

CLIMATE CHANGE POLICY AND POLICY CHANGE IN CHINA

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Solving the climate change problem by limiting global greenhouse gas (GHG) emissions will necessitate action by the world's two largest emitters, the United States and China. Neither has so far committed to quantitative emissions limits. Some argue that China cannot be engaged on the basis of its national interest in climate policy, on the ground that China's national net benefits of limiting greenhouse gas emissions would be negative, as a result of significant GHG abatement costs and potential net gains to China from a warmer world. This premise has led some observers to advocate other approaches to engaging China, such as appeal to moral obligation.

This Article argues that appeal to national net benefits is still the best approach to engage China. First, appealing to China's asserted moral obligation to limit its GHG emissions may be ineffective or even counterproductive. Even if climate change is a moral issue for American leaders, framing the issue that way may not be persuasive to Chinese leaders. Second, the concern that China's national net benefits of climate policy are negative is based on older forecasts of costs and benefits. More recent climate science, of which the Chinese leadership is aware, indicates higher damages to China from climate change and thus greater net benefits to China from climate policy. Third, the public health co-benefits of reducing other air pollutants along with GHGs may make GHG emissions limits look more attractive to China. Fourth, the distribution of climate impacts within China may be as important as the net aggregate: climate change may exacerbate political and social stresses within China, which the leadership may seek to avoid in order to maintain political stability. Fifth, the costs of abatement may decline as innovation in China accelerates. Sixth, as China becomes a great power in world politics, and as climate change affects China's allies, leadership on climate policy may look more favorable to China's elites. Seventh, the design of the international climate treaty regime itself can offer positive incentives to China.

Taken together, these factors point to a potential and even ongoing shift in Chinese climate policy. They illustrate how the international law and politics of climate change depend on domestic politics and institutions. And they suggest that the United States, if it too takes effective action, can make the case for enlightened pragmatism as a basis to engage China in a cooperative global climate policy regime.

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INTRODUCTION

To solve the climate change problem, the United States must act, and it must engage China.¹ But can it, and if so, how? The challenge is great, and too important not to tackle. Indeed, we need to address it promptly. The year 2009 may be pivotal for climate change policy. In January 2009, the next U.S. president will take office and face this question. Climate legislation will be pending in the Congress. And the Bali Action Plan² calls for negotiations on a new treaty to succeed the Kyoto Protocol, to be completed by the end of 2009.³

Some have argued that engaging China cannot be premised on its national interest in climate policy (on the ground that limiting greenhouse gas emissions would be harmful to China's national interests), and that therefore other approaches, such as appeal to moral obligation, should be employed to engage China.⁴ This Article argues that an appeal to national net benefits is still the best approach to engage China. Part I sets out the context of rapidly rising greenhouse gas emissions in China, and the problem

1. The U.S. and China are the world's two largest emitters of greenhouse gases, and China's emissions are growing rapidly. See *infra* notes 8–13 and accompanying text. But neither has yet committed to quantitative limits on its emissions.

2. United Nations Framework Convention on Climate Change, Conference of the Parties, Thirteenth Session, Bali, Indon., Dec. 3–15, 2007, *Decision 1/CP.13: Bali Action Plan*, U.N. Doc. FCCC/CP/2007/6/Add.1 (Mar. 14, 2008), available at <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf#page=3> [hereinafter *Bali Action Plan*].

3. See *id.* at 5.

4. See Cass R. Sunstein, *The World vs. the United States and China? The Complex Climate Change Incentives of the Leading Greenhouse Gas Emitters*, 55 UCLA L. REV. 1675 (2008) (describing China's potentially negative national net benefits of limiting emissions, and suggesting that we appeal to China to recognize and act upon its moral obligation to combat climate change); see also Douglas A. Kysar, *Climate Change, Cultural Transformation, and Comprehensive Rationality*, 31 B.C. ENVTL. AFF. L. REV. 555 (2004) (advocating a cultural transformation toward an environmental ethic or moral code as the way to combat climate change, rather than calculating the net benefits of climate policies). More generally, some have characterized climate change as a moral issue, without necessarily advocating this as a strategy to engage China. See *Gore Shares Nobel Peace Prize With UN Panel*, CNN.com, Oct. 12, 2007, <http://www.cnn.com/2007/WORLD/europe/10/12/nobel.gore> (quoting Al Gore, "the climate crisis is not a political issue it is a moral and spiritual challenge").

that limits adopted in only some countries may induce shifts or “leakage” of emissions to other unregulated countries. Part II very briefly describes the types of strategies available to persuade countries to join international cooperative efforts. Part III appraises the weak efficacy of moral obligation as a means to persuade China to limit its emissions. Part IV argues that realist incentives are a more effective means to this end. China’s domestic interests are shifting to favor limits on its emissions, based in part on more recent climate science, in part on the public health co-benefits to China of reducing emissions, and in part on political and social changes occurring in China, and China’s leaders’ concerns about political instability potentially exacerbated by climate change. Further, as China becomes a great power in geopolitics, while struggling with significant internal tensions, the net benefits of climate policy action may look more favorable to China’s leadership. And the design of the international policy regime itself can offer positive incentives to China.

I. GLOBAL EMISSIONS AND CHINA

The collective action problem vexing climate policy is by now familiar.⁵ Because greenhouse gases (such as carbon dioxide [CO₂], methane [CH₄], and several others) mix globally in the atmosphere and their accumulation has global effects on the Earth’s climate, efforts to abate emissions by any one country impose local costs today while yielding globally shared benefits in the future. Each country therefore faces incentives to free ride—to let others bear the costs of limiting emissions while enjoying the global benefit. Some collective approach is thus needed to engage cooperative action. Yet, international treaties are binding only on those countries that consent to be bound. With no global sovereign to adopt coercive regulation, countries must be affirmatively attracted to join an international cooperation regime.⁶ Countries join treaties where joining yields net national benefits over not joining.⁷

Any effective strategy to forestall global climate change through greenhouse gas (GHG) emissions limitations will require action by the

5. For an overview and analysis, see RICHARD B. STEWART & JONATHAN B. WIENER, RECONSTRUCTING CLIMATE POLICY: BEYOND KYOTO (2003), available at http://www.aei.org/books/docLib/20040218_book211.pdf.

6. See Jonathan Baert Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 YALE L.J. 677 (1999).

7. See LLOYD GRUBER, RULING THE WORLD (2000) (explaining the need for national net benefits to join a treaty, as compared to not joining); cf. Robert O. Keohane & Joseph S. Nye, Jr., *Power and Interdependence in the Information Age*, FOREIGN AFF., Sept./Oct. 1998, at 81 (arguing that states remain the key centers of power, and that national leaders care about national interests).

major emitting countries, including both the United States and China, the world's two leading GHG emitters.⁸ Though the United States had long been the top emitter, China's emissions have been growing rapidly. Ten years ago, around the time of the negotiation of the Kyoto Protocol, China and other developing countries were predicted to surpass the United States and other industrialized countries in CO₂ emissions by about 2030.⁹ But China's actual growth exceeded forecasts. By 2006 these projections were amended: China was expected to surpass the United States in CO₂ emissions by 2009.¹⁰ And just a few months later, in early 2007, the timing was advanced to 2007 itself.¹¹ China's addition to its energy generating capacity each year (90 percent of which is coal combustion) now exceeds the total energy capacity of France.¹² China's and other developing countries' GHG emissions are growing so fast that they will push global atmospheric GHG concentrations beyond 450 parts per million (ppm) by the year 2070 (up from a level of 275 ppm about two centuries ago, and 380 ppm nowadays), even if all emissions from industrialized countries such as the United States and Europe were reduced to zero today.¹³

There is another reason that we need to engage China: the phenomenon of international emissions leakage. Emissions limits adopted by the United States alone (or in concert with Europe, that is, by the industrialized countries alone) would not only omit China's rapidly growing emissions, as described above. Worse, in a dynamic globalized world economy, such partial regulatory coverage could induce transnational emissions leakage as sources relocate from regulated to unregulated places. This effect can offset

8. For emissions data and projections, see INT'L ENERGY AGENCY, WORLD ENERGY OUTLOOK 2007 (2007). The next edition will be published in November 2008.

9. COUNCIL OF ECONOMIC ADVISERS (CEA), ECONOMIC REPORT OF THE PRESIDENT 171 (1998), available at <http://www.gpoaccess.gov/usbudget/fy99/pdf/erp.pdf>.

10. INT'L ENERGY AGENCY, WORLD ENERGY OUTLOOK 2006, at 41 (2006), available at <http://www.iea.org/textbase/nppdf/free/2006/weo2006.pdf>.

11. See *China to Top USA in Greenhouse Emissions*, USA TODAY.COM, Apr. 24, 2007, available at http://www.usatoday.com/weather/climate/globalwarming/2007-04-24-china-emissions_N.htm (citing comments by IEA chief economist, Fatih Birol). India will soon be third. See INT'L ENERGY AGENCY, *supra* note 8, at 11. The present Article focuses on China, but it is clear that more attention to engaging India is also needed.

12. See *A Large Black Cloud: Rapid Growth Is Exactng a Heavy Environmental Price*, in ECONOMIST, *Special Report: China's Quest for Resources*, Mar. 15, 2008, at 17, 17, 21, available at http://www.economist.com/specialreports/displaystory.cfm?story_id=10795813.

13. See Richard G. Richels, Thomas Rutherford, Geoffrey Blanford & Leon Clarke, *Managing the Transition to Climate Stabilization* (AEL-Brookings Joint Ctr. for Regulatory Studies, Working Paper No. 07-01, 2007), available at <http://www.reg-markets.org/admin/authorpdfs/page.php?id=1350> (noting that if industrialized countries continue emitting unabated, the 450 parts per million (ppm) level will be reached earlier, by 2040); see also Andrew C. Revkin, *As China Goes, So Goes Global Warming*, N.Y. TIMES, Dec. 16, 2007, Week in Review, at 3 (illustrating this forecast with a large chart).

the abatement in the regulated countries. It could even yield greater net global emissions than without such action, if the economic activities that relocate turn out to emit more GHGs per unit of economic output than they did in the regulated country.¹⁴ There is some evidence that such leakage has contributed to China's faster-than-expected emissions growth in the last five years, and at least in some cases has led to greater emissions increases in China than the emissions reductions obtained in Europe.¹⁵

Moreover, the fear of leakage, with its adverse effects on international competitiveness and local jobs, can sap the political will to shoulder the burden of being the first-mover country and imposing emissions limits. This phenomenon played a role in the U.S. Senate's rejection of the Kyoto Protocol. It makes the U.S. Congress unlikely to act without at least some corresponding action by China. Over time, leakage will also render the economy of the second-mover country (the recipient of the leaking industry) even more carbon intensive, as high-emitting industry relocates there, and thus will make that country even more reluctant to act than it had been initially (as its abatement costs rise).¹⁶

The argument here is not that it would be unfair for the United States to have to limit its emissions if China did not have to do likewise, but that doing so would be ineffective in protecting the climate, because China's emissions would continue and even accelerate. Thus, cooperation among

14. See Jonathan B. Wiener, *Think Globally, Act Globally: The Limits of Local Climate Policies*, 155 U. PA. L. REV. 1961, 1967–75 (2007) (summarizing the literature on greenhouse gas (GHG) emissions leakage); Mustafa H. Babiker, *Climate Change Policy, Market Structure, and Carbon Leakage*, 65 J. INT'L ECON. 421 (2005) (finding that in a multiregional computable general equilibrium model, GHG emissions limits by OECD member countries alone could yield significant relocation of energy-intensive industries to other unregulated countries, with leakage rates as high as 130 percent, meaning that GHG control policies adopted solely in the industrialized countries could actually result in higher global emissions).

15. See Joseph Kahn & Mark Landler, *China Grabs West's Smoke-Spewing Factories*, N.Y. TIMES, Dec. 21, 2007, at A1 ("Germany is China's mirror image. Polluting factories have migrated abroad. . . . Since 1990, Germany has reduced its annual carbon emissions by 19 percent."); *id.* ("[But] the same hulking blast furnace [was] dismantled and shipped piece by piece from Germany's old industrial heartland to Hebei Province, China's new Ruhr Valley. The transfer, one of dozens since the late 1990s, contributed to a burst in China's steel production, which now exceeds that of Germany, Japan and the United States combined. . . ."); *id.* ("China's less efficient steel mills, and its greater reliance on coal, meant that it emitted *three times as much* carbon dioxide per ton of steel as German steel producers." (emphasis added)).

16. See Richard Schmalensee, *Greenhouse Policy Architectures and Institutions*, in ECONOMICS AND POLICY ISSUES IN CLIMATE CHANGE 137, 146 (William D. Nordhaus ed., 1998).

the United States, China, and other major emitters is essential if global GHG emissions are to be addressed effectively.¹⁷

Yet, it may be difficult to persuade China (and the United States) to act. Abatement is costly, yielding the free rider incentive noted above. China and other developing countries may also understandably perceive unfairness in a demand to limit their emissions when richer countries have not adopted similar limitations on their own emissions. And, even though GHGs mix globally and produce global effects, the specific local impacts will vary among countries. The impacts of climate change in any particular country depend on such factors as latitude, regional precipitation, wind patterns, mix of economic activities, and coastal vulnerability to rising sea levels.¹⁸ Consequently, even if preventing significant climate change would reap positive global net benefits, joining a treaty to limit emissions may confront some major emitting countries with high national costs of abatement and low national benefits—that is, negative national net benefits. The United States may be in or near this category, at least if the policy under consideration is very costly (lacking the flexibility of market-based incentives such as trading and banking) and if other major emitters do not cooperate. Further, some suggest that China, in addition to perceiving that GHG abatement costs exceed benefits, may perceive global warming as actually benefiting China in the aggregate, on the view that warming would improve agricultural output in northern China.¹⁹ If so, China would face incentives not just to free ride on others' abatement, but to actively impede others' abatement.

II. TYPES OF STRATEGIES TO PERSUADE CHINA

Thus, the challenge is to achieve the global public good of climate protection—averting a tragedy of the global commons—through consensual action by heterogeneous national actors. Cooperation must be secured from actors who are major GHG emissions sources, but they may not all perceive national net benefits from joining such a cooperative regime. Or, put more

17. An additional advantage of broader global coverage is that it widens a market in emissions allowance trading to encompass more abatement opportunities, thus reducing the total costs, and diminishing the market power of each seller and buyer.

18. See NEIL ADGER ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SUMMARY FOR POLICYMAKERS, CLIMATE CHANGE 2007: IMPACTS, ADAPTATION AND VULNERABILITY 7–22 (2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-spm.pdf>.

19. See WILLIAM NORDHAUS & JOSEPH BOYER, WARMING THE WORLD (2000), noted in Sunstein, *supra* note 4; STEWART & WIENER, *supra* note 5, at 23–24, 99–109.

directly, how can the United States act and engage China on climate change, as on a host of other major issues of the coming century?

As with many other social problems, there are at least two basic approaches one might take to influence behavior: accept people as they are and try to change the incentives and institutions that guide their behavior; or try to change the people, their preferences, values, and internal norms, so that they think differently and thus behave differently. That is, one can design incentives or inculcate ethics (or both); change the rules or change the players.

In international relations theory, as strategies to persuade national governments to act, these two approaches are termed “realism” with “thin persuasion” through incentives, information, and bargaining; and “constructivism” with “thick persuasion” through changing deeper preferences, norms, and identities.²⁰ These two approaches correspond to engaging China through incentives (the realist strategy) or through appeals to moral obligation (the constructivist strategy).

Realist persuasion can include appeals to subnational institutions and interest groups. The state is not a monolith,²¹ and domestic politics affect international relations.²² Indeed, as I discuss below, successful international strategies to engage China (or any country) often must look beyond national aggregate net benefits to find receptive domestic institutions and key elements of the domestic distribution of interests. Among these, moral obligation may or may not be relevant to interests. The question is it's the relative efficacy of different strategies of persuasion.

20. See Peter J. Katzenstein, Robert O. Keohane & Stephen D. Krasner, *International Organization and the Study of World Politics*, in *EXPLORATION AND CONTESTATION IN THE STUDY OF WORLD POLITICS* 5 (Peter J. Katzenstein et al. eds., 1999) (contrasting the two types of approaches and urging the need for both); *id.* at 42 (“Neither project can be complete without the other.”). Cf. Ryan Goodman & Derek Jinks, *Toward an Institutional Theory of Sovereignty*, 55 *STAN. L. REV.* 1749 (2003) (describing the acculturation of norms across countries); Harold Hongju Koh, *Internalization Through Socialization*, 54 *DUKE L.J.* 975 (2005) (commenting on Goodman and Jinks).

21. On disaggregating the state, see Robert O. Keohane & Joseph S. Nye, *Transgovernmental Relations and International Organizations*, 27 *WORLD POL.* 39 (1974); Anne-Marie Slaughter, *The Real New World Order*, *FOREIGN AFF.*, Sept./Oct. 1997, at 183.

22. See Robert D. Putnam, *Diplomacy and Domestic Politics: The Logic of Two-Level Games*, in *DOUBLE-EDGED DIPLOMACY: INTERNATIONAL BARGAINING AND DOMESTIC POLITICS* 431 (Peter B. Evans et al. eds., 1993); Kal Raustiala, *Domestic Institutions and International Regulatory Cooperation*, 49 *WORLD POL.* 482 (1997).

III. CONSTRUCTIVIST PERSUASION: APPEALS TO NORMS AND MORALS

A constructivist strategy to shape appropriate norms and instill a sense of moral obligation about protecting the global climate²³ may accomplish some results over time, especially in open societies where public norms readily influence government choices. But it faces several hurdles. It is valuable to aspire to global progress, and I share the spirit of can-do idealism. But we must be careful what we mean and say about moral obligation in the context of global climate policy, and avoid prescribing a kind of orthodoxy of morals that might do little, or even prove counterproductive, in persuading China to act.

First, climate policy is so economically dramatic (in terms of both benefits and costs) that it seems unlikely that national leaders would commit based on an appeal to moral obligation unrelated to or insensitive to national interest and international competitiveness.²⁴

Second, awareness of moral pluralism counsels caution. Interpreting moral and cultural meanings across societies is not easy. Even if norms and moral duty could be transformed in the United States, China may have fundamentally different norms and moral understandings. If this is so, then a successful appeal to the United States' sense of moral obligation is unlikely to resonate in China. It is difficult enough to make moral obligation a persuasive basis for climate policy within the United States; it seems even harder to convince China of the same. Nor is a deep consensus on the underlying moral basis for action really necessary. A better approach in this setting would be an "incompletely theorized agreement"²⁵ to act on GHG

23. See Kysar, *supra* note 4; Sunstein, *supra* note 4. Sunstein's appeal to moral obligation is distinct from Kysar's call for "cultural transformation," but both share the strategy of changing people's internal norms and beliefs (rather than external incentives) to spur a change in behavior. Sunstein does discuss a variety of strategies to engage China, including incentives in an international treaty, but he emphasizes the appeal to moral obligation as a way to persuade China if incentives-based strategies are inadequate to the task. It is plausible that domestically, within the U.S., appeals to moral obligation regarding climate may be effective in persuading religious conservatives to ally with environmentalist liberals. The issue I address here is whether such a strategy will succeed internationally to engage China.

24. China's GHG emissions have been driven by its surging economic growth. See *supra* text accompanying notes 8–13. China's leaders may see their political stability as dependent on continued economic growth. See Daniel Abebe & Jonathan Masur, The Two China Problem (Apr. 29, 2008) (unpublished manuscript), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1126966.

25. See Cass R. Sunstein, *Incompletely Theorized Agreements in Constitutional Law* (Univ. of Chi. Law Sch. John M. Olin Law & Econ. Working Paper No. 322, Pub. Law and Legal Theory, Working Paper No. 147, 2007), available at <http://ssrn.com/abstract=957369>.

emissions, via changed policies and incentives, without necessarily agreeing on the underlying moral basis.

Given the potential differences in norms, an appeal to moral obligation regarding GHG emissions limits could even backfire, if it were seen in China as patronizing and ecoimperialist. This kind of defiant nationalism sparked by foreign moralism is evident in the current controversy over the Olympic torch in Tibet.²⁶ It could also trigger a revival of the Maoist view that the human will can triumph over nature and that environmentalism is a Western plot to suppress China's development.²⁷ This scenario would only delay effective global climate policy.

Third, the line between moral duty and moralizing is slender, and crossing that line may be easy yet counterproductive. Moral suasion in environmental law has often led, at least in the past, to absolutist approaches that neglect pragmatic incentives and trade-offs, and accomplish little at high cost. The moralizing of the early modern environmentalist movement advanced the notions that pollution is a sin to be expiated by draconian government edict, and that markets are the problem not the solution. That view is now progressively being replaced by reliance on economic incentive instruments to internalize harms, reconstitute markets, and achieve more environmental protection at less cost. For climate policy, these cost savings are highly significant; it is roughly on the order of 90 percent less costly to use emissions trading and a comprehensive approach than to adopt narrow inflexible policies.²⁸ Going back to the old moral case and its associated rigid policy tools would entail such high costs that governments would be far less likely to adopt climate policies. As Harvard's cognitive scientist Steven Pinker put the point recently:

[N]owhere is moralization more of a hazard than in our greatest global challenge. The threat of human-induced climate change has become the occasion for a moralistic revival meeting. In many discussions, the cause of climate change is overindulgence (too many S.U.V.'s) and defilement (sullyng the atmosphere), and the solution is temperance

26. See Matthew Forney, Op-Ed., *China's Loyal Youth*, N.Y. TIMES, April 13, 2008, at 16, available at <http://www.nytimes.com/2008/04/13/opinion/13forney.html>.

27. See JUDITH SHAPIRO, *MAO'S WAR AGAINST NATURE: POLITICS AND THE ENVIRONMENT IN REVOLUTIONARY CHINA* (2001).

28. See STEWART & WIENER, *supra* note 5, at 63–68. The 90 percent cost saving figure compares a comprehensive multi-gas (all GHGs), multi-sector emissions trading policy to an energy sector-only CO₂-only, no-trading policy with performance standards. A prescriptive technology-based policy of the kind often associated with moralizing about pollution would be even more costly than the latter narrow no-trading policy, because it lacks even the “how to” flexibility of a performance standard. *Id.*

(conservation) and expiation (buying carbon offset coupons). Yet the experts agree that these numbers don't add up: even if every last American became conscientious about his or her carbon emissions, the effects on climate change would be trifling, if for no other reason than that two billion Indians and Chinese are unlikely to copy our born-again abstemiousness. Though voluntary conservation may be one wedge in an effective carbon-reduction pie, the other wedges will have to be morally boring, like a carbon tax and new energy technologies, or even taboo, like nuclear power and deliberate manipulation of the ocean and atmosphere. Our habit of moralizing problems, merging them with intuitions of purity and contamination, and resting content when we feel the right feelings, can get in the way of doing the right thing.²⁹

Perhaps a moral objective of planetary stewardship can now, in 2008, be paired with the more cost-effective policy tools of the post-moralist era. This pairing would be progress. It would, in effect, shift the moral claim to a consequentialist case for the planetary protection goal.

Fourth, some (liberals) may worry that moral and cultural change are too slow. Even if ultimately effective, changing moral norms among millions of people is likely to take far too long to be relevant to forestalling climate change. Those seeking urgent climate protection policy should therefore favor the more immediate effects of changing incentives. Decisions about long-term investments in energy generation, such as coal versus nuclear, are being made now. These decisions will shape GHG emissions for decades to come. Changing incentives now can affect those choices; inculcating a mass cultural transformation over several decades or centuries may not.³⁰ The last three decades—from Mao to Deng to Jiang to Hu—show that the Chinese economy can respond rapidly—even in transformative ways at astonishing speed—in response to changes in rules and incentives. (At the same time, as I discuss below, environmental protest movements in China today, driven in part by extreme weather events and pollution crises, may also motivate China's leaders to act.)

29. Steven Pinker, *The Moral Instinct*, N.Y. TIMES MAG., Jan. 13, 2008, at 32, 58, available at <http://www.nytimes.com/2008/01/13/magazine/13Psychology-t.html>.

30. The transition in Europe and the United States from a dominion mindset to modern environmentalism took decades if not centuries, and the clash of worldviews remains contested even today. See generally CAROLYN MERCHANT, *THE DEATH OF NATURE: WOMEN, ECOLOGY AND THE SCIENTIFIC REVOLUTION* (1989); KEITH THOMAS, *MAN AND THE NATURAL WORLD: CHANGING ATTITUDES IN ENGLAND, 1500–1800* (Oxford University Press 1996); Jonathan Baert Wiener, *Law and the New Ecology: Evolution, Categories, and Consequences*, 22 *ECOLOGY L.Q.* 325 (1995). For a more hopeful view that politics are highly dynamic and that climate change policy may respond to changes in moral understandings, see Jedediah Purdy, *Climate Change and the Limits of the Possible*, 18 *DUKE ENVTL. L. & POL'Y F.* (forthcoming 2008).

Fifth, some (conservatives) may worry that cultural change could come too quickly. Rapid change arising from an appeal to cultural transformation might not be as desirable as its proponents envision. China's "cultural revolution" and its "great leap forward," driven by appeals to moral and ideological orthodoxy, are not inspiring precedents, to say the least. The real advance in recent Chinese development has come from liberal economic policies, not moral suasion.

At the same time, there may be common ground. If an appeal to moral obligation means an appeal to an enlightened consequentialist view of the merits of improving global and national well-being, that may be persuasive to national governments and key domestic constituencies.³¹ In that sense, a modern moral appeal could be part of smart institutional design. For example, national leaders must consider their international reputations; moral opprobrium and shaming sanctions could be useful in nudging countries to act.³² And if the mass culture in China shifts to protest pollution (as discussed below), in effect raising the social damages that China's leaders could anticipate from future environmental incidents, then this cultural response (or the leaders' fear of it) would inform the calculus of national interest.

But these measures use information and incentives to change behavior, emblematic of realist persuasion, and are not rooted in the moral transformation of constructivist persuasion. Perhaps these approaches are mutually supportive and both can be undertaken, but we should at least recognize that in the international political arena, the overtly moral approach poses risks and delays. So, "suasion," yes, but not necessarily

31. Thomas Jefferson argued, "We are firmly convinced, and we act on that conviction, that with nations, as with individuals, our interests soundly calculated, will ever be found inseparable from our moral duties . . ." Thomas Jefferson, Second Inaugural Address (Mar. 4, 1805). But it is unclear whether Jefferson meant that moral duty is consequentialist, defined by national "interests soundly calculated"; or whether he meant that a truly enlightened "sound calculation" of interest would aspire to a "moral duty" derived from other axioms; or whether instead he meant something different by "inseparable," as in connected but not identical.

32. See A. CHAYES & A. CHAYES, *THE NEW SOVEREIGNTY: COMPLIANCE WITH INTERNATIONAL REGULATORY AGREEMENTS* (1995); William P. Alford & Benjamin L. Liebman, *Clean Air, Clean Processes? The Struggle Over Air Pollution Law in the People's Republic of China*, 52 *HASTINGS L.J.* 703, 714–15 (2001) (noting that "at least some in the [Environment and Natural Resources Protection Committee] and [National Environmental Policy Agency] argued that China's growing engagement with the international community in the years following the original air pollution law's development [in 1987] provided further rationale for its revision[,] and that "Beijing's [growing] role in . . . international environmental fora suggested that there would be costs in terms of reputational capital to pay for a laggard air quality regime"). China's leaders' concerns about the image of pollution at the 2008 Olympics in Beijing crystallize this point. See Jim Yardley, *Beijing's Olympic Quest: Turn Smoggy Skies Blue*, *N.Y. TIMES*, Dec. 29, 2007, at A1, available at <http://www.nytimes.com/2007/12/29/world/asia/29china/html>.

explicitly labeled “moral.” Thus, we should continue to attempt realist persuasion through changed incentives.

IV. REALIST PERSUASION: DOMESTIC INTERESTS AND INTERNATIONAL INCENTIVES

Engaging China and the United States in effective action on climate change through realist persuasion—appeal to global and national interests, and global and national net benefits—can be a successful strategy. As noted above, China’s recent history shows its rapid responsiveness to economic incentives. The net benefits calculus for China’s climate policy is no longer as negative as has often been supposed. In this section, I offer some observations on the domestic and international incentives that may motivate China’s leaders to act on climate change. China’s perceived benefits of climate policy appear to be rising and its perceived costs appear to be falling. Even on a purely domestic basis, there are important incentives for China to act to reduce emissions: domestic climate change impacts, domestic co-benefits in reduction of other pollutants, energy independence, and national security. As I detail below, China’s leaders are increasingly perceiving these impacts as serious, especially in terms of internal societal tensions from wealth disparities, rural to urban migration, air and water pollution, and potential political upheavals. Meanwhile, the costs of GHG emissions abatement in China may be declining as technological change advances. Further, China’s national net benefits are influenced by events occurring outside its borders, such as damages to its allies and trade partners. As China grows to become a global power, the weight of these impacts in China’s deliberations will increase. Moreover, law can shape payoffs: the design of the international policy regime can create incentives for parties to cooperate.

First, the aggregate impacts of climate change on China are now looking less favorable. In the 1990s, studies of the impacts of global climate change on China found that the aggregate impacts could be benign.³³ These studies could well have influenced the Chinese government’s perception of the payoffs from a climate treaty regime and militated against joining. But more recent studies, some conducted by Chinese experts, have started to show more negative impacts from climate change in China, including drought

33. See sources cited *supra* note 19; Richard S.J. Tol, *Estimates of the Damage Costs of Climate Change: Part I: Benchmark Estimates*, 21 ENVTL. & RESOURCE ECON. 47 (2002); Richard S.J. Tol, *Estimates of the Damage Costs of Climate Change: Part II: Dynamic Estimates*, 21 ENVTL. & RESOURCE ECON. 135 (2002).

in northern China, flooding along southern rivers as glaciers melt, and sea level rise along the coast.³⁴ Studies conducted by Chinese experts may be more influential with, or at least more accessible to, Chinese leaders.³⁵

Second, climate policy could yield co-benefits in control of local pollution. Conventional pollution in China has become severe, killing perhaps 400,000 to 750,000 people per year and costing about 6 percent of Chinese GDP.³⁶ By reducing emissions of sulfur, nitrogen and particulate matter pollution (SO_x, NO_x, and PM) as well, climate policy to reduce GHG emissions could simultaneously deliver important improvements in public health.³⁷ The Chinese leadership has put a high priority on reducing pollution, under the rubric of Hu Jintao's official principles of "harmonious society" and the "scientific concept of development."³⁸ China is especially

34. See ERDA LIN & JI ZOU, CLIMATE CHANGE IMPACTS AND ITS ECONOMICS IN CHINA (2006), available at http://www.hm-treasury.gov.uk/media/8/1/stern_review_China_impacts.pdf (prepared for the Stern Review); PEOPLE'S REPUBLIC OF CHINA, NAT'L DEV. & REFORM COMM'N, CHINA'S NATIONAL CLIMATE CHANGE PROGRAMME 17 (2007), available at <http://en.ndrc.gov.cn/newsrelease/PO20070604561191006823.pdf>.

35. A key question in continuing research is the amount and pattern of precipitation in China, and its dependence on the climate effects of the Tibetan Plateau. Richard Tol reports that most models show precipitation in China increasing overall with global warming, but one model shows precipitation declining—that model is the Chinese Meteorological Office model, which is among the best at depicting the Tibetan Plateau, and is likely to be influential with Chinese government leaders. Personal communication from Richard Tol to Author at the EMF meeting in Dublin, Ireland (Feb. 22, 2008).

36. See *A Large Black Cloud*, *supra* note 12; see also THE WORLD BANK & STATE ENVTL. PROT. ADMIN., PEOPLE'S REPUBLIC OF CHINA, COSTS OF POLLUTION IN CHINA, at xvii (2007) (citing a cost of 5.78 percent of GDP); Elizabeth C. Economy, *The Great Leap Backward?*, FOREIGN AFF., Sept./Oct. 2007, at 38, 47 (citing the 400,000 to 750,000 deaths figures and noting that Beijing wanted these numbers removed from the World Bank/SEPA report).

37. David G. Streets, *Black Smoke in China and Its Climate Effects*, 4 ASIAN ECON. PAPERS 1 (2005); Fei Teng & Alun Gu, *Climate Change: National and Local Policy Opportunities in China* (Fondazione Eni Enrico Mattei, Working Paper No. 74.2007, 2007).

38. China's leaders are no doubt motivated by a variety of factors, among them power (both internal and external, reflected in China's doctrine of "peaceful rise" to great power status), prosperity (economic growth through a market economy), and long-term stability and durability for their regime. See Zheng Bijian, *China's "Peaceful Rise" to Great-Power Status*, FOREIGN AFF., Sept./Oct. 2005. *Hexie shehui*, "harmonious society," is the official doctrine of Hu Jintao's government, adopted in October 2006 by the Communist Party of China. Its focus is on resolving tensions over growth, inequality, and pollution. See Xing Zhigang, *Plan Unveiled to Build Harmonious Society*, CHINA DAILY, Oct. 12, 2006, at 1, available at http://www.chinadaily.com.cn/china/2006-10/12/content_706359.htm. The doctrine

signaled a shift in the party's focus from promoting all-out economic growth to solving worsening social tensions. The endorsement, made at a closed-door plenary session held by the party's Central Committee, underlined Hu's increasing power. It effectively enshrined his doctrine in the same pantheon as those of Mao Zedong and other predecessors. China's leaders have become concerned in recent years about problems tied to the country's blistering economic growth. Anger over a growing gap between rich and poor and an inadequate social security system is feared to threaten the party's stability. . . . The four-day plenary

worried about social unrest, water availability (drought in the North, flooding in the South), and air pollution. The Chinese leadership may plausibly fear that health and pollution problems amidst rising expectations may yield unrest. Hu Jintao's "harmonious society" reforms are premised on his assumption that the cost of major reforms is lower than the cost of timid reforms.³⁹ In February 2008, the leadership reorganized the Chinese government into five "superministries," one of which is devoted to the environment.⁴⁰ China has set targets for greater energy efficiency and for reducing pollution.

Third, China is especially concerned about the distribution of climate impacts across the country, and about their influence on political stability, not only about the aggregate bottom line. In every country, national net benefits are not monolithic, but interact with domestic political institutions and structures, which may help account for national action. Within China, the stunning rate of economic growth has brought with it widening income inequality and a huge wave of internal migration, with some 300 to 400 million people trying to move from rural areas to cities.⁴¹ Changes in the distribution of precipitation, storms, droughts and flooding, and sea level rise along the coasts, could pose severe strains on Chinese society, which are not fully reflected in aggregate studies of agricultural and industrial output. Climate change could exacerbate these tensions, such as by worsening the

session, which ended Wednesday, was the first in 25 years to focus on social issues rather than on economic or political development. . . . Experts said this year's plenary session was especially significant because initiatives in areas such as health, education and social welfare were more dramatic and comprehensive than usual. The session also focused on rural unrest and the environment.

Maureen Fan, *China's Party Leadership Declares New Priority: "Harmonious Society": Doctrine Proposed by President Hu Formally Endorsed*, WASH. POST, Oct. 12, 2006, at A18, available at <http://www.washingtonpost.com/wp-dyn/content/article/2006/10/11/AR2006101101610.html>.

Hu's proposal for "harmonious society" included environmental protection as a key element. See *Building Harmonious Society Crucial for China's Progress: Hu*, PEOPLE'S DAILY ONLINE, June 27, 2005, http://english.peopledaily.com.cn/200506/27/eng20050627_192495.html. Two years on, the exact meaning of the doctrine remains unclear; at the least, though, it encompasses greater openness to public participation, often about environmental issues. The protests over the Xiamen chemical plant in 2007 are illustrative. See Howard French, *Letter From China: A "Harmonious Society" Hearing Different Notes*, INT'L HERALD TRIB., Jan. 4, 2008, <http://www.ihf.com/articles/2008/01/04/asia/letter.php>. The core motivation for undertaking reforms now is to avoid more costly dislocations later. See WING THYE WOO, *A HARMONIOUS SOCIALIST SOCIETY OR BUST: CHINA'S QUEST FOR SUSTAINABLE DEVELOPMENT* (2006), available at http://www.brookings.edu/~media/Files/rc/papers/2006/1201globaleconomics_woo/20061206woo.pdf.

39. WOO, *supra* note 38, at 7 ("The . . . Hu-Wen leadership . . . has concluded that far-reaching reforms are less dangerous than partial reforms.").

40. See Jim Yardley, *China Retools Its Government in Efficiency Push*, N.Y. TIMES, Mar. 12, 2008, at A12, available at <http://www.nytimes.com/2008/03/12/world/asia/12china.html>.

41. See Economy, *supra* note 36.

scarcity of clean water in urban areas where millions of poor migrants are arriving to seek economic opportunity.

China's leaders are especially concerned about the impact of climate and environmental change on political stability. As Elizabeth Economy writes:

In the view of China's leaders . . . damage to the environment itself is a secondary problem. Of greater concern to them are its indirect effects: the threat it poses to the continuation of the Chinese economic miracle and to public health, social stability, and the country's international reputation. Taken together, these challenges could undermine the authority of the Communist Party. . . . The Chinese leadership's greatest fear [is], namely, that its failure to protect the environment may someday serve as the catalyst for broad-based demands for political change.⁴²

Prior major environmental lawmaking in China has often occurred in the wake of this kind of threat to political stability,⁴³ and climate change policy could well be the next example.⁴⁴ Over a longer time span, there is intriguing evidence in Chinese history of climate change sparking warfare and dynastic change.⁴⁵ Present-day Chinese leaders might rationally worry that the harms from drought, flooding, agricultural losses and shifts, coastal inundation, and storms might also prove to be destabilizing in Chinese politics today.

Historically, an important factor in domestic politics and stability in China has been the role of environmental crises in political protest. A longstanding traditional popular belief in China holds that extreme weather events or natural disasters are a signal of impending political upheaval. As advanced by the ancient philosopher Dong Zhongshu, in this set of beliefs,

42. *Id.* Elizabeth Economy notes that in 2006, the Chinese government reported 1,000 environmental protests per week, and in May 2007 there were major protests involving 7,000 to 20,000 marchers against a proposed petrochemical facility in Xiamen. *Id.*; see also *A Large Black Cloud*, *supra* note 12 (detailing protests over pollution and land expropriation).

43. See Alford & Liebman, *supra* note 32, at 748 ("It was only when the central leadership began to appreciate the extent to which environmental problems might be destabilizing and to mount vigorous national campaigns to foster environmental awareness that the ENRPC was able to push through strong air pollution legislation.").

44. This scenario might seem like the kind of cultural transformation that yields new laws, as discussed above in Part II. But here the portended protests would arise from domestic responses to environmental hazards in China, not from external exhortations to adopt a new cultural or moral outlook. To be sure, though, the two may be connected. For example, both influences would be at play via internet communications among NGOs.

45. Gergana Yancheva et al., *Influence of the Intertropical Convergence Zone on the East Asian Monsoon*, 445 NATURE 74, 76 (2007); David D. Zhang et al., *Climate Change and War Frequency in Eastern China Over the Last Millennium*, 35 HUM. ECOLOGY 403 (2007).

called *Tian Ren Gan Ying* (the interaction of heaven and man), a *Tian You Yi Xiang* (weird phenomenon in the sky) can herald a legal or political crisis.⁴⁶ As politics have liberalized somewhat in recent years, these kinds of views may have become more prevalent, or at least openly acknowledged, among the Chinese public, even as modernization may have reduced the intensity of these beliefs. One recent example is public mention of the Tangshan earthquake that killed 250,000 people just before Mao Zedong died in 1976.⁴⁷ During the Lunar New Year in February 2008, strong snowstorms blocked railroad transportation, stranding millions of passengers trying to head home from cities to rural areas for the holiday. Prime Minister Wen Jiabao personally appeared at a train station to apologize for the government's failure to handle the problem—evidently the first such personal apology in two decades.⁴⁸ Assuming that Chinese leaders know that storms or earthquakes are not mystical causes of political events, they could still rationally fear that the public might use a major climate change disaster as a rallying point for a populist uprising (based in part on public outrage over pollution, but also on other factors) to challenge the governing regime. This is not altogether unlike cultural beliefs and availability cascades that sometimes drive lawmaking and even changes in government leadership in Western societies.⁴⁹

These traditional views coincide with the recent rise of environmental groups and litigation in China. Although far more limited than in the

46. I am grateful to Jonathan Ocko and Xin Dai for explanation of this belief system. I recognize that one must be cautious in attempting to interpret cultural traditions in another society (or even one's own). Evidently *Tian Ren Gan Ying* was originally a mixture of orthodox Confucianism (roughly before 200 B.C.), Taoism, and Yin-Yang theory but later evolved as one of the core theories of the revised Confucianism (since 200 B.C.) that was part of imperial China's governing ideology and to an extent remains a popular world view today. Its "mandate from heaven" and "correspondence" theory implies that how the governing class do their work will have reflections in the climate and other natural conditions; a natural disaster or extreme weather indicates that the emperor has done something wrong. An abrupt calamity could mean that his rule is coming to its end. On the philosophy of Dong Zhongshu (aka Tung Chung-shu), see *Tung Chung-shu*, in *ENCYCLOPEDIA BRITANNICA*, <http://www.britannica.com/eb/print?articleId=73768&fullArticle=true&stocId=9073768> (last visited May 10, 2008), and SARAH A. QUEEN, *FROM CHRONICLE TO CANON: THE HERMENEUTICS OF THE SPRING AND AUTUMN, ACCORDING TO TUNG CHUNG-SHU* (1996).

47. Personal communication from Jonathan Ocko, Chair, History Department, North Carolina State Univ., to author (Jan. 2008) (email on file with author).

48. *China's Weather: Frozen Assets*, *ECONOMIST*, Feb. 9, 2008, at 44; *Snowbound China: Megaphone Apology*, *ECONOMIST*, Feb. 9, 2008, at 12. The Chinese media blamed climate change for the disaster. See *Zhong Guo De Qiang Yu Xue Yu Quan Qiu Nuan Hua You Guan [China's Storm Is Related to Global Warming]*, *ZAOBAO.COM*, Jan. 30, 2008, <http://www.zaobao.com/special/china/others/pages/snow080130d.shtml>.

49. See TIMUR KURAN, *PRIVATE TRUTHS, PUBLIC LIES: THE SOCIAL CONSEQUENCES OF PREFERENCE FALSIFICATION* (1998); Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 *STAN. L. REV.* 683 (1999).

United States, there is a growing ability of pressure groups to seek legal remedies for environmental injury.⁵⁰ At the same time, Chinese environmental governance has become more decentralized. Most pollution control and enforcement is now in the hands of local officials who often prefer industrial growth to pollution control.⁵¹ Frustration with local decisions is one source of the environmental protests noted above.⁵²

The tensions within China between urban and rural, rich and poor, *wenbao* and *huanbao* (a jobs-versus-environment aphorism),⁵³ and explosive economic growth (reported at 9 percent per year) offset by costs of pollution (about 6 percent), all illustrate the deep internal and distributional problems confronting China's leaders in the environmental arena. Climate change adds both the potential for even more acute distributional tensions, and the risk of sparking political upheaval—all of which are of great concern to China's leaders.

Fourth, at the same time that these benefits of climate protection may be rising, marginal emissions abatement costs may be declining. Technological change is improving the availability of effective options such as carbon capture and storage (CCS) methods.⁵⁴ Such technological innovation has in

50. Bryan Tilt, *The Political Ecology of Pollution Enforcement in China: A Case From Sichuan's Rural Industrial Sector*, 192 CHINA Q. 915 (2007).

51. See Stefanie Beyer, *Environmental Law and Policy in the People's Republic of China*, 5 CHINESE J. INT'L L. 185 (2006) (arguing that China now has a comprehensive set of environmental laws, but implementation is impeded by decentralization of power and weak local enforcement); Economy, *supra* note 36 (detailing local officials' incentives to disfavor environmental protection). Stephanie Beyer notes that

[T]he inherent problem of China's environmental legal system is the wide discretion local agencies have in addressing environmental issues. In fact, local governments have gained considerable administrative and fiscal autonomy from the central government. While achieving more autonomy, local governments have to cope more and more with hard budgetary restrictions. They are responsible for generating most of their own revenue and balancing their own budget. Such a system generates considerable pressure at the local level to compete in attracting and promoting economy-building companies. Local governments very often sponsor or own industries themselves and consider environmental regulations to be incompatible with economic growth. Since environmental protection bureaus obtain their funding from subnational governments of which they are part, the enforcement of environmental policies faces significant financial constraints and is frequently undermined by economic pressure. Although the State Environmental Protection Agency has formal authority over lower-level agencies, this national agency does not have much leverage in ensuring that national regulations and standards are strictly enforced at the local level. Besides, numerous national pollution standards are so lenient that they hardly have an effect.

Beyer, *supra*, at 209–10.

52. See Economy, *supra* note 36; Tilt, *supra* note 50.

53. *Wenbao* is the “warm and full” feeling of prosperity; *huanbao* is “environmental protection.” See Tilt, *supra* note 50, at 932.

54. On March 10, 2008, IEA Executive Director Nobuo Tanaka said carbon capture and storage (CCS) would soon be down to \$50 per ton. See Int'l Energy Agency, In the Press, <http://www.iea.org/journalists/headlines.asp> (last visited May 10, 2008). Affordable CCS is crucial to reducing CO₂ emissions from China's vast coal-fired electricity sector.

the past mainly occurred in the United States and Europe, as well as Japan, Korea, and Taiwan, but could soon become more active in China.⁵⁵ And emissions abatement costs may also fall due to institutional innovation, such as the use of market-based incentive instruments like emissions trading. Following the development and application of these incentive instruments in the United States, China is now adopting such policies as well.⁵⁶

Fifth, the net benefits to a country from climate change policy or joining a treaty regime are not limited to the physical impacts occurring within the country's territory. Even if China would suffer only modest losses from climate change domestically (as earlier studies had suggested), it would also be affected by losses incurred among its allies and trading partners. China's peaceful rise to great power status and hence its greater economic and political interdependence with other countries makes those external relations impacts all the more salient. In an interconnected global community, national net benefits include benefits from the avoided damages outside the country's own territory.⁵⁷ This is true especially for large countries. In particular, flooding and coastal dislocations in South Asia could pose problems in the future for China in the form of refugee migrations, lost commerce, and even national security.⁵⁸ And if India and Africa suffer serious losses from climate change,⁵⁹ then China, the world's largest emitter and a leader of the G-77 group of developing countries, might prefer to avoid blame from its G-77 allies.

As China rises to become a great power, its leaders may envision their role involving greater global responsibility.⁶⁰ This outlook can be understood

55. See Shulin Gu & Bengt Åke-Lundvall, *China's Innovation System and the Move Toward Harmonious Growth and Endogenous Innovation*, 8 INNOVATION: MGMT., POL'Y & PRAC. 1 (2006), available at <http://www.innovation-enterprise.com/8.1/8.1.1.html>.

56. See EMBASSY BEIJING, CHINA'S EMISSIONS TRADING PILOT PROJECTS (2003), available at <http://www.usembassy-china.org.cn/sandt/ptr/Emissions-Trading-prt.htm>; *Emissions Trading Fights Pollution*, CHINA DAILY, Sept. 30, 2004, at 5, available at <http://daxinganling.china.com.cn/english/environment/108505.htm> (describing efforts of Dan Dudek of Environmental Defense); Richard Morgenstern et al., *Demonstrating Emissions Trading in Taiyuan, China*, RESOURCES, Summer 2002, at 7.

57. Douglas Kysar & Ya-Wei Li, *Regulating From Nowhere: Domestic Environmental Law and the Nation-State Subject*, (Cornell Law Sch., Legal Studies Research Paper No. 07-011, 2008), available at <http://ssrn.com/abstract=995301>. Kysar and Li are right to emphasize accounting for the external international impacts of national decisions, but wrong to say that benefit-cost analysis cannot do so.

58. The same point has been made in a report to the U.S. Department of Defense on climate and national security risks. See PETER SCHWARTZ & DOUG RANDALL, AN ABRUPT CLIMATE CHANGE SCENARIO AND ITS IMPLICATIONS FOR UNITED STATES NATIONAL SECURITY 13, 17-19 (2003).

59. See Sunstein, *supra* note 4.

60. See generally JOSEPH QUINLAN, THE RISE OF CHINA: A BRIEF REVIEW OF THE IMPLICATIONS ON TRANSATLANTIC PARTNERSHIP (2006); Robert Kagan, *End of Dreams, Return of History*, POL'Y REV., Aug. & Sept. 2007, available at <http://www.hoover.org/publications/policyreview/8552512.html>; FAREED ZAKARIA, THE POST-AMERICAN WORLD (2008).

as part of a realist national interest in fostering interdependencies and reciprocities that will ultimately benefit China. The experience of the 1997–1998 Asian financial crisis and China’s role in pulling other Asian countries out of their downward spiral suggest that China might undertake some economic sacrifice to build its role as a world leader and as a player in international economic regimes.⁶¹ More recently, China’s agreement on the phaseout of hydrochlorofluorocarbons (HCFCs) in September 2007, its cooperation with the United States on the Asia-Pacific Partnership for Climate Change and Development and climate-friendly technology,⁶² and its agreement to “measurable, verifiable and reportable” emissions reductions in the Bali Action Plan,⁶³ provide continuing evidence of its growing interest in taking a leadership role on global environmental issues.

Sixth, the design of the international regime itself can affect national net benefits. National net benefits are not static or determined in isolation, but instead depend on the cooperative deal reached with other countries. The structure of the international regime and the incentives it offers to each country will thus figure prominently in an assessment of national net benefits. Successful regimes offer more attractive bases for collective cooperation than simply the national net benefits taken separately. If climate change prevention yields global net benefits, the design of the international climate regime can distribute that net surplus in a way that changes the payoffs for the United States and China and, at least in principle, engages them in action. A variety of side payments can offer a more attractive basis for collective cooperation and achieve results through realist persuasion.⁶⁴

One leading design for such an international regime is an agreement among the dozen or so major emitting countries—the United States, China, Europe, Russia, Japan, India, Indonesia, Brazil, Australia, Canada, Mexico, Korea, South Africa, and perhaps a few other major countries—in a regime

61. See Avery Goldstein, *The Diplomatic Face of China’s Grand Strategy: A Rising Power’s Emerging Choice*, 168 CHINA Q. 835, 845 (2001).

62. See ZhongXiang Zhang, *China, the United States and Technology Cooperation on Climate Control*, 10 ENVTL SCI. & POL’Y 622, 624–25 (2007).

63. *Bali Action Plan*, *supra* note 2, at 3. At the same time, China’s leaders do not want to incur heavy costs by agreeing to burdensome emissions limits, or to lose face by failing to attain such targets.

64. Effective side payments might take a variety of forms, including cash (as in the Montreal Protocol Fund to engage China and India), headroom tradable allowances (as in the U.S. acid rain trading program to engage Midwestern states, or the Kyoto Protocol to engage Russia), see Wiener, *supra* note 6, or linkage to other issues, such as trade, energy demand, currency holdings in investments, IP rights, relations over Taiwan and North Korea, or terrorism. There is always some cost associated with making side payments; headroom allowances in an emissions trading system can be the least inefficient mode. See *id.*

to limit global GHG emissions.⁶⁵ This regime could be implemented either as part of the post-2012 Kyoto Protocol, or as a parallel regime in a plurilateral approach, and could use international emissions trading (cap-and-trade) and a comprehensive multi-gas, -sector, -source and -sink design.⁶⁶ The allocation of some extra allowances to developing countries would ensure them the positive net benefits needed to make participation attractive (i.e., to confer positive national net benefits).⁶⁷ This global-scale approach should be sought during 2009, the year the Bali Action Plan calls for a new post-Kyoto regime to be formulated, with “measurable, reportable and verifiable”⁶⁸ mitigation commitments by all countries. Even though China has so far declined to participate in such a regime,⁶⁹ it may be moving toward doing so—as long as the United States does the same—as evidenced by China’s agreement to the Bali Action Plan.⁷⁰

65. See STEWART & WIENER, *supra* note 5.

66. This approach is detailed in STEWART & WIENER, *supra* note 5. The cap-and-trade system would confer net benefits (through allowance sales) on China, India, and other developing countries to attract them to participate, while at the same time substantially reducing the cost of abating GHG emissions in the United States, Europe and other industrialized countries. *Id.* Other options include a carbon tax, subsidies for research and development, trade sanctions, consumer pressure on suppliers, or geo-engineering. For comparison of various policy options, see *id.*, and ARCHITECTURES FOR AGREEMENT: ADDRESSING GLOBAL CLIMATE CHANGE IN THE POST-KYOTO WORLD (Joseph E. Aldy & Robert N. Stavins eds., 2007).

Local policies can encourage experimentation and can motivate larger-scale action, but alone they risk serious leakage and can hinder meshing into a larger national and global policy regime. See Wiener, *supra* note 14. While a global regime of all major emitters would be ideal, the possibility of plurilateral climate regimes is discussed in STEWART & WIENER, *supra* note 5, and generally in James N. Rosenau, *Governing the Ungovernable: The Challenge of a Global Disaggregation of Authority*, 1 REG. & GOVERNANCE 88 (2007) (on multiple overlapping spheres of authority).

67. See STEWART & WIENER, *supra* note 5; Wiener, *supra* note 6. Similar proposals have also been made in Jonathan Baert Wiener, *Designing Global Climate Regulation*, in CLIMATE CHANGE POLICY 151 (Stephen Schneider et al. eds., 2002); Jeffrey Frankel, *Formulas for Quantitative Emission Targets*, in ARCHITECTURES FOR AGREEMENT, *supra* note 66, at 31; Robert Hahn & Peter Passell, *Time to Change U.S. Climate Policy*, ECONOMISTS’ VOICE, Nov. 2007, at 1, available at <http://www.reg-markets.org/policy/page.php?id=300>; Sheila M. Olmstead & Robert N. Stavins, *An International Policy Architecture for the Post-Kyoto Era*, AM. ECON. REV., May 2006, at 35; Robert N. Stavins, *Addressing Climate Change With a Comprehensive U.S. Cap-and-Trade System* (AEI-Brookings Joint Ctr. for Regulatory Studies, Related Publication No. 07-26, 2007), available at <http://www.reg-markets.org/admin/authorpdfs/page.php?id=1426>.

68. *Bali Action Plan*, *supra* note 2, at 3.

69. See ZhongXiang Zhang, *Why Has China Not Embraced a Global Cap-and-Trade Regime?*, 7 CLIMATE POL’Y 166 (2007). Zhang argues that China’s reluctance is not due to anti-market ideology, as exhibited in the United States in the 1970s, to join a cap-and-trade system, but rather is due to concerns about fairness, the high cost of a cap, holding out for a better deal, and perceiving that it is a better deal to sell Clean Development Mechanism (CDM) credits now at nearly the same price than to sell formal allowances with a cap. *Id.*

70. See Ning Zeng et al., *Climate Change—The Chinese Challenge*, 319 SCIENCE 730 (2008) (suggesting China’s potential openness to a GHG tax or other limitations policy that reduces coal use in China, if it can be designed to support China’s economic development). In turn, in early 2008,

CONCLUSION

The past four decades teach that enlightened pragmatism, not orthodox moralism, is the best guide for environmental law. Enlightened pragmatism surely has a moral basis. The issue here is whether an overt appeal to moral obligation, or to incentives, would be more effective in moving China and the U.S. to successful action on climate change. I argue here that realist geopolitical persuasion among powerful states could be more effective and timely in shaping global climate policy than appeal to moral obligation. In particular, the evolving forecasts of the impact of climate change on China, domestic concerns about public health and political upheaval due to environmental hazards, and the growing recognition that China's emissions threaten its own allies, may influence China's leaders to adapt its global leadership accordingly. Moreover, the rise of China as a new great power in the changing world order may shift its strategic role toward greater collaboration and reciprocity. Of course, this assumes that other countries, chiefly the United States, act as well. And the particular design of the international regime itself, such as a global cap-and-trade system with headroom allowances for developing countries, can make participation more attractive. This new geopolitical posture may offer an opportunity for the United States and China to lead in partnership on forestalling global climate change.

Rational individual decisions in an open-access commons can lead to ruin. But institutions can and often do adapt in time, adjusting incentives and staving off the tragedy of the commons. Climate policy may yet rise to this challenge. Perceived net benefits and geopolitical roles are changing. Pragmatic, proactive national leaders in both the United States and China need to anticipate the potential preferences of their constituencies, and engage in realist persuasion to move the United States and China to adopt a cooperative regime before the tragedy of the global commons goes too far.

Constructing a truly effective global climate regime will be a strategic question of relations among the great powers. Anticipating a coming era of a multipolar world order, the year 2009 may resemble 1815, the year that Prince von Metternich⁷¹ designed the regime to keep peace among the great

the Bush Administration's top U.S. climate official said that the United States could join a quantitative cap-and-trade regime, if China would too. See James Kanter & Andrew C. Revkin, *Binding Emissions Treaty Still a Possibility*, U.S. SAYS, N.Y. TIMES, Feb. 27, 2008, at A8, available at <http://www.nytimes.com/2008/02/27/world/europe/27climate.html?ref=world>.

71. See generally HENRY KISSINGER, *A WORLD RESTORED: METTERNICH, CASTLEREAGH, AND THE PROBLEMS OF PEACE, 1812–1822* (Phoenix Press 2000) (1957).

powers of Europe for almost a century. Engaging China, the United States, and other major countries in an effective global climate regime for the 21st century will require side payments or linkage to a host of top-priority strategic issues, and no less than a modern Metternich. Indeed, even more; Metternich mediated among elites and autocracies, whereas our modern strategist must guide great powers whose domestic politics are often open to mass public movements and the vicissitudes of pluralist pressures. Perhaps widely shared views will spur action across countries; clearly, the design of rules and international regimes will be crucial to shaping national action. The global challenge—and opportunity—are great. While constructivist persuasion through moral suasion and cultural transformation may play a role, that path may be of limited efficacy, or even counterproductive, in engaging the United States and China in a common plan of action. Chinese climate policy is already changing. The United States too is poised to act. Realist incentives in a linked network of global and national policies offer the best path ahead.