continuing effects upon the environment, such as road construction, out-migration of males, and increasing and unsustainable environmental demands from tourism have also been highlighted. Underlying structural problems of political economy have also made a (welcome) return to the analytical foreground (Allan 1995; Hewitt 1997). In China, some international research has indicated similar, more nuanced, explanations of environmental degradation and its causes. These include taxation, the state's ongoing settling of pastoralists, decreased upkeep of terraces with out-migration to distant job opportunities, the undermining and decline of indigenous resource-use practices, and rising social vulnerability, among others (Menzies and Peluso 1991; Muldavin 1992; Menzies 1994; Miller 1995; Wu 1997; Harkness 1998; Ives 1998; Wu and Richard 1999; Muldavin 2000; Blaikie and Sadeque 2000; Richard 2000a; ICIMOD 2001).

In addition, much of the environmental research in the HKH region undertaken before and after the Mohonk Conference was concentrated in Nepal, where international researchers had freer access of entry and research permission. However, subsequent research in other areas of the region (such as the Northern Areas of Pakistan, Tajikistan, and Yunnan Province in China) have also added substantial support to the international post-Mohonk consensus, while underlining the ubiqui-

tous but evergreen cliché about the extreme variability and complexity of society-environment relations in the region (ICIMOD 2001). Finally, it must be said that the post-Mohonk consensus has not in some way banished a mistaken version of reality and replaced it with "truth." As this article shows, the international consensus is still flatly contradicted by most national research and policy statements, and according to the findings of some further international research, the entire rejection of THED seems premature and overstated.[2] In any case, the debate still continues.

Our question here is how does the production and demise of an environmental narrative in the international arena relate to the national politics of the mountain environments in India and China? How has the resulting changing international agenda engaged with politics and policymaking in the region focused on the people living "upstream and downstream?" Did the retreat from THED matter at all, and was it responsible for any major policy changes at the national level in either China or India?

First of all, a caveat must be made to the simple division between international and national (here, Indian and Chinese) environmental politics and policy agendas. There is a profound distinction and disjuncture between the two—a focus of this article. Yet, as we will show, some of the current national environmental debates, although mainly driven by strictly national political concerns, make a wide variety of strategic engagements with these international agendas (of which one is the reduced and changing importance of THED). And there are crucial crossovers between national and international epistemic communities or networks of professionals with a shared and recognized competence in policy-relevant knowledge (Haas 1992). For example, international academics and policymakers like to highlight attractive ideational emblems such as the Chipko Movement, biodiversity hotspots, and in a different international arena, highlighted case studies of participatory success in World Bank documents (illustrated by Forsyth 2003, 188–90). But these same actors (with a few honorable exceptions) choose to remain silent about other social and political movements that are not quite flavor of the month. For example, the recent twenty-year war in the Chittagong Hill Tracts of Bangladesh, in which conflicting claims of key environmental resources were a major cause for armed struggle (Kamal, Kamaluddin, and Ullah 1999; Blaikie and Sadeque 2000, 34), the Bodo and other armed movements in the Eastern States of India, the long standing Kashmir conflict, the formation of Uttaranchal as a separate state, and the Maoist movement in Nepal all have important

implications for environmental policy. Writings about environmental policy both on the national and international levels continue addressing environmental issues as if there were no wars, no acute security problems, and no lack of functioning forestry nor agriculture in affected areas at all. Natural scientists might claim to take a more "objective" subject for research, but they, too, as post-Mohonk, poststructuralist, and advantage-of-hindsight perspectives have shown, are in no less an epistemologically vulnerable position. In the Chinese context, an equally limited choice of political and environmental menu is made by international policymakers and academicians, featuring pandas and snow leopards, which now dominate the World Wildlife Federation (WWF) concerns, and participatory social forestry, the focus of the Ford Foundation, the Nature Conservancy, and others (Raven 1995; Harkness 1998). As such, international environmental blueprints are shaped by a highly selective and customized set of images of the Himalayan social and natural environment and a limited set of policy options, from neoliberal (Harashima 2000) to scientific rationalism.

The crossover between the international and national production of research knowledge also occurs as a result of the activities of epistemic communities of scholars and research counterparts who undertake research together, meet at conferences, and co-publish (though in China, the language in which it is published can be both a divide and a bridge). In the case of India (and elsewhere, except for China) much of the work that led to and followed the Mohonk Conference was undertaken by researchers in international collaborative teams (e.g., at the United Nations University), or teams from the West with national counterparts seldom drawn from government cadres.

There is, however, one isolated and recent example of an engagement between Indian and Chinese politicians and scientists involving very sensitive international relations between the two countries. Very severe flooding was reported in the Sutlej and Sinag rivers that flow from Tibet through Himachal Pradesh and Arunachal Pradesh in Indian territory (Agence France-Presse 2001). The issue brought up by Indian officials was the alleged culpability of the Chinese army in breaching temporary lakes created by landslides without warning, causing loss of life (130 people killed) and damage to infrastructure such as roads, bridges (ninety-eight completely destroyed), and hydroelectric plants to the value of Indian rupees 240 *crores* ($US 51 million). Chinese officials have denied these charges, although the Indian Space Research organization (ISRO) claimed to have pinpointed the lakes that were breached. This illustrates the potential international implications of upstream-downstream discourses.

The Demise of THED: State of the Game and Its Impact on Policy

A well-documented and thoroughly researched reversal of view over the nature and cause of environmental change in the HKH region at the international level has been briefly rehearsed. What would one expect to happen in the policy area of any nation as a result of this change of view? Expectations about any possible change in policy outcome depend upon the assumptions concerning the links between science and policy. A conventional and rationalist view, for example, would assume that any knowledge considered authoritative (scientific or otherwise) is transmitted to policymakers, who respond to the new information by putting it on the policy agenda and who decide to push ahead and then to implement it (Hogwood and Gunn 1984; Weber 1991). The model, therefore, predicts an untroubled passage of reason to the minds of policymakers, through implementation to, one hopes, improved outcome. Also, such a view assumes that scientific enquiry, the broad issues addressed, the ways in which they are framed, and which research obtains funding are settled independently from the social and political circumstances that shape the production of that knowledge. This is seldom the case, and scientific knowledge is, to a greater or lesser degree, "co-produced" by a much wider range of actors than independently minded scientists alone. Governments and parastatal research organizations fund that research that assists (and strengthens the case of) particular policymakers, as empirical evidence will show. Further, it is this linear model that treats policy as a rational, not a political, process and in which implementation is considered separate from policymaking (Sinkule and Ortolano 1995). Policy failure, if it is thought to have occurred, can then be blamed on poor implementation or a lack of political will (Clay and Schaffer 1986; Juma and Clark 1995). In its simplest form, this model assumes "truth talks to power" (Wildavsky 1979). Such a version of the policy process is graphically illustrated in Figure 2. Here, the "scientist's eye" sees an objective reality (for example, environmental change) and transmits new findings to the policymaker (usually senior civil servants and government ministers in the capital city). There may be some mutual problem in framing what is studied and the framing of the research questions, but a realistic interpretation of the results of scientific study assumes that any case about environmental processes and change
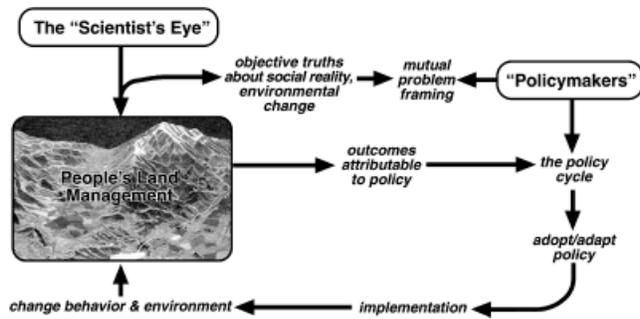
Figure 2. The rational model of policymaking.

is made in an authoritative and apolitical manner, using standard (and unimpeachable) scientific methods that stand above politics. A planning process called the "policy cycle" is then activated in which rational problem framing is constructed, followed by a search for solutions, the choice of the best solution(s), and monitoring and evaluation set up to feed information into the next cycle. The rational approach to policymaking would endorse this policymaking process. However, a more political and discursive approach to policymaking (in Figure 3) would examine the possibility that the "best solution" is, in fact, preferred and installed as the last stage in the cycle, prior to the cycle being initiated at all, and the "rational process" of choice is worked backward so as to provide a seemingly rational (but, in effect, legitimizing) planning device.

In Figure 2, which depicts the rationalist and relatively simple version of the policy process, there are a larger number of more complex processes (and approaches to studying them) implied but not shown. Both Figures 2 and 3, therefore, should be treated as large-scale route maps of the policy process. This characterization of the policy process (shown in Figure 2) has been critiqued for over thirty years, and a wide variety of
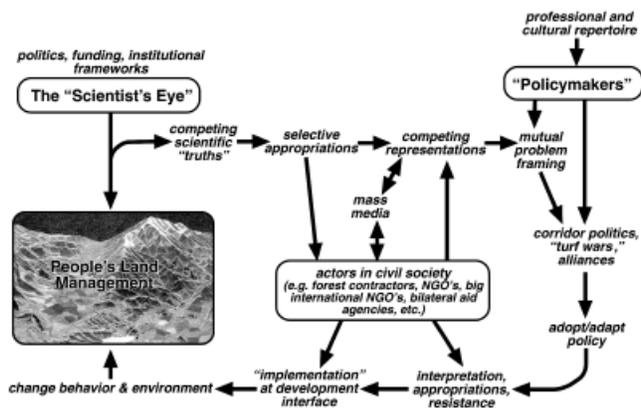

Figure 3. The discursive process model of policymaking.

alternative approaches to understanding policy have opened up. In short, these approaches draw attention to varied epistemological and empirical issues, including the political nature of policy, its discursive qualities, bureaucratic cultures, routines and repertoires, and the role of agency of multiple actors. Reviews of these approaches with some reference to the South and to environmental policy include Grindle and Thomas (1991), Long and Long (1992), Apthorpe and Gasper (1996), Keeley and Scoones (1999), Sutton (1999), Shankland (2000), Cozzens and Gieryn (1990), and Forsyth (2003), among many others. One overwhelming conclusion from most of this writing is that it is naïve to expect any rational response at all to new scientific information and that a reduction in scientific uncertainty does not necessarily lead to policy consensus (Litfin 1994).[3] Before proceeding to the substance of some of these newer approaches, we can examine what we might look for in terms of some of the potential policy responses of a rational nature at the national level, following the new thinking about THED. These might have included:

(i) A reduction in emphasis on watershed management, soil and water conservation, and improved technologies for managing sloping lands

(ii) A relaxation in coercive restrictions on land use and certain (allegedly) degrading agricultural technologies such as shifting cultivation

(iii) An acceptance that current rates of sedimentation of reservoirs and damage to hydroelectric plant through flood damage and sediment load could not be reduced substantially through upstream land use policies

(iv) A refocusing of development efforts away from narrow notions of sustainable natural capital and resource base (important though this must continue to be) to sustainable livelihoods that encompass other capitals on which livelihoods draw upon and create—social, financial, human, and infrastructural. In short, a reframing of the environmental to the social might have been expected from this reversal of view in international research

(v) A less coercive and exclusionist view by forest services in the face of sustained critique on behalf of local people's rights to a livelihood

Can any of these changes in policy at the national level be found in Himalayan India and China? The short answer is "no," and, as just stated, many of the newer approaches to policy studies tell us it is naïve to expect otherwise. To choose one example:

Stories commonly used in describing and analyzing policy issues are a force in themselves, and must be considered explicitly in assessing policy options. Further, these stories often resist change or modification even in the presence of contradicting empirical data, because they continue to underwrite and stabilize the assumptions for decision-making in the face of high uncertainty, complexity and polarization.

—(Roe 1994, 2)

A conventional rationalist explanation would suggest that policymakers were not impressed by the quality of this new international research and tended to disbelieve the main thrust of the arguments. Judging by interviews undertaken by one of the authors in India and other countries in the HKH region, there is also a certain xenophobic pride in dismissing this new international research on the grounds that "we do not need to be told what is going on in our own country, and anyway, do not appreciate having our long history of national research contradicted and overturned" (Blaikie and Sadeque 2000). A disparaging view of the rejection of THED is certainly held by many key opinion formers in both India and China, but there are other important political considerations that contradict any approach to policy claiming that new information is judged principally on rational grounds.

Subsequent critiques of the rationalist approach are as legion and of long standing as they are welcome—even if, for those with progress or reform in mind, there may linger a certain nostalgia to "rid policy of the indignity of politics" (Blaikie 2001, 2). Of course, policy is political, subject to competing representations, discursively produced and reproduced, communicated differently depending upon which audience it is intended for, and also subject to bureaucratic culture and styles that shape and are shaped by the substance of policy. As Clay and Schaffer (1986) said, "the whole life of policy is a chaos of purposes and accidents," a process of continuous interplay of discourse, political interests, and the agency of multiple actors (Keeley and Scoones 1999; Sutton 1999). Figure 3 illustrates in graphic form some of these newer directions in policy process analysis and collates a number of analytically distinct approaches. They all focus on the policy process ex post, not, as in the rational model, ex ante. They also avoid any normative implication. Indeed, they mostly seek to show how rational argument in policymaking is merely a claim subject to contested representations of many different diverse actors, both within the state apparatus and civil society.

The "scientist's eye" in this version becomes many different "eyes" with different views, and the science itself is shaped by political and economic forces that fund some issues and not others, some institutions and not others, and in which policymakers and scientists "co-produce" scientific information (Weinberg 1972; Forsyth 2003, 113), though, in this stereotyped approach, there is no rational arbiter to choose from and act upon co-produced scientific results, as is assumed in Figure 2. Instead, as this article shows, science is itself a type of constructed knowledge and a dynamic outcome of competition, accommodation, and resistance (Pickering 1995). Out of this process of scientific research, competing truths emerge into a more public domain where major actors selectively appropriate them. Many others in civil society, together with the mass media, select, suppress, and construct environmental images and messages, which policymakers both shape and use in a variety of ways. Here, Hajer's approach (1995), centered on "discursive coalitions," is useful, where interactions between different environmental narratives (even small fragments therefrom, such as emotive phrases) form a discursive platform for a number of different actors (who may well disagree across a range of other issues) to agree and press their case. Thus, the discursive outcomes of such alliances may well shape policy more profoundly than any realist understanding of the "facts." The mass media, particularly where there is a free press, as in India, can be very important. The ongoing debates on the Indian Forest Bill between government and intellectuals are published in many newspapers and weekly journals (for example, *The Economic and Political Weekly*). Once policy becomes set into texts (interim documents, working papers, files, and minutes of meetings), turf wars and bureaucratic infighting, involving a constantly shifting set of alliances, intensify. Additionally, policy sometimes does not formally reach a crystallized form in written text at all, but informally becomes established practice. Finally, the appropriate executive and legislative bodies pass an authoritative document. The policy then is interpreted, and sound bites, or more extensive discursive material, are used by a range of interested parties. The policy then finally appears at lower levels, often unannounced and unwelcome, and people at the local level make what they can of "it," or those representations of "it" to which they have access. For example, local forest rangers or other government servants, such as village leaders, interact with local villagers in daily life, at "the development interface" of a particular policy (Long and Long 1992). Then the policy, as it were, finally sinks into the sands of contingency, often unrecognizable as the outcome of an original set of intentions in the name of the public good. Thus, in a reflexive process, local narratives may structure resulting political

action as well as the explanation of the environmental problems identified and communicated (Muldavin 2000).

In the following sections of the article we focus on the environmental policy process and particularly the "upstream-downstream" hypothesis in India and China, giving special attention to the impact of the demise of THED and, in more general terms, the use of natural science research in policymaking. The next section provides in table form the major events in "upstream-downstream" and related environmental matters in China and India followed by a short political economic history of these issues, focusing on the discursive strategies of the different actors in each country.

A Summary of Major Events in Upstream-Downstream Discourse in China and India

A full account of Himalayan discourses on land degradation in all its scientific, social, economic, and political ramifications in China and India is impracticable and not our goal, and a degree of stylization and overgeneralization involved in attempting political narratives on such a geographical and temporal scale are inevitable in a article of this length. In-depth analysis of even one or two of the key policy texts is beyond the scope of this article. Figure 4 summarizes some of the major policy events and responses in these two countries, and in the following two sections they are put into historical perspective within a broader political economy context.

India

The Main Actors

An account of the policy process in environmental matters concerning Himalayan India requires simplification of varied and complex social and environmental histories. There are thirteen states (including two new ones that achieved statehood in the last three years), each with its state legislature, politics, and natural environments. There is the Center of the Union of States, situated in New Delhi, with which the states usually have a fractious relationship involving a tug-of-war over political control in many areas, especially natural resources. There is a high degree of heterogeneity between states within the union. Some, for example, (especially the so-called seven sisters of northeastern India—although there are now eight) are protected under the Indian constitution from much central control. In addition, a long history of stand-off between the colonial

power and what was considered a warlike, inhospitable, and economically unattractive area has continued into the postcolonial era, where insurrection, banditry, and more serious war has had a profound political (and environmental) impact. Such struggles between the central government and the states also have concerned forestry (an all-important sector in environmental policy, and with sizeable revenue implications from the sale of timber), which has, at different times, been a state subject and under decentralized control, or a "concurrent subject," under the control of the central government. In some parts of other states (outside the boundaries of the old princely states) such as Uttar Pradesh and Himachal Pradesh, government-managed forestry has been practiced in the hill areas of northern India by state or central government forestry departments for over one hundred years. In distinction, in the northeastern states the forestry department has had scant access and control of forests at all. Forests there continue to be managed under a myriad of common property systems and regulated from time to time (again, usually in intention and less in practice) by local decentralized district councils.

The center has also been responsible for environmental matters of all-India importance and for the drafting of a National Conservation Strategy (NCS) in 1992. It is a fluently written document. India, compared with other smaller countries of the region, has a high-caliber civil service at the most senior level, with long experience in handling environmental matters and in drafting documents for internal and international consumption. The NCS was entirely written by nationals, unlike Nepal's, for example, which was written almost entirely by two visiting consultants, who *did* work strands of the THED narrative into the Nepal Environmental Policy and Action Plan (NEMAP). It is also claimed that most of what was promised in India's NCS was already being done by existing central land boards (set up in 1983). However, much of the NCS consists of shopping lists of desirable things, which are rhetorically called into existence for public consumption, but rather less so for implementation. The central land boards, the Central Ministry of Environment and Forests (set up in 1980), and other institutions at the central level generally suffer acutely from gaps between intention and implementation. Interdepartmental confusions and rivalries and the inadequacy of public hearing systems and of enforcement of laws and regulations create the opportunities for rhetorical statements for particular audiences without much chance of implementation (Dhar 1999).

Much of the NCS implicitly addressed another profoundly political issue—the struggle between the state and "the people" over access to natural resources

Year	China	India
Before 1950	2100-1600 B.C. Xia dynasty edicts 1600-1066 B.C. Shang dynasty edicts 1066-256 B.C. Zhou dynasty edicts. Imperial state imposed monopolies over valuable resources (iron, salt, timber), and indirectly controlled resources though taxation. Goal of state policy is to maximize the productivity of agricultural lands; nonagricultural lands receive little attention. 1671 Bureau of Imperial Gardens and Hunting Parks established by the Qing rulers. 1681 Mulan Weichang Imperial Hunting Preserve established in Hebei Province by Imperial Household Department. 1932 First contemporary environmental policy under the Guomindang administration. 1949 "All forest lands nationalized and a Ministry of National Development drew up interim utilization plans."	1860's Introduction of "scientific forestry" by British government of India. 1865 **Indian Forest Act of 1865** defined *forest* as "land covered with trees, brushwood or jungle and declared to be Government Forest under the Act." Agriculture and revenue oriented. 1878 **Indian Forest Act of 1878** placed forest lands under strict (British) forest department control. 1894 (modified 1904) First comprehensive national policy on forest management (British): hillside protection, land use regulation and revenue collection for the crown. Provoked resentment. 1927 **Indian Forest Act**. Framework for forest management, created partly in response to shortcomings of earlier policy.
1950s	1952 **Ministry of Forestry** established. 1953 **Directive on Mass Afforestation, Cultivation of Forests and Protection of Forests**. Aim to promote "protective planting" by collectives, fire control in national forests, and "vigorous afforestation" of hills and wastelands. 1956 **Draft Plan for the Designation of Areas for National Forestry Reserve**, issued by Ministry of Forestry, sets aside 19 reserves of 650,000 total hectares over next 9 years. **Provisional Public Health Standards for the Design of Industrial Enterprises** created to reduce pollution in factories, based on Soviet standards. 1957 The law on regional planning of agriculture. Department of Agriculture issued the information about helping agricultural producer's cooperative to make further land planning. 1958 The **Chinese Academy of Forestry** is founded, affiliated with the State Forestry Administration. The Academy has 9 research institutes, 4 experimental centers, and 3 research and development centers, which are located in 10 provinces.	1952 First independent India National Forest Policy. National targets established: 20% forest cover in the plains and 66% in the hills.
1960s	1960s Continued collectivization of forest resources and setting aside of reserve lands. 1962 **Public Health Standards for the Design of Industrial Enterprises**. Improved upon earlier law aimed at reducing pollution in factories.	
1970-74	1973 **First National Conference on Environmental Protection**, held by the State Council and convened by Premier Zhou Enlai. The **"32 Character Policy"** pollution prevention	1974 **Water (Prevention And Control Of Pollution) Act**, provide for the maintaining or restoring of wholesomeness of water, followed by a string of water-focused laws and guidelines in the 1970s.
1975-79	1979 Agricultural Committee of the State compiled and the State Council approved and transferred the Report of Unfolding Research on Natural Resources of Agriculture and Agricultural Regional Planning. 1979 **The Law on Environmental Protection**. Hold polluters responsible, mandated establishment of environmental agencies.	1976 **National Commission on Agriculture**. Regulate shifting cultivation from the point of view of forest development.

Figure 4. Comparative environmental policies of India and China regarding "upstream/downstream" management and accelerated erosion.

Figure 4. (continued)

Year	China	India
1980-84	1980s the **Eight Systems and Measures for Management over Environment** 1982 State Council issued the **Provision on the Work of Conservation Water and Soil**. **Marine Environmental Protection Law** 1983 2nd **National Conference on Environmental Protection**, prohibition on lumber cutting and use passed. 1984 **The Forest Law*** and **The Water Pollution Prevention and Control Law** issued by the 6th Standing Committee of the National People's Congress.	1980 **Forest Conservation Act**. Promulgated to check deforestation 1981 **The Air (Prevention And Control Of Pollution) Act**, provided for the prevention, control and abatement of air pollution. 1981 **Ban on Green Felling** over 1000m in Uttar Pradesh (this was a national, GOI policy)
1985-89	1985 **The Grassland Law**. Stipulates State protection of grassland ecosystems, vegetation and rare plants, and prohibits adverse reclamation and construction activities. SEPA. 1986 **Fisheries Law**, **Mineral Resource Law**, and **Land Management Law**. 1989 3rd **National Conference on Environmental Protection** 1989 **Law of the PRC on Environmental Protection** - included protection of forests among 14 environments that "influence human existence and development."	1986 **The Environment (Protection) Act.** Includes measures to protect and improve environment, covering pollution of air, water, and land. 1988 **National Forestry Policy**. Conservation of forests for purposes of watershed management. Reflects international concerns of the 1987 Brundtland Report. Promoted stable land use, preservation of forest and conservation of topsoil.
1990-present	1992 **Ten Countermeasures for Environment and Development** 1994 **China's Agenda 21**. White paper on population, environment, and development formulated after the 1992 United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, approved by the State Council. 1994 10th session of the 8th standing committee of Yunnan Province People's Congress passed the 22nd decree: Some Stipulations for **Non-gratuitous Exploitation on the Barren Hill in Yunnan Province**. 1994 Yunnan Province Government passed provisions to examine and record the area of afforestation and the existent rate 1998 **National Natural Forest Protection Project**. Conservation scheme for forests nationwide, from 1998 to 2010. Written by the State Forestry Administration, approved by the State Council. 1998 **Logging Ban** along the Yangtze and Yellow River, extending through nine major provinces by the State Forestry Administration and the State Council. 2000 **Logging Ban** expanded by the State Forestry Administration and the State Council to 18 provinces and triple the land area in order to combat flooding.	1990 GAO Guidelines on Joint Forest Management (JFM) 1992 **Indian National Conservation Strategy**. Integrated conservation and sustainable development, with major emphasis on agriculture, forests, and national parks. 2000 **Protect & Improve the Environment in the Himalayas**, (proposed subrule of the Environment Protection Act of 1986). Closely regulates hillside development projects, road building, and rainwater harvesting.

Sources: Blaikie and Sadeque (2000), Cai, Zhang, and Xia (2000, 22), ECE/FAO (2000), Farooqui (1997), Government of India, Ministry of Environment and Forests, Harkness (1998), Menzies (1988, 1992), Richardson (1990), Ross, Lester, and Silk (1987), NEPA (1988).

(particularly forests). Hence, there are lengthy mentions in the NCS of the need for international cooperation, strengthening institutions, environmental education, the role of NGOs, and the importance of the involvement of women in grassroots conservation. The treatment of forests, too, was to involve local communities and NGOs in reafforestation, community afforestation of common property lands, meeting the fuel wood, fodder, and nontimber forest product needs of rural and tribal populations, and so on. The subtext of the NCS was never,

at any time, an upstream-downstream narrative, but a rhetorical device to appease a powerful and articulate alliance of intellectuals within India and neopopulist international sentiment. These voices had long advocated a return of the forests to the control of local village communities, from whom it had been wrested by the British colonial forest service from 1864, and particularly by the highly exclusionary Forest Act of 1893. However, issues of political control, which states usually guard jealously, have prevented many comprehensive environmental intentions of the NCS from ever leaving the paper on which they were written. The to-and-fro-ing of forestry as a concurrent (centrally administered) or state subject is, therefore, an important and constantly changing aspect of the degree to which central government concerns had any authority on the ground.

There is also the Indian Forestry Service, a formidable institution of some 140 years' standing with headquarters at Dehra Dun, established by the British and adhering closely to Forest Acts passed during the colonial period, particularly that of 1927 (Farooqui 1997). As was mentioned above, forestry and wildlife were in the concurrent list of the Government of India Act, 1935 (and therefore under central government control). Even prior to that, a great deal of central government intervention was exercised in the matters of forest and wildlife management through the Office of the Inspector General. The subject of forestry and wildlife was brought under the control of individual states in the Constitution of India in 1950 shortly after Independence. At the behest of the then prime minister, the late Indira Gandhi, the subject of forestry and wildlife was once again brought back to the concurrent list by the 42nd Amendment Act of 1976. The institution itself is of long standing and is arguably the most established for natural resource use in all of the Himalayan countries. It is characterized by the strong persistence of a "fortress forestry" model of the colonial period, the pervasive influence of favored forest industries, and a strong protectionist agenda on the grounds of ensuring scientific management (Mayers and Bass 1999).

Finally, there is civil society and the influence of resource users and their political interlocutors. Local populations in the Indian Himalaya are highly heterogeneous and include farmers and pastoralists who work a variety of farming systems, all of which involve the forest and pastures in complex and interrelated ways. Access to natural resources is, as one would expect, differentiated along lines of gender, wealth, caste, and the dynamic set of "affordances" provided by nature and shaped by settlement history and political events, national policy, and the distribution of soils, available moisture, aspect, slope,

and so on. As will be described in the next section, local people, who rely for their livelihoods upon natural resources, have been pitched against the state at different times. The state has attempted to regulate their access to natural resources by means of forest policy and, more recently, by the formation of bio-reserves, national parks, and sanctuaries. There are also other important actors who have interests in the forest, usually of a pecuniary kind. These include forest contractors (both legally sanctioned and illegal "forest mafias"), saw millers, furniture makers, construction companies, who rely on revenues from timber to finance election campaigns, and government servants, who, in their private capacity, may look for and receive inducements for timber and other forest products, which they are supposed to administer or guard. The political struggles waged by the more virtuous of these actors—the local people who rely on the forest overwhelmingly for subsistence purposes—have been taken up by a vociferous and influential group of intellectuals and political activists, publishing usually, but not exclusively, in English (e.g., Shiva and Bandhopadhyay 1986, 1989; Bahaguna 1987; Shiva 1989; Guha 1989; Gadgil and Guha 1995). They have, on the whole, good access at the highest level to central government and—India having a lively and free press—to local political organizations and to the international academic presses and conference circuits. These opportunities are not usually open to Chinese commentators in the same way.

Games of the State: Two Sites of Struggle

Struggles over the control and management of the forests of northern and northwestern India began from the 1860s when the British instigated "scientific management" of forests, partly to halt the depredations upon the forest by forest contractors, who fulfilled the demands for timber for railway ties and ship building, rather than by local farmers and transhumant pastoralists. The key objectives since the nineteenth century and the highly regulatory Act of 1894, which discriminated strongly against access and user rights of local people were: (a) scientific management of forests (for industrial purposes and revenue generation for the Forestry Service and the state) and (b) watershed protection. Widespread resistance, poaching, and setting fire to the forests ensued, especially in the 1920s (Tucker 1984; Chaturvedi 1988). Although the acts were amended in 1904 and completely rewritten in 1927, incendiarism continued—as did massive out-migration as a result of loss of livelihoods. Incendiarism still continues, though whether by accident or intent, it is difficult to judge. However, in 1995, for example, 2,272 fires affecting 937 square kilometers

in forests under the control of the Forest Department were reported (Mehta 1996).

Agitation continued at various locations, particularly in Uttarkhand, in the form of various types of movement, of which the best known internationally was the Chipko Movement (Shiva and Bandhopadhayay 1987; Guha 1989; Rangan 1995). This started as a local women's movement to protect trees against forest contractors, but subsequently went through a number of shifts in focus and sites of power (mainly to male-dominated and more distant political agendas, such as the struggle for the formation of the State of Uttaranchal (Guha 1989, 152–84; Rangan 1995). These protests and others at the national level led to a ban on green felling at altitudes over 1,000 m in the states of Uttar Pradesh and Himachal Pradesh, which has, until very recently, held fast. However, the effectiveness of logging bans has been questioned. The environmentalist, publicist, and sage Sundar Lal Bhaguna undertook a fact finding pilgrimage of some 2,500 km across the Western Himalaya and reported vast amounts of felled trees attesting to "a tale of organized plunder of forests," in spite of the ban being in force (Bahaguna 1986). Rangan (1995) reports that logging bans further reduced revenues to the forestry departments, which compounded by incompetent management, led to difficulties in policing the forests. Forest "mafias" with paid protection from the local police were then increasingly able to fell large amounts of timber and evade the ban. Evidence from a recent review of environmental policy in the region (Blaikie and Sadeque 2000) suggests that variations upon this pattern (logging bans, reductions in revenues, and increased illegal felling) are still widespread in many countries in the HKH region. Logging bans also reduce livelihoods for many of the less politically powerful in the hills too, and ironically, often for those who campaigned for bans in the first place. The logging bans (in place at the time of writing in every Himalayan country, including China, but excepting Bhutan) are under intense political pressure. As far back as 1988, there was a "Fell the Trees" movement in the hills of Uttar Pradesh, India, fomented by those whose livelihoods dependent upon timber products were being undermined and by a wider dissatisfaction of stalled development projects that had required central government permission for the conversion of forest land for the building of roads, electricity pylons, and so forth. These logging bans were rescinded in Himachal Pradesh in 2000, and there are reports of similar moves in other states elsewhere. While the bans may ease the pressure on forests from contractors and therefore indirectly upon local farmers, they do nothing to ease the restrictions of forestry regulations—indeed,

in the past such actions have increased their severity and fed the demands for independent statehood for the hill districts of Uttar Pradesh to form the new state of Uttar Anchal.

The 1927 act remains largely intact today and, in the minds of most senior foresters trained in Dehra Dun, India, its status is almost that of a holy text, a bastion of order, and a reasonable and just regulation in the face of declining environmental management, unwarranted meddling by populist politicians, and uninformed local protest. The 1950 National Forest Policy altered the 1927 act very little. And while the National Forest Policy of 1988 made considerable concessions to devolvement of management to local control, it was not passed, and the new draft bill in many ways strengthens, not reduces, the power of the forest administration (Chhatre 1996). It proposes to strengthen the regulations against shifting cultivation, the powers of arrest by forestry officials, and the control by the center over the states (see below). It also reduces the options for expanding social forestry and joint management programs, which, albeit in a limited manner, aimed to give back some aspects of the management of some (already degraded) forests to local institutions. Yet more recent establishment of bio-reserves, sanctuaries, and national parks has been cast in the same mould as the (neo)colonial forestry model already described, implying fortress conservation where privileged rare species are to be saved, sometimes to the detriment of local livelihoods. Here, a powerful and historically long-established model of forest protection in India (and other Himalayan countries such as Nepal) was adapted with few modifications for the new purpose of the creation and maintenance of bio-reserves and sanctuaries, in which participatory joint management with local forest users was forgotten.

The struggle, characterized here in political economic terms as "the state against the people," is also a discursive one. The state (here, either or both the state or the center) has three discursive weapons: (i) the delivery of scientific management of forests (based upon experimentation and practical experience of approximately150 years), (ii) revenue generation for commercial production purposes based upon sustainable principles, and (iii) watershed management and prevention of accelerated erosion, landslips, desiccation of water supplies and flooding. The latter clearly resonates with THED. There has been a very long and distinguished history of research into Himalayan land degradation that in various ways has relied upon forms of THED. The most recent was the publication of the *All India Soil and Land Use Survey Organization* (AISLUS 1997), which found, having surveyed 3,033 subwatersheds in northwestern

Himalayas, that 54 percent of watersheds were in the category of very high or high priority for urgent soil and water conservation. Satellite data interpretation of the forests in Himachal Pradesh indicated that forest cover had been reduced to 12,521 sq. km, while revenue and legal definitions put the figure at three times that area. The survey of water springs in the Nainital area indicated that 45 percent of springs had reduced yields or had gone dry (Bartarya 1988). Sedimentation of the Bhakra dam was now 50 percent more than assumed, and for the Kalagargh dam almost five times the assumed rate (Dhar 2000). A summary table of types of land degradation and its "backward causative linkages" can be found in Dhar (2000) that exemplifies the continuation of THED, and so the evidence goes on.

The important point is that the justification of the need for watershed management is a powerful reason for the continuing state, and if proved incompetent, central, control of forests. If deforestation and accelerated erosion are regularly being reported, there are continuing grounds for attempting to maintain or increase regulation and to exclude local control and management. Therefore, the publication of reports and papers of a substantial rejection of THED at the international level drives at the very heart of (a) a century of indigenous research showing the opposite (increasing anthropogenic erosion), (b) a major justification to manage forests on the part of the Forestry Service, and (c) the center's attempts to take suprastate and all-India responsibility for an alleged environmental crisis. It is little wonder that there is in-country animosity toward the critics of THED. Virtually all the major players in state and central institutions find the trinity of scientific management, revenue generation, and watershed management powerful and familiar discursive weapons. However, to those who have interests in cutting timber illegally and contrary to official working plans and scientific forestry, politicians who wish to bring state-sponsored "development" to the people, and some villagers themselves, the debate about accelerated erosion through deforestation and the "upstream-downstream" hypothesis is an irrelevance. Cut, run, who cares?

In this discussion, a theory of Himalayan environmental degradation has been constantly renewed through research and deployed by the forestry service as a justification for closely regulated centralized control. In short, THED is closely implicated with the relation between government, and its powerful institution of the state with its colonial history, and local people. However, the "upstream-downstream" aspect of the crisis had not been invoked as yet in any major way. This aspect *was,* however, a central piece of evidence in a struggle be-

tween the center and the states of northeastern India, as reported below.

As the commentary above has mentioned, the northeastern states of India enjoy relative political autonomy from the center, and, in any case the forestry service is poorly established there. There have also been especially difficult political relations between theses different states and the center. They are of great strategic importance to India, they have mounted a number of secessionist movements, and banditry and an alarming security situation in at least three states has existed for some time. Yet options for political control by the center, other than military responses through the calling of a state of emergency, are limited. At the same time, the comparatively well-forested areas (especially Arunachal Pradesh) were reported to be deforesting at a very fast rate. How could the center intervene, and reestablish political control? It had little legal leverage and a historically low level of presence by the forestry service and was faced by a land tenure system in the hands of tribal and customary leaders or district councils. No discursive device that called attention to internal environmental crises would lead to any justification for the application of political leverage. However, the identification of an *external* cost to deforestation could provide such a reason. Two were suggested. The first concerned deforestation. If it could be shown that the costs of environmental profligacy were being borne by others in the plains, then a strong reason for compulsion by the center could be established. The second was the threatened erosion of a global resource—biodiversity.

A Public Interest Litigation (PIL) route was opened up, a strategy that has been increasingly used in different parts of India to compel those who externalized environmental costs to pay for them (e.g., industrial projects that pollute the water table or forest contractors who fell forests and cause accelerated erosion and increased flooding). Plaintiffs could take a case against them, which could be referred to the Supreme Court. This is precisely what happened, and evidence was brought before the court. There were also other issues in the case concerning whether the center had the legal right of forbidding all green felling and adherence to the 1980 Forest Conservation Act in the eastern states, irrespective of the nature of ownership. Evidence of deforestation and impacts of an "upstream-downstream" nature were also brought to bear, and the case was upheld. Logging bans were imposed by order of the Supreme Court in December 1996 (*The Hindu* 1997). In many of these states, often newly independent with little experience of self-government and a poorly developed civil service, timber had become the only source of revenue

for many farmers and states too (Chawii 2002). Farmers would sell a few trees and live off the proceeds. In many cases, timber sales had replaced farming, and farmers had even sold their farming implements. In other cases, politicians tapped the network of local rulers and land-holders who had discretionary powers over the cutting and disposal of timber. Election campaigns were financed on the back of timber. Loyalty payments were expected, and huge ministries formed in order to accommodate the expectations of the most influential supporters (Blaikie 1998). Since the life of governments is expected to be so short, incumbents knew that they only had a short time to recoup any investment made in getting into power (usually realized through timber sales), and they were tempted to do so in the usual way—the sale of timber. Timber had therefore become the central resource on which many livelihoods depended, both from rural areas as well as from political cadres. Here THED was used by the center, especially the Indian Forestry Service, to gain more control over a recalcitrant group of states and their resources in the name of conservation. The nature of the scientific evidence was mostly derived from Indian sources, but it is difficult to escape the impression that the "upstream-downstream" thesis had become a strategic discursive weapon.

We will now turn to the parallel political economic history in China.

China

Introduction and Contextualization

While the Chinese environmental policy narrative is somewhat different from the Indian, it also shares important similarities and much the same set of actors and institutions present in India exists in China too. Thus, the structure of the following sections closely parallels the previous ones. The immense size of the Chinese civil service—literally, millions of workers within a vast and complex set of interwoven and overlapping bureaucratic hierarchies—has created its own sets of personal and institutional commitments to the narrative of THED.

The Main Actors

The complex nature of the heterogeneous region of Himalayan China requires simplification that stylizes and generalizes the intertwined social and environmental histories of the area. Within the greater Himalayan geographic region in China there are two autonomous regions—Tibet and the southern and western edges of Xinjiang—and three provinces—Sichuan, Yunnan, and Qinghai (their westernmost portions that are integrated into the Tibetan Plateau). In addition, the area borders a newly empowered municipality—Chongqing. Each geographic unit has its own political structures and People's Congresses and, as well, represents the diversity of natural environments in the Chinese Himalaya and closely associated upstream areas. The high degree of heterogeneity among these subnational political regions means that each has a unique relationship with the central government in Beijing.

Furthermore, there is a long history of conflict between the central government and the politically problematic hinterlands where suppression of rebellions, border wars, and so forth have had serious environmental and social impacts (Huang 1974; Purdue 1987; Menzies 1991). These struggles have also influenced forest, as well as grassland and agricultural land use, strategies. The valuable timber reserves of eastern Tibet and western Yunnan and Sichuan have been a contentious point, focusing the competing demands of populations with different approaches to resource use. The historic swing between greater central control and more decentralized strategies (Menzies 1994; Y. Li 1996) mirrors the struggles in India detailed above. There was a clear strategic pattern to Late Imperial environmental land-use practices in China (Huang 1974), as the state focused its efforts on territorial control (Shaw 1914). While local actors in some areas were, and still are, heavily influenced by the central government and its agencies in terms of forest and resource management, actors in other areas continued management through a myriad of common property systems with occasional imposition of local regulatory agencies. For example, in Southwest China, half of the forested area is under the direct control of collectives (G. Zhang, Li, and Song 1992; Y. Li 1996). Contemporary management at these various levels, in association with historic common property systems, is an important backdrop to subsequent policy formation. The relative power of these different constituencies to influence the policy process has either legitimated or undermined the effectiveness of stated policies through the various eras of shifting control. There were and are, however, important differences in the Indian and Chinese states' hinterland resource policies. As Menzies (1992, 728) notes, "In . . . India, the authorities reacted to acts of rebellion by forest dependent communities with further restrictions on their access to the resources. The Chinese reaction, by contrast, was to assert government sovereignty over the land by populating it. Troops who participated in the suppression of these rebellions were rewarded with grants of

land, and encouraged to settle, and to intermarry, linking these remote corners of the empire more closely to the Center." This process of Han immigration to China's hinterlands continues today and is widely cited as an important strategy of the state in its efforts to increase its claims upon these areas, particularly in western China (Goldstein and Beall 1989; Kristoff 1991; Becker 1996; Harkness 1998; Hutzler 1999; Plafker 2001)).

The central government is also responsible for environmental issues that affect all of China, clearly presented in China's Agenda 21 paper published in 1994 (State Planning Commission 1994), following the Rio Declaration, and previously formulated in a National Environmental Protection Law (NEPL) in 1989, following the third National Conference on Environmental Protection (see Figure 4). China's experienced civil service is well able to draft politically persuasive and coherently argued documents for both internal and international consumption (Qu 1994). China's own experts—bureaucratic, legal, scientific, and policy-oriented—drafted the NEPL (National People's Congress 1989). Similar to India, China has worked closely with UN agencies, the World Bank, and others who indirectly influenced the form and structure of the law. These international agencies have achieved much of this influence by extensive training of professional cadres abroad and in their Beijing offices from the late 1970s to the present,[4] similar to the earlier training of civil servants in Moscow by Soviet counterparts in the 1950s. While portions of the NEPL mirrored existing provincial and local regulatory frameworks, there were also many new and important components introduced. Similar to NEMAP in India, the NEPL is to some extent a wish list of desirable outcomes—rhetorically raised for public consumption with limited expectations for implementation.[5] The wide gaps between the NEPL's rhetorical claims and intentions and practiced realities exist for most national institutions and policies of the central government (Xie and Li 1995). Still, the interministry rivalries and confusions, as well as overlapping and shifting responsibilities for the environment, enable these gaps to persist. With little public input and inadequate systems for legal and regulatory enforcement, there is the constant potential for using rhetorical statements to satisfy particular audiences, domestic and international, with little fear of actual implementation of difficult and contentious policies. Of course, the fact that such laws now exist also provides a legitimate vehicle for individuals within the central government, or particular constituencies able to work through central government institutions, to push their own agendas with stunning force at historical junctures. The Logging Ban of 1998 (and its expansion in 2000), discussed below, is one such confluence of law and state priority with surprisingly effective results (Roberts 1998; SEPA 2000; Xinhua News Agency 2001e; Pomfret 2001), though with contested actual impacts beyond China's borders (Pomfret 2001).[6]

The center's NEPL also addresses another politically potent issue—the struggle between the state and "the people" over access to natural resources, and in particular, forests. Access to grasslands has also been a particularly heated issue among pastoralists in Tibet, Xinjiang, Qinghai, and western Sichuan and Yunnan provinces. The state's attempts to limit access to agricultural lands on steep slopes has also had important political overtones, as whole Han communities are relocated from steep slopes in river basins of the upper reaches of China's major rivers and placed in minority pastoralist areas—both transforming the places left and the places resettled—and also creating new resource use conflicts with existing users (Xinhua News Agency 2001b, 2001c, 2001f).[7] This reflects how Han expansion into minority areas is both cause and product of environmental degradation and how it shapes the discourses of such degradation.

The state aims to gain access to funds and expertise, as well as legitimate these projects, by increasing cooperation with international institutions such as the United Nations, multilateral and bilateral agencies (U.S. Embassy 2000). The rapid publication of China's Agenda 21 illustrates the adroit and effective central government strategies in this regard. As well, large numbers of international NGOs are actively attempting to participate in the creation of environmental policy in this region. Much of the rhetorical discussion has focused on strengthening local participation and institutions, environmental education efforts, and the importance of creating projects and policies that fit the needs of the local populations. While there is a very significant presence of international environmental NGOs in Yunnan, in particular, civil society in general is much more limited than in the case of India. China's domestic NGO sector has yet to reach its full potential and is certainly underdeveloped relative to India (Perry and Selden 2000; Jun 2000). There is some limited involvement of local communities and NGOs in reforestation and afforestation efforts on common property lands to meet the needs of minority and poor peasant populations for timber, fuel, fodder, and other nontimber forest products (Ke 1997). But many of these efforts have been punitive in nature, with less rhetorical emphasis given to the indigenous knowledge systems (C. Y. Li 1998; SEPA 2000), the primary exception being cooperative efforts with international NGOs such as Ford, the WWF, and the Nature Conservancy in

Yunnan (Menzies and Peluso 1991; Ives 1998; Zackey 2000; Miller 2001; Richard 2000a). In general, the central government focus has been on relocation of populations, logging bans, and quotas for afforestation. This is occasionally combined with discussions of potential economic diversification, though decidedly modernization-oriented, even when it includes eco- and cultural tourism projects (Swope, Swain, Yang, and Ives 1997; Yin 1998; Zackey 2000). The project to create a new park in Yunnan Province is an excellent example of this kind of mixed (or mixed-up) agenda to serve divergent needs and goals of constituents, but with only limited local participation in planning and design (Zackey 2000).

While the NEPL is not an upstream-downstream narrative per se, subsequent laws such as the Logging Ban of 1998 certainly have played on this narrative extensively (as we discuss in more detail below). The NEPL had different purposes depending on the positions of the audience relative to those formulating the law. On the one hand, it is a powerful legal instrument that is used to appease populist domestic pro-environmental constituencies,[8] however small, as well as neopopulist international sentiments. These international voices have increasingly advocated a return of forests and grasslands to minority peoples' community management systems, arguing for this shift from a variety of vantage points including: (a) that Maoist strategies were a disaster and the need for properly functioning markets is primary; (b) that reform strategies of marketization and individual tenure are incompatible with common property resource systems, and their transformation is the problem; and (c) that the purely political nature of central government control has undermined local communities and caused increased vulnerability, cultural transformation, and declining indigenous values more generally. But similar to the Indian context, the central government's imperative for political control in these borderland and hinterland regions has prevented many of these more decentralized initiatives, though quite different and contradictory at times in focus, from gaining momentum and legitimation, let alone implementation. Instead, the Maoist period is generally ignored, the market reforms are rhetorically made central, if not necessarily in practice, and the destruction of indigenous culture is couched purely in terms of the need for modernization. Thus the NEPL can be interpreted as the continuation of a long history of authority claims by the state. The degree of control over forest resources exhibited by the central government is therefore interpreted as reflecting the degree to which central government authority is successfully imposed upon this daunting landscape.

Another important actor is the Ministry of Forestry, established in 1952 shortly after the establishment of the PRC. While building on direct and indirect forest management practices that stretched as far back as the Xia dynasty 4,000 years earlier (Elvin and Liu 1998; Vermeer 1998), modern China's forest management model began with the nationalization of all forest lands in 1949 and their planned utilization for China's rapid development by the Ministry of National Development that same year. After the establishment of the Ministry of Forestry, a series of directives and plans were produced in subsequent years, each aimed at either increasing afforested area or preserving existing stands from rampant cutting. The 1953 "Directive on Mass Afforestation, Cultivation of Forests and Protection of Forests" pushed collective planting of denuded hills and wastelands, as well as fire control. The first plan to set up an extensive system of forest reserves was promulgated by the Ministry of Forestry in 1956, and the Ministry succeeded in creating nineteen reserves over the subsequent nine years (Harkness 1998). The affiliated Chinese Academy of Forestry was established in 1958, and it set up sixteen research institutes, and experimental and development centers in ten provinces to help promote scientific forestry. Further collectivization of forest resources continued in the 1960s, with expansion of the reserve system and afforestation efforts. But it was the convening of the First National Conference on Environmental Protection by Premier Zhou Enlai in 1973 that brought the issue of forest utilization to center stage, strengthening the basis for the institutionalization of the upstream-downstream narrative in China's agencies responsible for resources and the environment. The Ministry of Forestry is characterized by strong narratives that interweave a vision of man against nature, socialist modernization principles of utilizing resources for rapid national development, Soviet scientific models of forest management, "fortress forestry" through extensive reserves, and support of forest-related industries (Ministry of Forestry of the People's Republic of China 1994; C. Y. Li 1998; Yin 1998). Increased efficiency in forest management is the watchword of this technocentric approach (Yin 1998).

And lastly, there is China's civil society concerning resource users and their political intermediaries. Local populations in China's Himalayan region are divided by land use (farmers, pastoralists, forest users, commercial and industrial interests), ethnicity (Tibetan, Mongol, Han, and so forth), and specific localized histories through which complex, often sustainable, and interrelated practices have evolved. This certainly mirrors the Indian context. The local populations' access to

resources is further differentiated along lines of political affiliation, historic claims, gender, and other factors such as, for example, family history during the revolution. Settlement history, political events, and national policy have also played their respective roles. Further, distribution of the best resources, trees, grasslands, soils for agriculture, and the variations of slope and physical accessibility for use have all influenced not only access to livelihoods of local people but also the relative condition of the existing forests and lands today. The northern and eastern sides of the Himalayan region, as compared to the Indian Himalayan region, have extremely different ecological as well as physical and climatic factors affecting potential land use strategies. The vast Tibetan Plateau, as well as the extensive grasslands of western Qinghai and Sichuan and western and southern Xinjiang, represents particular challenges to long-term users. The same can be said for the steep subtropical forests of Western Yunnan and Sichuan. The state has tried to regulate local peoples' access to these areas via an array of forest and land use policies, most recently including the creation of bio-reserves and parks, wildlife sanctuaries for endangered species such as the Giant Panda, as well as large dam and watershed projects with their own restrictive requirements.

Unlike the previous groups mentioned, there are also other important actors whose interests in the forests are more directly commercial and financial and, as such, are less associated with daily livelihood strategies. These include a range of timber operations—government, quasi-government, local, legal, and illegal—focused on raw lumber extraction to plywood production and finished products such as furniture and chopsticks. In contrast, the political struggles of the most "virtuous" actors in the Chinese context are principally those of "national minorities" such as the Tibetans. Their causes are taken up by an articulate and influential group of intellectuals and activists in the NGO community, such as the Tibetan Action Network, who publish mostly in English and are associated with questions of human rights, cultural preservation, and anticolonial struggles (Agence France-Presse 2000a). Their access to the central government in China depends chiefly on their relative association with indigenous activities the central government considers "counter-revolutionary," "crimes against national unity," and "splittist," or secessionist activities more generally. The NGOs that are less directly associated with such movements, and who work with international NGOs with established relations in China, do have good access to the government. Many have headquarters in Kunming in Yunnan Province, close to the sites of contestation, but work with other

minority groups, such as the Naxi and Yi in northeastern Yunnan. While many of these organizations walk a fine line between cooperation with the central government and trying to represent, at times, actors whose goals are seen as contrary to the central government, China's own national press has recently begun to loosen up in its coverage of the environment and environmental problems (Xinhua News Agency 1998a, 2001a, 2001b, 2000c, 2000d). This has perhaps created greater space for international NGOs to operate within China. Still, free and uncensored commentary is more limited than in the case of the Indian Himalayan region (Sinkule and Ortolano 1995, 61).

Games of the State: Two Sites of Struggle in the History of Forest Control in China's Himalayan Region

There is a long history of struggles over control and management of the forests in China's Himalayan region (Gan 1964; Chen 1981; Menzies 1992). In the contemporary context, the first site of struggle is over control and management of forests in daily practice. This is often a political, economic, and cultural struggle in which the state attempts to exert control over local peoples. The second is a discursive struggle in more distant corridors of power in provincial cities and capitals to justify the need for state forestry and watershed management. Such justification is needed for the state to exclude local resource users in regional control and management decisions. There is strong discrimination against allowing local access and user rights. The state's stated objectives include scientific management of forests and watersheds (C. Y. Li 1998). In these struggles the state's discursive weapons include but are not limited to descriptions of (a) the successful delivery of scientific management of forests, (b) revenue generation for sustainable development, and (c) successful watershed management and the prevention of accelerated erosion and flooding.

State efforts to control regional resources through scientific management have met with different forms of resistance, from lack of local implementation of policies (Smil 1993), to active sabotage of national projects, to illicit cutting of forest resources claimed by the state (Harkness 1998). The long history of state policies encouraging moving Han nationality migrants to the region have marginalized existing resource users, as well as increased out-migration of indigenous groups. Local control of forest resources was significantly curtailed with the logging bans begun in 1998. These were imposed in response to the disastrous floods of the late 1990s and

the legal and illegal logging operations identified as primary upstream causal agents. Unlike in India, there is little evidence that the logging bans imposed and strengthened since 1998 have been defied to any great extent in China, though their effectiveness may be overestimated (Renmin Ribao 1998, Xinhua News Agency 1998b). In fact, the reduction in available timber for state logging industries has been met with a rapid rise in importation of logs from neighboring countries, principally Malaysia and Burma, as discussed above (Shi, Li, Lin, and Zheng 1997; Pomfret 2001). Thus, India's pattern of logging bans reducing forest revenues, and thus actually leading to increased illegal felling of trees, has not yet occurred in China according to official accounts, though current research efforts are attempting to document this in some areas (Zackey 2001). But certainly, the logging bans have decreased livelihood opportunities for the politically less powerful in these regions. Still, the pressure to rescind the logging ban in China seems unorganized and sporadic at best, principally because of the marginal political position of those whose livelihoods most depend on logging. Furthermore, the state narrative of logging causing downstream flooding, as well as siltation of the Three Gorges reservoir, carries significant local weight (both upstream and downstream) and aids enforcement at all levels. The Forest Law is perceived, particularly by those downstream, as imposing order and just regulation in the face of rapid environmental degradation, land mismanagement, and poorly educated local resource uses with self-interested demands contrary to the needs of society as a whole. In this view the implication is that "primitive" resource users are not partaking in the national project of modernization (Roberts 1998; SEPA 2000; Xinhua News Agency 2001a, 2000, 2001g), and thus are not only holding back China's development but also causing great harm to the nation and all her peoples. The logging bans and other new laws thus strengthen regulations against shifting cultivation and pastoralism, and significantly increase the powers of enforcement. Grassland enclosures, not logging bans, are more likely to fuel independence movements, as the state's desire to end pastoral lifestyles comes into direct conflict with a long history of minority people's resource use, the three largest and relatively well-organized minorities being Tibetan, Mongolian, and Uighur (Goldstein and Beall 1994, 1990; Kristoff 1991; Becker 1996; Wu and Richard 1999).

Bio-reserves in China and new "parks," such as the one emerging from the Yunnan Great Rivers Conservation and Development Plan (Zackey 2000), seem to place the state rhetorically beyond fortress conservation (Lai 1997). But these bio-reserves are still driven by single species concerns more than the maintenance of local livelihoods. While social forestry and ecotourism are touted as a means to replace revenue lost through bans on past forest use practices, neither option has met these high expectations (Lai 1997; Fox, Fisher, and Cook 1997; Harkness 1998). This is not too surprising, given that social forestry options are primarily supported on degraded lands considered of little commercial value. Ecotourism income has concentrated in the hands of nonlocal operators, thus limiting this option's potential to secure alternative and sustainable livelihoods for those excluded from the forests. As well, ecotourism has its own set of negative effects in the region (*China Daily* 1998a).

Similar to the Indian context, the struggle of state and elites against local peoples is also a discursive one. As mentioned above, the state has a large array of discursive weapons. The first, identical to that in India, is the claim of delivery of scientific management of forests. This supports the claim of revenue generation through sustainable commercial production. And as discussed further below, downstream flooding justifies the need for watershed management and preservation to prevent accelerated erosion, landslides, and increased fluctuation in water levels. There is also the claim of destruction of national projects for modernization such as the Three Gorges Dam. A further argument is that the imposition of scientific management over local peoples is "for their own good," bringing them out of primitive feudal practices and a superstitious past into the modern world. Furthermore, it is claimed that this goal is what the most enlightened and progressive community members actually want, as proven by their desire for modern consumer goods—proof both of this shift and the desire for the shift—primarily on the part of young people. Thus the goal, achievable through generational transformations, is to achieve modernity and the Han norm of a settled community, with responsible and orderly conduct in the home and in resource use practices (Kristoff 1991). Finally, the opportunity to fully participate in the market economy and achieve its liberation potential further justifies limits and/or bans of nonmarket, subsistence-oriented resource use strategies (Xinhua News Agency 1998a, 2001c,g).

The state focus on modernization is supported by a long and distinguished history of research on Chinese Himalayan land degradation by the Chinese Academy of Sciences, the Geography Institute, the Chinese Academy of Social Sciences, the Chinese Academy of Agricultural Sciences, and the various ministries and other institutions involved in assessing resource use practices in the region. This research includes the application of extensive monitoring technologies, including remote

sensing and satellite imagery interpretation of forestry resources. This research helps identify watersheds at risk of high levels of soil erosion, quantifies existing sediment loads in rivers, and provides information on other resource use problems. It also includes extensive research on wildland resources and biodiversity (Y. Wang 1987; B. Li and Dan 1994; Biodiversity Committee et al. 1995; Hong and Li 1996; Pei 1996; Yan 1997; Ke 1997), forest management practices and social forestry (Yin 1998; Zhao 1993; Zhou 1994; B. Li and Dan 1994; Ministry of Forestry of the People's Republic of China 1995; He 1995; Lai 1997; J. Zhang et al. 1992; Pei et al. 1997), as well as forest economics (J. Li et al. 1995; Kong et al. 1996). Almost all of this research justifies the need for watershed management and the central and continuing role of the state.[9] When local control is shown to be less than ideal, the reassertion of central government control is easily justified (Tang and Du 1995, Koppelman et al. 1996; Qiao 1997; Z. Zhang 1997; Jahiel 1998; Pan 1998). This all resonates with THED. As such, the research produced has contained regular reports of deforestation, overgrazing, and cultivation on steep hillsides—all grounds to increase regulation and exclude local people from control and management decisions (C. Y. Li 1998). As is the case in India, a theory of Himalayan environmental crisis is being constantly renewed through this research. In short, THED in China, as in India, is closely implicated in the highly contested relationships between powerful institutions of the state and local peoples.

Furthermore, the international publication of research challenging THED and substantially rejecting many of its major components contradicts most research carried out by China's extensive and highly competent research establishment. The contradiction is most apparent in the vast majority of indigenous research that continues to show the centrality of anthropogenic erosion (Ministry of Forestry of the People's Republic of China 1997; C. Y. Li 1998). As such, the international discourse threatens the major justification for Forest Bureau management of forests in China's Himalayan region. Further, it challenges the central government's desire to voice the supraprovince and supraregional needs of all China and be the responsible entity in solving such threats to all of China (National People's Congress 1979, 1989). Thus, animosity toward critics of THED is clear in the state's occasional denunciation of this counterorthodoxy by branding it as supportive of secessionist and independence movements, as well as in romantic cultural preservationism, out of touch with the real needs of the indigenous peoples (see discussion below). All major actors in state and central government

institutions thus find power and use in the array of discursive weapons at their disposal. This is particularly true in China where the media is relatively less independent then in India, and the power of the state propaganda machinery is more intact. A good example is China's media coverage of the recent large-scale flooding. The floods have provided the perfect alibi for renewed state intervention in China's hinterland regions on a scale far grander then ever before. The state has successfully shown that downstream victims have borne the external costs of environmentally unsound practices of their upstream compatriots. As such, the "upstream-downstream" thesis has become an extremely powerful, effective, and strategic discursive weapon on the part of the state.

China: Heroism—Martyrdom, Modernization, and Mobilization

In China, the ability for mass mobilization dwarfs similar efforts in much of the rest of the world. There is a culture of pride in the ability of the state and its local organs to bring thousands, if not millions, of individuals together to battle identified problems or natural disasters. Such displays of mass power are central to ongoing nation building efforts on the part of the party and state. For example, during the floods of 1998, the worst experienced in China since 1954, The China Daily pronounced: "Thousands of lives and billions of yuan have been lost to the 'floods of the century', but one thing is certain . . . . We are one nation. We are of one mind." The article went on to say,

> While millions fight tirelessly and fearlessly against the ferocious flood peaks . . . people of Chinese origin are joining hands against the havoc that has affected one-fifth of the country's population. Hand in hand we are an impregnable embankment against the floods. Hand in hand we are bound to tide over all the troubled waters ahead. The sense of togetherness that has bound us since the foundation of the nation is trial-tested. It is a line of tradition that has never died and never will.
> —(Agence France-Presse 1998)

Comparing the "natural disasters" to past calamities that challenged the nation, an article in the official media stated, "Together we resisted and foiled the most atrocious of foreign aggressions; together we survived the most tragic economic and political turmoil in history," referring to World War II, as well as the Great Leap Forward of 1958 (from which an estimated 30 million died of starvation), and the Cultural Revolution (1966–1976). And an editorial in The China Daily provided a

dramatic flourish: "[The floods] tore apart concrete embankments along rivers and, showing no mercy, took away lives. But they could not break the Great Wall of our will," echoing themes contained in China's national anthem (as quoted in *Agence France-Presse* 1998).

During the flooding of 1998 and 1999, such nationalistic outpouring was the rule, not the exception. Communist Party Chief Jiang Zemin was shown on television visiting flooded areas "using a bullhorn to exhort troops fighting raging waters to greater efforts" (R. MacKinnon 1998). The use of the army to fight the floods played an important role in rehabilitating the People's Liberation Army (PLA) in the minds of China's people. Visions of soldiers throwing their bodies into breaks in the dikes, forming human chains, and sacrificing their lives to slow the waters that threatened to destroy the dike and the land below it, dominated the television screen in nightly news reports. Film of peasants, workers, students, and soldiers lining the banks of the swollen river, a meter apart, watching for any weakness in the dike under their feet, in torrential rain in the middle of the night—these images were imprinted into the national consciousness in a planned and quite effective way. The success of such propaganda in diverting national attention away from other pressing problems should not be underestimated. Nature was blamed for the nation's ills, freeing the state from direct criticism of its economic and social policies, and placing it firmly at the center of the solution, via mass mobilization. The legitimacy thus gained was the currency of subsequent expenditures of social capital in the face of pressing structural problems.

Upstream Destroyers of Downstream Lives

A highly political turn to the upstream-downstream narrative is the construction of the land users in the upper watersheds of the Yangtze as the perpetrators of a crime upon those below through their irresponsible and unscientific land management (Dai 1989; Ministry of Forestry 1997; Harkness 1998; Xiang and Chao 1998). In this narrative, China's global city, Shanghai, is perceived to be a possible victim of upstream "poor environmental management" on the part of ignorant rural backward peasants and minority peoples.[10] As a result of the success of this particular narrative, the strict logging ban put in place in twelve provinces in the upper reaches of the Yangtze and Yellow rivers in 1998, was extended to eighteen provinces in 2000. Thus, there will be no legal logging in the upper reaches of the Yangtze or Yellow rivers (Pomfret 2001).[11] It is impressive that, since 1997, official statistics show timber production has

fallen 97 percent from over 65 million cubic meters to just one million cubic meters in 2000 (Pomfret 2001), clearly in response to the perception and government pronouncements that upstream misuse of land, through overcutting of forests and intrusion of agriculture onto steeply sloping and highly erodable areas, was the cause of record floods in every year since1997. While the reliability of these statistics is arguable, with estimates of illegal logging 50 percent higher then what is reported (U.S. Embassy 2000), they none the less are representative of not only a general trend but what appear to be important policy shifts (Harkness 1998). The State Environmental Protection Agency, in its 1999 *Report on the State of the Environment in China*, for example, cites the "super flood in 1998" as caused by "destroyed vegetation of grassland and forest in upper and middle reaches of Changjiang (Yangtze) River" (SEPA 2000, 5). The agency goes further to say that the most important reason for this environmental degradation is "*unreasonable* development and utility of grassland by humans" (4, emphasis added). Thus, there have been repeated calls to implement plans for conversion of "all the sloping and ecologically important farmland with serious water and soil erosion problems . . . restored as woodland in the next five to ten years in the mid-western region" (Xinhua News Agency 2001b).

Chinese President Jiang Zemin recently called for "efforts to return hilly and low-yielding farmland to forested land, prevent and control desertification and harness soil erosion" as part of the new 10th Five-Year Plan (2001–2005) (Xinhua News Agency 2001a). This is to be accomplished by buying out the farmers and moving them off these lands. These sloping lands will then be seeded with grass or planted with trees (*China Economic Review* 2001). This is no small task since, according to Wang Zhibao, forestry administration director in the State Forestry Administration, "land under cultivation on slopes reached 18 million hectares in 12 provinces, autonomous regions, and municipalities along the upper reaches of the Yangtze and Yellow rivers," and "China has some 6 million hectares of farmland on steep slopes slanting over 25 degrees, a gradient banned for cultivation by the State Erosion-Control Law. That land has to be returned to reforestation" (*China Daily* 1998b,c).

These policies can be interpreted as a continuation and amplification of control over the inhabitants of these regions (Goldstein and Beall 1989)—many of which are composed of what China refers to as "national minorities" such as Tibetans. According to an official of the State Nationalities Affairs Commission, since 1949, the Chinese government has allocated funding every year "specifically to encourage nomadic peoples to

settle." In this narrative the official states that "herds-man, who once roamed far and wide in search of good grazing land, have started fencing grasslands to protect them from being damaged or over-exploited, planting forage grasses and fencing animals" (Xinhua News Agency 1992). Such practices, though, run completely contrary to the views of international academic experts who repeatedly state in reports that this settling of no-mads and fencing of lands is a primary cause of the rapid degradation of grasslands (Goldstein and Beall 1990; Miller 1995; Interpress Service 1997), and that "it was vital . . . that traditional herding practices were re-established" (Agence France-Presse 2000b). In fact such enclosures of tradition grazing grounds have been per-ceived as encroachment by Tibetans and have led to clashes with Han immigrants as well as Mongol herders (Goldstein and Beall 1994; Associated Press 1999).

The Chinese government has plans for the 40,000 pastoralists in Xinjiang to settle in the next three years (Hutzler 1999). Similar plans for Tibet are also under way. The Chinese officials view this as "helping" ethnic minorities to "raise incomes and give up a way of life seen as inferior to farming and modern livestock rearing" (Hutzler 1999). As Tuo Man, vice-director of Xinjiang's animal husbandry bureau states, "The world has entered the most modern and civilized era ever known, and the nomadic culture bases on the nomadic economy is completely inappropriate" (Hutzler 1999). The question of political control of border regions cannot be dis-counted in this narrative, as it is reinforced within the Chinese state by the fear of Muslim separatists in Xi-njiang and a Buddhist independence movement in Tibet (Hutzler 1999) and has long historical precedent (Shaw 1914; Huang 1974; Menzies 1992).

Somewhat different from the Indian context, animal husbandry expansion to pay taxes in the modern era has severely affected China's grasslands. This has combined with an extension of agriculture, increased logging, and increased numbers of Han immigrants in China's Him-alayan hinterlands to provide evidence of widespread environmental destruction in the region. What is clear in recent international research (Miller 2001; Richard 2000b), and some less-heralded indigenous research in China (Yin 1998; Pei, Xu, Chen, and Long 1997), is the problematic characterization of the indigenous resource users as the source of the problem. In fact, according to various international researchers, state surplus extrac-tion and imposition of new practices by both state and nonstate actors are now seen as the greatest contributors to environmental degradation in the region (Wu 1997; Richard 2000b; Miller 2001).[12] Again, this flies in the face of THED as a justification for state intervention,

citing state withdrawal and a return to indigenous practices as having the greatest potential to reverse systematic environmental decline (Yin 1991; Pei, Xu, Chen, and Long 1997; Wu and Richard 1999).

The upstream-downstream narrative also neatly plays to the central government's desire to complete the largest state project in modern history—the Three Gorges Dam. It is not only mass mobilization that le-gitimates the state, but projects of a scope and scale only possible through the actions of the state. The Three Gorges Dam is a good example of this.

Three Gorges Dam—Hydraulic Engineering, Corruption, and Science

The Three Gorges Dam (TGD) is China's largest modern technical engineering and social reengineering project. Despite one of the most vibrant and heteroge-neous debates in scientific, policy, and public discourse in the 1988–1990 period (Boxer 1988; Dai 1989;[13] Qian 1989; Three Gorges Probe 2001), when the dam was finally approved in 1992 following a personal campaign by Li Peng, all direct oppositional talk was stopped (R. Li 1992b; Holley 1992; Three Gorges Probe 2001). It was only in 1998, after a long series of embarrassing mishaps, misappropriations, and national and international em-barrassments, that the door for national discussion opened once again (Dai 1998; *Guanming Daily* 2000a, 2000b, 2000c). The main delegitimizing events that brought the dam back into the spotlight of domestic Chinese debate included: embezzlement of the majority of funds set aside for the resettlement of over a million people living in the planned lake area behind the dam and connected social discontent (Jun 1997; Chao 2001; Macleod 2001); massive corruption and the use of shoddy materials in construction of the dam leading to expensive delays and rebuilding of certain structures (Dai 1998); inability to rid the dam of the persistent questioning of international NGOs (Jun 1997; Dai 1998); as well as questioning by more traditional dam supporters such as the World Bank (which, though supportive of the dam in the first instance, withdrew that support under heavy international criticism) (Three Gorges Probe 2001).[14]

For proponents of this engineering feat, upstream environmental degradation could potentially destroy their colossal project. For opponents of the dam, the inevitability of upstream environmental degradation is a major argument for why the dam should not be built, since soil erosion and silt-laden floodwaters will severely limit the dam's positive potential for both flood control and electricity generation. For each group, on

opposite sides of the TGD debate, the upstream-down-stream discourse is made to serve opposing ends, a further example of the power and flexibility of this narrative.

Conclusion—Networks, Politics, and Epistemological Fundamentalism

The production and dissemination of environmental knowledge in the Himalayan region is shaped by a small number of epistemic communities with significant disjunctures between each. International scholars and their national collaborators form one community, although, in common with all attempts to define "community," there are dissidents and mavericks who address others in the epistemic community but only to dissent. However, this epistemic community consists of social and natural scientists, along with some bilateral and multilateral funding agencies, and has deemphasized an environmental crisis that had been characterized as anthropogenic and increasingly urgent. National scholars working within government in China and India form two other (mutually exclusive) ones. In both countries, research on environmental change in the HKH region is closely linked to government and to sectoral policy concerns, and in this sense, is closely co-produced. Again, there are other in-country actors, particularly in India, who are not part of this community, but address policymakers and other wider constituencies. Examples include intellectuals and activists critical of Indian Forest policy, the Chipko Movement, and people participating in political agitation for the formation of a new state, Uttaranchal. Between these three communities, there are profound disjunctures. They contain different people who write for and read different journals, speak different languages, and their rewards for dissent, originality, and "sound" research are completely different. They "see" a different landscape, and their product is used and appropriated by mutually exclusive sets of policy elites—although the way in which the national policy elites in India and China use THED-supporting information is remarkably similar. Furthermore, the content of knowledge—what it says about environmental change in different parts of the region—differs between the national and international in a completely contradictory way. The new post-Mohonk "take" on environmental change and the partial dismantling of THED in many quarters of international research cannot be appropriated by any of the most powerful national elites of India and China. Simply, for them, there is nothing in it at all. In distinction, there is a discernible

shift in focus by multilateral and bilateral agencies to notions of sustainable livelihoods, gender issues across the whole range of natural resource management, participatory biodiversity conservation and national park management, and social and community forestry (with an emphasis on equity and livelihood enhancement, rather than scientific conservation for watershed protection). These latter policy initiatives however *do* resonate with a number of disparate (and sometimes contending) actors in both India and China. These rhetorical gestures in policy documents of lofty readership and indeterminate implementation are acceptable as long as centralized control of forest and land use in the name of environmental protection is not seriously threatened. Common discursive ground can be shared with foreign aid agencies that wish to push ahead with issues of equity, access, and entitlements. In India, this ground is shared with persuasive intellectuals and political activists, by giving space to ideas of devolving control of forests and wildlife on policy documents (e.g., the 1988 Indian Forest Bill). However, by both intention and default, such policy agendas inside government (as distinct from projects of limited extent) actually make slow progress. In India, the spirit of the 1927 act lives on, while it is the Forestry Law that maintains continuity with China's first forestry directives in the early 1950s. Forest regulations remain as tough as ever, if not tougher, and state implementation of such programs as social forestry move at a snail's pace.

The idea of environmental degradation in the region has played a very important role in the politics of both India and China. In the case of India, it has long been embedded in the politics of administration and control of valuable natural resources, and in more diffuse political struggles between the center and states, and these have had a remarkable stability through time. Indeed, the lineaments of the colonial state are still remarkably fresh, and claims to manage forests and land use in general in the mountain regions rest upon scientific management, the responsibility for which lies with the forestry service. In India, there was one instance in which the upstream-downstream hypothesis, along with that of biodiversity conservation, was used as a strategy to apply leverage on the part of the Center to gain increased control of forest use in the northeastern states, while in China, THED was much more instrumental in the Center's attempts for political control of minority areas.

In China, abrupt changes of policy harnessed environmental crisis narratives for a number of projects. Recent flooding and consequent mortality and loss of livelihoods for very large populations required that causes had to be found for these disasters, and these

causes had to be amenable to policy action by the party. Blame was therefore attached not just to natural causes, about which the party could do nothing, but to non-Han minorities, whose backwardness had brought disaster on the heads of the many and who *were* amenable to the power of the party. Further, these minorities had compromised the largest and boldest modernization project that China had ever witnessed—the Three Gorges Dam (Dai 1998). In the face of these formidable political purposes to which THED were being put in China and India, it is not surprising that the post-Mohonk consensus would simply be ignored, or when confronted on rare occasions, derided.

Lastly, there are issues of epistemology that are relevant to policymaking and development in general. There comes a point in the deconstruction of the rational policy model and the "truths" on which it is based, when the reader may ask "So what? What now?" The answers to these questions are usually implicit, but to ask them at all indicates that a boundless skepticism of all truth claims must be challenged. On the policy side, too, the assumption that all is representation, and that any negotiations about the choice and framings of truths that can be shared and agreed upon are no more than democratic and participatory window dressing, needs reappraisal. While there is much that is persuasive and liberating in this new turn in a wide range of social sciences, it tends to create a vacuum of responsibility. There are real and usually difficult choices over alternative paths of action to be taken on any policy issue by a wide variety of actors. How these choices are to be made and who makes these choices, whose knowledge is most powerful and whose reality counts (to use the title of a well-known book by Chambers [1997])—all these affect people's lives. These choices rely on truth claims, which can be negotiated and shared, even if they are provisional. Where scientific information provides important inputs into the process of policy choice, the less uncertainty there is, the easier it is, and it is less likely to be subject to a wide range of contested interpretations. In the case of environmental processes and change in the Himalayan region, the degree of scientific uncertainty is still, and probably will remain, large—"Himalayan in scale," say Thompson, Warburton, and Hatley (1986). However, new information about environmental processes centered on the international post-Mohonk consensus (even though the conference itself took place 15 years ago), although it does claim to replace falsehood with truth, reduces this uncertainty by showing the way to more transparent, democratic and pluralist ways of making policy (Forsyth 2003, 202–30). We argue that

the state and "its" science wields overwhelming authority in creating a singular environmental "truth," and excludes from legitimate discourse other types of knowledge about the environment and the practices of natural resource use by the resource users themselves.

Therefore, there is a strong case to be made that new information should be more openly shared and evaluated by national policymakers together with a wide range of members of civil society (e.g., local NGOs, farmers, and other stakeholders in natural resources of the region such as water, pastures, forests, and arable land). Of course, this evaluation will be political and contested, as was the construction of scientific information itself political all along. A call for new scientific information (such as the rejection of THED in its strongest form) to be brought to bear for discussion in an open and democratic way may privilege science over politics and thus may be dismissed in some quarters as politically naïve and naively realist. But the call also recognizes the possibility of policy reform and of a reduction in the social, cultural, economic, political, and environmental damage that an environmental narrative of the size and style of THED can do.

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Notes

1. There was no equivalent meeting and deconstruction of narrative by those international researchers concerned with the Chinese version of the THED. There were, instead, individual and sporadic challenges to the THED, which attempted to alter the identity of the narrative's primary players both in positive and negative ways depending on their goals (Ives 1998, 43; Ford Foundation Report on the ICIMOD website; ICIMOD 2001).

2. There are also those who still see little problem and suggest a reliance on the market to eventually resolve whatever problems do arise (Harashima 2000).

3. Litfin's (1994) example concerns ozone discourses surrounding the Montreal Protocol.

4. The World Bank has quite successfully trained hundreds of economists and returned them to Chinese institutions. This is an underresearched mode of ideological transfusion in the transformation of the contemporary Chinese state (Muldavin 1993).

5. One can read the *Agenda 21 White Paper* as a somewhat different kind of wish list, tied to China's calls for international participation and ODA to pay for its ambitious environmental projects laid out in this document.

6. According to Pomfret (2001), there has been a rapid increase in raw logs imported from Burma, Cameroon, and Siberian Russia to replace logs lost through the success of the Logging Ban and to continue to feed China's growing domestic lumber needs. Thus, China's most potent export may now be displaced deforestation and environmental degradation.

7. This resonates with other examples in the region. The Hmong in southeastern China, historically lowlanders, migrated to highland areas and became Swidden agriculturalists following a politically motivated rejection from the plains. They were subsequently blamed for environmental destruction and flooding in the lowlands. Another example is the tribal groups in the Chittagong hill tracts of Bangladesh, who lost their agricultural lands through displacement

by the Kaptai Dam and reservoir, were forced to migrate upslope, remained uncompensated, and were blamed for subsequent soil erosion impacting the reservoir (Blaikie and Sadeque 2000, 34).

8. Within university communities and the nascent civil society and domestic environmental NGOs, there is certainly a small but important pro-environment intellectual cadre, the publication in English of *China Environmental News* being one good example (L. Wang 1993; Han and Guo 1994; Ke 1997), focusing both on the domestic Chinese and international English-speaking audiences.

9. See Bryant and Wilson (1998) for an extensive critique of state-centered environmental management in theory and practice.

10. And yet unlike in India/Nepal/Bangladesh, the upstream downstream debate in China is all within one nation. Still, China's internal divides persist and have an array of roots: Han immigrants versus minority peoples, rural poor areas in distant western hinterlands versus urban wealthy eastern elites tied to the global economy.

11. As already noted, according to Pomfret (2001) the logging ban has moved destruction outside of China to Burma, Gabon, Siberia, and other regions, causing a displaced environmental havoc all its own.

12. The Tibetan independence community has promoted a new twist on THED and the upstream-downstream debate. Rather than focus on indigenous users, the aim is to show that the Chinese government is destroying Tibet's environment through a myriad of means, and that this destruction will have consequences not only for China but for South Asia as well (Agence France-Presse 2000b).

13. This is the primary edited book of interviews with all the major debaters, policymakers, as well as research articles produced during the period, published in Chinese in 1989, and in English in 1994.

14. These concerns include the real costs to the country's treasury, as well as the actual efficacy of the project in achieving its stated goals of improved navigation, flood control, economic development in both hinterlands and more developed regions, inexpensive electricity for national development, and so forth (Dai 1998). While there are real and difficult problems associated with upstream soil erosion and siltation of the reservoir (R. Li 1992a; Beachey 1995; Topping 1995; SEPA 2000), the project will not control flooding downstream as much of the floodwaters and silt come from tributaries below the dam (Gang 1989; Dai 1998; IRN 2001). Taken all together, the questioning of dam proponent claims, and the resurrection of old problems combined with new, make the dam's early completion unlikely (IRN 2001). In addition, the implications for other development projects of this national allocation of capital on one project are carrying more weight in renewed discussion among elite policymakers and academics (IRN 2001).

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