Adaptive Management and Capacity Approaches to Global Climate Change: Local, National, Regional, and Global Political Considerations

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Global climate change (GCC), like the global terrorism that chased it from world attention in recent months, eminently threatens life and lifestyles worldwide in highly complex and uncertain ways. Also similarly, any benefits derived from successful actions to address either problem will exhibit considerable public-goods properties: all will benefit to considerable degree and excluding some from the benefits will be difficult. In both arenas, therefore, the coordinated development of adaptive capacity to implement adaptive management seems highly appropriate. Scholars and practitioners across the social sciences and related applied fields have long understood that addressing public-goods problems most effectively in any context requires some coordination, usually across and within multiple levels of decision-makers (individual, local, national, regional, and global). Emphasis upon the adaptive capacity for adaptive management, for its part, emerges more recently as a potentially effective approach to the governance of such complex and uncertain problems. Adaptive management recognizes "the need for flexibility and adaptation in the development of effective responses" to challenges, like GCC and global terrorism, which exhibit high degrees of inherent "scientific, social, distributional, and political uncertainties". In these cases, e.g., scientific understanding of causes and effects of terrorism or GCC is limited and uncertain, although quite sufficient to suggest the outlines of wise action in many specific contexts; likewise, the social, political, and economic effects of GCC and terrorism and actions to counter them remain uncertain, but, again, often sufficient to motivate key actors. The "central tenet of adaptive management is that the management of complex problems...is best viewed as a process of continual learning ... [in which] significant complexity and uncertainty... prevents management [from applying] the more traditional (and relatively more simple) means of research and regulatory activity... operating in an equilibrium state of full knowledge and optimum efficiency, productivity, and/or equity. As a result, management should proceed as a series of thoughtful and carefully monitored 'experiments' with replication and comparison at appropriate spatial and temporal scales."¹ This paper explores from a politicalscience perspective why, despite these similarities in the challenges from global terrorism and climate change and in the approaches prescribed to address them, the coordinated development

¹ The preceding quotations are from the convenors' invitation to and description of the December 2002 ARGCC Conference, The Ohio State University.

of adaptive capacity for adaptive management has differed radically in nature and degree across the two arenas as, indeed, has the amount and, perhaps, the efficacy of action. Why has action on global terrorism been so much more pronounced and, in some aspects, effective, while in other aspects and in most aspects of the global-climate-change problem it has been considerably less pronounced and/or effective, and what can we learn from this?

In political science, one often begins analysis of such questions by considering the incentives (utility function) of political actors, typically governmental actors most centrally.² For many purposes, characterizing the incentives of governments as some combination of office-seeking and policy/outcome-seeking motivations, i.e., of desiring to remain in power and advancing certain policies and outcomes (as given by the ideological, partisan, and/or socio-economic interests of government members) suffices. The precise content of these two interests, i.e., how exactly one best retains power and achieves the constellations of policies and outcomes sought, and the relative weight on these two objectives, of course varies greatly across political systems democracies vs. autocracies, and the many systemic variations within each—and depending on multiple characteristics of the current occupants of the seats of power in those systems and their strategic position vis-à-vis potential challengers. Whether in democracies or autocracies, retaining power implies assembling and maintaining winning coalitions behind a set of policies; policyand outcome-motivated governmental actors complicate this goal by seeking to select a set of policies that produces the right balance of winning probability and probability of implementing their favored policies. Democracies and autocracies differ regarding the broad definition of winning coalitions, electoral majorities vs. some other sufficient set of supporters (e.g., military plus an economic elite),³ and within each broad regime category, the specific rules of the game shape how exactly these winning coalitions might be assembled. For example, one can distinguish three broad types of democracies: presidential (e.g., the US and many Latin American systems), representational parliamentary (e.g., most continental European systems), and majoritarian parliamentary (e.g., the U.K. and many Commonwealth systems).⁴ These three systems differ (a) in their methods of representative selection (plurality/majority or proportional) that shape the manner in which electorate interests produce the representatives from whom policymakers must assemble governmental majorities and (b) in their allocation of policymaking authority across those representatives in government (e.g., presidentialism vs. parliamentarism), which shapes exactly what combinations of actors form a sufficient governmental majority for any given policy arena. Furthermore, one could easily draw alternative powerful distinctions between federal and unitary systems, bicameralism and unicameralism, etc., and between types of autocracies (e.g., communist, military, right-authoritarian), which would likewise shape the mechanisms of representation, its pool and its selection method, and of authority allocation among those representatives. Each of these systems, then, would have its particular systematic biases in translating popular preferences into governmental action. The analysis of questions like those at issue here, then, would begin by characterizing the structure of interests among the population and then considering how the political system, which varies as just described, would induce governments pursuing survival and their policy objectives would behave (strategically).

² Indeed, even before this stage, one must make some analytic choices regarding the identity of these strategic actors. For example, will treating the nation-state as a unitary actor, possessing a single coherent set of preferences and capacity for strategic action thereupon, suffice to characterize the behavior of the key players in the game being considered? Or, instead, should one consider the government of the nation-state the key strategic actor? Or must one further decompose the state into multiple domestic players, each with their own agendas and capacities?

³ See, e.g., Bueno de Mesquita, Morrow, Siversen, and Smith, The Logic of Political Survival (MIT Press, 2003).

⁴ See, e.g., Powell, Contemporary Democracies (Harvard UP, 1982).

All of this, though, describes the domestic political games: what of the international relations that would seem so clearly central to global climate change and terrorism? From my view, global considerations are merely a facet of these domestic games, and what we describe as international politics is the global set of domestically motivated governmental actions.⁵ Thus, international considerations like the threats of GCC and global terrorism matter because they shape domestic structures of interest—some in the populations must care about some aspects of these global conditions—and because they thereby shape the survival incentives and policy preferences of, and the set of policies available to, domestic governments, and perhaps the effects and efficacy of those policies too. That is, while Tip O'Neal may or may not have been correct that "all politics is local," all politics most certainly is domestic. Therefore, if we want to understand...

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- Why action on global terrorism has been more pronounced and, in some ways, effective, while in other ways and in most aspects of the global-climate-change problem it has been considerably less pronounced and/or effective, and what can we learn from this...

we must understand (a) how global terrorism and climate change affect the structure of interests in domestic polities, (b) how these domestic political systems—their institutional and strategic settings—process those interests into governmental policy-incentives, and, finally, (c) how the international interactions of these interested domestic governments shape those governments' possibilities for action and the effects and efficacy of those actions.

Domestic Structures of Interests:

From this view, then, we must first characterize the degree, nature, and incidence of the threats from, in this application, global terrorism and global climate change, as domestic populations perceive them. This serves to characterize in a theoretically useful way the structure of interests regarding the two threats in domestic polities.

Degree of Threat: Global terrorism threatens personal, national, and international security, and thereby severely chills the free international exchange of goods, services, capital, people, and ideas that fosters global socio-political and economic well-being. Global climate change—i.e., "changing temperatures and rainfall that may harm agriculture and stress natural ecosystems[; the r]ising sea levels and severe storms [that] may erode and inundate coastal zones[; ...and the...] mounting evidence that nasty surprises, such as an abrupt shift in climate, become more likely as carbon dioxide and other 'greenhouse gases' accumulate in the atmosphere"⁶—similarly threatens the economic, political, social, and personal health of everyone, even more universally and even more severely. In the most direct sense, then, global terrorism objectively involves some small increased risk of bodily and material harm to perhaps some small segments of certain populations especially. The objective risk directly to the small farmer in rural Oklahoma, for example, is relatively small, and, although many times higher for a financier working in central New York, is still small for her too. The objective, direct risk to a New Zealander living and working in global circles may be slightly higher than that financier, but for most Kiwis would

⁵ One would certainly not characterize this view as universally held in the field of political science; indeed, many in the international relations subfield might well find it offensive. However, I often find it tremendously useful, and even quite accurate in many respects, such as the current comparison.

⁶ Victor, The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming (Princeton UP, 2001).

be negligible. A rural Chilean, meanwhile, might quite rationally remain entirely unaware of any rise in global terrorism.⁷ Conversely, in direct, objective terms, global climate change would affect many more people, in many more countries, much more severely. Although here too the degree of the direct threat would vary—the Dutch, for example, perhaps facing more severe risks than the French—all would face quite appreciably severe risks. While higher ocean-levels might well eradicate Holland, aridity, floods, and/or climate volatility would severely harm the French also. Considering the direct and objective threats from global climate change, therefore, shows that GCC represents a much greater degree of threat to much more of many more populations than does global terrorism. Moreover, adding the indirect costs of disrupted exchange of goods, services, capital, people, and ideas, would likely strengthen the conclusion that GCC poses a greater degree of threat, to more, more widely than global terrorism. From this start, the greater action and perhaps efficacy of global anti-terrorism than anti-CC efforts is puzzling.

Nature of Threat: The conjunctive tense used in describing GCC threats, however, is crucial. As Downs argued,⁸ given the minuscule probability that individual citizens (e.g., in democracies: voters) can single-handedly change national policies, much less global outcomes, they will rationally remain ignorant of those policies (and, to some degree, outcomes) unless they impinge directly, obviously, and in simply interpretable manner upon their lives. As Kahneman and Tversky and colleagues⁹ have shown, given such small incentives to learn about and figure such things out, certain psychological heuristics and biases will dominate popular perceptions. Notable heuristic biases include the concepts of just-noticeable differences (JND),¹⁰ sensorial and emotional vividness, temporal proximity (current-/recent-ness), and certainty. The incremental, small-percentage, uncertain, and temporal remoteness characterizing environmental changes contrast sharply with jet liners plunging into towers and skyscrapers collapsing in flames in all of these regards. This begins to shift the popular balance in threat perception toward global terrorism, especially in countries and among populations more directly threatened.

Analytically, one can begin, now, to rank populations and subpopulations in terms of their relative demand for governmental action to counter GCC and terrorism. Those individuals more affected, more directly, more strikingly, more certainly, and more currently by each threat should more strongly desire action on that threat. The analyst can likewise rank potential local, national, regional, and global policies to respond to those threats in these terms. For example, populations and subpopulations will prefer conspicuous and immediate actions, as well as more appreciably efficacious actions. That is, the magnitude of threats and the efficacy of alternative policies to counter them represent only one set of characteristics, and not at all necessarily the most important set, among those that determine how much they inspire popular opinion.

Incidence of Threat: The translation of popular opinion and preferences into effective political demand for action must next confront the Olsonian logic of collective action.¹¹ As Olson made well-known across the social sciences, groups of people that share common interests will not necessarily translate those interests equally effectively into actions. In particular, successful pursuit of those interests offers a good that is at least quasi-public to the members of that group, so they under-provide collective action to pursue those interests. The key group characteristics

⁷ On such rational ignorance, see, e.g., Downs, An Economic Theory of Democracy (Addison Wesley, 1957) and Downs, "Why the Government Budget Is Too Small in a Democracy," World Politics 1961.

⁸ Op. cit.

⁹ See, e.g., Kahneman, Slovic, Tversky, eds. Judgment Under Uncertainty: Heuristics and Biases, Cambridge UP 1982. ¹⁰ Cognitive psychologists find that small-percentage, incremental changes in one's environment often escape notice; the JND is that degree of change that rises to human perception.

¹¹ Olson, The Logic of Collective Action (Harvard UP, 1965).

that alleviate this collective-action problem are small group-sizes, the existence of "selectiveincentive mechanisms" within the group (i.e., side-payments or -penalties that may attach to whether individuals pursue the interest), the group's homogeneity, and the density of social interaction among the group (which facilitates social sanctions: i.e., selective incentives). By themselves, these considerations suggest that threats whose perception concentrates in smaller, more homogenous, and densely interacting groups, especially in groups that have already organized (i.e., at least partially solved their collective-action problem) for some other purpose (and so wield some selective-incentive mechanisms) will produce more effective political demand per capita¹² than those whose perception is diffuse, etc. Once again, this suggests more effective popular political demand per capita from anti-terrorism than from climate-change concerns. More strongly, this logic suggests systematic biases across all regime types in the politically effective responses to threats: both authoritarian and democratic governments will favor policies (i.e., actions and inaction) with concentrated benefits and diffuse costs, ceteris paribus. Again, efficiency is a consideration, but far from the only one, likely not the most important one, and perhaps not even an important one.

These three considerations—the degree, nature, and incidence of the threats and of the effects of possible responses thereto—may suffice to begin the analysis. We can see now that, most especially in the US, but also (in declining degree that one might determine) in other leading nations of the Western World, effective popular demand for anti-terrorism far outstrips that for anti-climate-change efforts. Thus, in moving from analysis of the structure of interests regarding the threats and potential counter-actions to analysis of the effective representation of those interests in and across domestic governmental authorities, we must consider these particulars of domestic political systems. That is, we can see from analysis of interest-structure alone something of how to rank countries and sub-populations in terms of their perception of threats and their effective demand for counter-action.

Domestic Political Systems:

Next we must consider how the political system, i.e., the institutional structure of representation and authority-allocation and the strategic setting in which potential authorities (e.g., opposing parties in democracies) compete, will shape governmental responses to those effective demands. To focus on just two key aspects of this complex institutional and strategic setting, consider the representation system, characterized in democracies primarily by the electoral system, and what I call the authority-allocation system, characterized in democracies primarily by the distinction between presidentialism and parliamentarism.

Presidential (and Majoritarian Representation) Systems: In analytically processing differing effective popular-demands into domestic governmental action, notice first that the identity, and thus the size, homogeneity, and other important characteristics, of the relevant groups partly depends also on characteristics of the political system. In the US system, for example, the relevant political units for national policy might be congressional districts, states, and (perhaps) the nation, those being the constituencies of representatives, senators, and (perhaps)¹³ presidents respectively. Regarding at least one third of the effective political representation in the US (i.e., that embodied in the House of Representatives), therefore, no relevant group

¹² The per capita is important here; small groups are not necessarily more powerful than large, just more effective than relative size along would suggest. Scholars often err regarding this implication of Olson's logic.

¹³ These two parenthetical perhaps signify the ambiguity of the presidential constituency conferred by the Electoral College. The president's constituency more precisely reflects a peculiarly weighted sum of state constituencies; it thus resembles that of the Senate as a whole, although the latter sums the states without weights.

contains any more than the population of a Congressional district, at least insofar as mechanisms to coordinate interests across districts are lacking. In democracies, one of the main mechanisms for such coordination is the national party. In presidential systems, however, party unity is typically weaker than in parliamentary systems, in part because the separation of executive and legislative authority, another key feature of these systems, allows it to be. Thus, simplifying drastically, in presidential systems, representation is highly fragmented—the relevant groups are small, geographically defined portions of the population—and legislative and executive authority (and, typically, administrative and judicial too) is highly dispersed. This combination of electoral and governmental system fosters political organization into two very loosely coordinated parties, competing in highly particularistic and geographically defined contests for diffused authority. Finally, decisiveness is not usually characteristic of these governments since that would require control of multiple governmental actors elected from different constituency structures. Interests that diffuse geographically will be highly disadvantaged in such systems, especially if they diffuse and differ. Environmental and security interests certainly both diffuse across the country, especially as regard threats from GCC and terrorism and actions to counter them, but the former diffuse and differ geographically—urban-district diverging strongly from rural-district interests and state interests vary widely, for example—again, adding to the far greater anti-terrorism action in at least the US. Ceteris paribus, one might expect similar relative lack of environmental (versus security, and perhaps other sorts of policy) action in other presidential systems. The domestic game in such systems, then, is to assemble minimum-winning¹⁴ coalitions in the legislature, in each branch if bicameral, and to gain the executive, each of which voters select from within (usually differing) geographically defined and relatively loosely coordinated constituencies. Thus, in analyzing the potential for environmental or other action in presidential systems, particularism and pivotal districts are central, as is the divided or unified control of the branches of the diffused authority. An important aspect of US representation and authorityallocation systems specifically that complicates such analysis is malapportionment, the unequal distribution of representation across populations. The US Senate most egregiously malapportions representation; some parts of other democracies systems do so also, as does the US Electoral College (and with it, the US Presidency), although much less egregiously. Where and to the degree mal-apportionment exists, it typically favors rural over urban interests.

Majoritarian Parliamentary (and Authoritarian) Systems: Majoritarian parliamentary systems, contrarily, concentrate authority tremendously and, while they too elect their representatives in multitudes of small, geographically defined districts, strong concentration of authority within government and parties fosters great coordination across those districts. Political representation and competition in these systems is far more partisan than geographically defined, and, largely due to the majoritarian electoral system, the (key) parties in question are few (usually two). Thus, one highly coordinated party usually gains very concentrated policymaking control. One exaggerates little to suggest that majoritarian parliamentary systems essentially elect kings for some constitutionally limited period. Indeed, from there, the analogy to authoritarian regimes stretches not much further. The key difference, and an incredibly important one, of course, is that majoritarian parliamentary and authoritarian systems in how they processing structures of interests into governmental action concerns what constitutes a winning coalition: in such democracies, a majority of the electorate in a majority of electoral districts, or, in authoritarian systems, some other and usually smaller set of interests such as the military plus

¹⁴ Riker, The Theory of Political Coalitions (Yale UP, 1962).

some economic or party-bureaucratic elite.

Pivotal districts remain central (in the democratic case, and pivotal coalition partners in the authoritarian case), as does the tendency for majoritarian (or even-more limited) nature of the representation to favor few (usually two) parties, but political competition is much more partisan than particularistic as in Presidential systems. This, combined with the unified authority-control, suggests that should environmental or security interests gain control of the winning coalition (the majority party, or the set of key players in authoritarian regimes), they will be able to pursue those interests quite effectively and decisively (e.g., Blair's UK on both GCC and global terror). In this regard, however, the relative advantages of security interests described in the first section suggest that such interests might more-regularly win control than is likely for any environmental issues. Among democracies, the UK is perhaps illustrative. Like the US, security interests are more uniformly pervasive and effective in the population; thus, both parties represent them effectively. Indeed, on these bases, the UK system likely exhibits more effective political demand than does the US representational system since the latter allows localistic variations in intensity of the interest or in preferred mode of its pursuit greater leeway. Moreover, control being unified, this demand will more likely find more decisive and effective expression in governmental policy. Action on the threat of GCC, contrarily, depends on finding sufficient environmental support—which remains inherently more divided and less intense and effective in the population—within at least one of the two parties for effective translation into governmental action, and then only when that party (if only one) gains control. We should expect, therefore, more variance (over time, as single-party-majority governments alternate) in governmental action on environmental concerns in parliamentary systems than presidential, ceteris paribus, occasionally considerably stronger, but often approximately as weak.

Representional Parliamentary Systems: These systems, as their name suggests, combine the decisive concentration of executive and legislative authority of parliamentary systems with the permissive representational systems of proportional elections. In proportional systems, electoral districts are much fewer, but select multiple representatives per district. Indeed, in two of the strongest empirical relations in political science, proportionality (i.e., the match between party vote- and seat-shares) and party-system fractionalization (i.e., the number of parties) generally increase with the district magnitude (i.e., number of seats per district). Given the concentration of executive and legislative authority, combined with the fewer but larger-magnitude districts and the associated party-system fractionalization, representation and political competition are hardly at all geographic and almost entirely partisan. Given the electoral-system proportionality and associated party-system fractionalization, however, these systems afford representation to smaller such groups of partisan (not geographic) interests than majoritarian systems of either parliamentary or presidential variety. Finally, while executive and legislative authority fuse as in majoritarian parliamentary systems, single parties exceedingly rarely gain majority control of that fused authority; coalitions of multiple parties are the norm. Alternation, likewise, differs, being neither the presidential norm of occasional decisive shifts from one loosely coordinated party to another in majority control of parts, but rarely all, of government, nor the occasional decisive shift in majority control of all of government from one tightly coordinated party to another of majoritarian parliamentary systems, but rather the frequent partial shift of government control from several tightly coordinated parties to some other, often partially overlapping, set of parties. Thus, proportional parliamentary systems will characteristically exhibit almost-continual partial and partially alternating representation of several smaller groups of interests among policymaking authorities representing interests defined on substantive (partisan) bases, rather

than the partially alternating but rarely decisively allocated policymaking authority representing particularistic and geographically defined interests of presidential systems or the wholesale alternation of decisive policymaking authorities representing substantively defined interests. This might explain the more continual representation of an environmental strand of interest in continental Europe, ceteris paribus, although not one that typically sustains majority itself, playing something of continual supporting role in the domestic political competition.

Other Domestic-Political-System Considerations: Among factors not mentioned above, but further complicating any deeper analysis, would be the vertical separation of powers given by the degree of federal versus unitary system: i.e., the allocation of policymaking authority across levels rather than branches of government; greater detail regarding the current strategic situation of electoral competition given by, inter alia, the party system; and the roles of bureaucratic-administrative, judicial, and extra-governmental authorities. Hopefully, the preceding broad discussion gives some idea how to process the popular and sub-popular structure of interests through these political-systemic factors as well.

Implications: Consider, for example, the relative governmental action on anti-terrorism and anti-climate-change efforts in the US, UK, and Germany. In all three cases, the inherent characteristics of the global terrorism threat play to heuristic and Olsonian biases that suggest relative dominance of that concern over GCC. However, the salience of the threat equally clearly ranks US>UK>Germany in average degree of popular concern. The share of the populations most directly affected by terrorist threats (internationally mobile human and physical capitalists, and maybe, especially, those in the financial sector) likely ranks them similarly, or, perhaps, reverses the order of the first two, but, in any case, in each country, convincing significant segments of the population that they should be scared is not terribly hard.¹⁵ That a majority of a majority of Presidential, Senate, and House constituencies would support strongly hawkish foreign policies under this condition would seem over-determined in the US, especially since those districts sliced the population largely by Republican-designed¹⁶ gerrymander in the House and are pro-rural malapportioned in Senate and Presidency. That a minority, even if a sizable one, may oppose an aggressive stance is nearly irrelevant, especially to the extent the minority is evenly dispursed geographically. In the UK, a decisively response requires only that a majority of a majority of (fairly evenly apportioned) Labour or competitive districts favored such a stance. Again, that a minority, even if a sizable one, may oppose such a stance is nearly irrelevant, but in this case especially to the extent that minority is evenly distributed across the sets of interests represented by the two main parties.¹⁷ Germany, for its part, likely has something nearer a popular split on how hawkish an anti-terror stance to take,¹⁸ and the relative size (not just their majority/minority status) of the support groups by party is relevant. The doves and hawks do not

¹⁵ Notice the historic off-year electoral success, for example, of the Bush administration's Iraq war-drum beating leading up to the recent mid-term elections and the twin announcements, timed to headline newspapers the day of the election, of CIA killing of al Queda operatives and State Department announcement of its determination that three un-named countries known to harbor significant anti-American sentiment possessed biological weapons.

¹⁶ Congressional districts are redrawn after each Census; state Houses control most of these processes; and Republicans controlled most of those in this last redistricting. Actually, both parties mostly gerrymander to bolster secure districts, but both also assure that any of the state's districts that are lost to lower Census counts will come from the opponent and any gains from higher counts will accrue to them.

¹⁷ Indeed, as Blair's stance on the Iraq war illustrates, even without a majority of a majority of districts supporting aggression, tight party control affords so-minded leadership great latitude to act hawkishly if the next election is sufficiently in the future.

¹⁸ As opposed to its more-unanimous anti-war popular opinion.

distribute evenly across parties. Supporters of the Greens and, to lesser extent, of the Social Democrats are more dovish than the population average, which is itself more dovish on terror than the UK or US. The relative stances of the three on anti-terrorism efforts seem explicable.

The degree of support for anti-climate-change effort is likewise explicable. Note again the inherent heuristic and Olsonian biases that suggest a lower average popular support for these than anti-terror efforts. Less clear is how to rank the countries by their population-average support for anti-climate-change efforts in general or the Kyoto approach thereto in particular. Suppose, however, that an equal 20% strongly support, say, the Kyoto approach in each country. In the German representational parliamentary system, this 20% happens to produce a party (the Greens) without about 20% of the legislative seats, which would make it pivotal to either the left (Social Democrats) or right (Christian Democrats) to form government, which pivotal position in a parliamentary system translates into significant control of highly concentrated governmental authority. Exceedingly roughly: if, e.g., the SDP-Green coalition had 50-60% of parliament, a pro-Kyoto force would represent 33-40% of effective governance—another strong empirical regularity in political science is that coalition parties typically ($\mathbb{R}^2 > .9$) receive their share of the coalition's legislative majority in cabinet ministries—more if control of environmental ministries gives one disproportionate influence over policy in that area because another (admittedly less-strong) regularity is that parties tend to get ministries associated with "their" policy areas (e.g., Greens tend to get environmental ministries). The rest of government (SDP) would not necessarily be opposed, but might seek some (blue-collar) worker-constituency reassurances. In the UK (majoritarian parliamentary) case: the same 20% pro-Kyoto likely supports predominantly Labour (or Liberal, but not Tory to be sure), and representation remains partisan/interest in nature. Thus, exceedingly roughly again, 20% of a highly decisive government would be pro-Kyoto, and, again, the rest of government again being not necessarily opposed but possibly seeking some laborer assurances. In the US, contrarily, that 20%, if geographically distributed evenly, would comprise 20% of each electoral district or state, the governments' three branches would represent a majority of the majority of districts in each of those, in a manner relatively uncoordinated across districts. Thus, the 20% of each constituency would be 0% of the majority of each branch, so government would not represent these concerns at all. In the actual US, some geographic and partisan concentration of pro-Kyoto (and pro-multi-lateral) interests does exist, so the Senate and House did represent some of those interests, but certainly not a majority of Senators or House.

International Interactions of Domestic Governments:

All of the above discussion, notice, occurred without considering the international politics of the two global threats. Of course international interactions matter, but they matter because they shape domestic structures of interest—some in the populations must care about some aspects of these global conditions, or they are irrelevant politically—and because they thereby shape the survival incentives and policy preferences of, and the set of policies available to, domestic governments, and perhaps the effects and efficacy of those policies too. This final section considers how such "international" political considerations might affect conclusions about the politics of global climate change and potential adaptive-management approaches thereto.

International Considerations that Affect Domestic Interests:

One key aspect of both these threats, global climate change and terrorism, is that progress in addressing them exhibits some of the characteristics of global public goods. The enhanced security that any individual, local, national, regional, or international action—from multilateral efforts to alleviate poverty and other global grievances to national or regional military action to eliminate "terrorist organizations" to perhaps even small personal kind gestures across

interpersonal divides—will largely be enjoyed by all, albeit to varying degrees, essentially worldwide, in somewhat non-rival and difficult-to-exclude fashion. Even more clearly and more equally so, all will share the enhanced environmental health and security produced by any individual, local, national, regional, or international action. In the usual collective-action fashion, therefore, global efforts to counter each threat will be under-provided. The domestic interests in every country will discount the positive externalities of their efforts insofar as those benefits accrue to other populations. US citizens, for example, will discount the benefits to British citizens of US action to enhance global security. The problem in this respect is symmetric, so all nations' citizens under-value (relative to global optimum) the benefits of their nation's actions for other nation's populations. Just as plainly so, and for the same reason, citizens discount the external benefits of their own nation's actions against GCC.

This externality cum collective-action-problem aspect of adds to, or, rather, subtracts from, the other sources of domestic interests regarding action in these two spheres in more or less proportional form. Essentially, the analyst subtracts from the total net, objective interest that populations and sub-populations have in demanding action on these threats the share of the benefits from such actions that accrue outside that population or sub-population. In the antiterrorism case, the nation most capable of taking (at least military) action also stands to gain the most from it. The externality does dampen their net domestic impetus toward action a little, but it, recall, was strongly positive by the above analysis. Thus, regarding the international collectiveaction problem in the anti-terror arena, the major power also faced sufficient net benefit from action to provide some large portion of the global public good itself. Now, that provision would surely be in an amount and of a nature given by that single nation's domestic interests, and that amount and nature may both remain sub-optimal from a global view, but it would nonetheless provide a great proportion of the global public good. The situation is entirely different regarding anti-GCC efforts. There, recall, there were perhaps something like influential minorities of government in some key countries favoring considerable action, but decidedly little of government in at least one key country, the US. Action on this dimension will also be underprovided and, this time, may fail entirely because no single player possesses sufficient incentive to provide the global public good itself. Intensive coordination efforts are necessary.

Another key aspect of policies addressed toward both threats is that much of their net benefits depend critically upon the relative efforts of competitors. The net efficacy of anti-terror efforts, at least those efforts of a military nature, obviously depends on the relative power of the adversary. The net benefits of anti-GCC efforts likewise depend on the relative effort of competitors, but, in this case, primarily on the cost side of those efforts. Specifically, many of at least the economic costs of anti-GCC action decline as one's competitors take the same or similar actions. Thus, for example, the economic costs of Kyoto to Canada rose dramatically when the US opted out, which, perhaps, became fully over-determined once the (weakly coordinated) party least against (not to say "most in favor") action and that approach lost executive control. They likewise rose considerably for Japan, and then the UK and Commonwealth, and to lesser but still significant degree for the rest of the signatories. This relativistic costs and benefits aspect of international action raises the importance coordination efforts still further.

International Considerations that Modify the Domestic Political Game:

Anarchy, Multilateralism, Cross-Issue Linkages: The critical importance of coordination to successful action on global problems, however, should not distract from the fundamentally domestic nature of politics. The first thing one learns in the international relations subfield of political science is that the international system is anarchic. That is, no supreme authority exists

above the nation-state in the international realm. If states allow an international organization or treaty to govern their behavior, they must find it in their interest to do so. Lacking any ultimate global enforcement-authority, international law as a whole must be self-enforcing. Specific treaties or international organizations, such as the Kyoto protocol, may rely on others, such as the World Trade Organization, in whole or in part for enforcement, but states will follow some nested body of international law only if they find it in their domestic interest to do so. This, in turn, underscores the importance of cross-issue linkages to effective international governance. For a state like the US to have had any interest in following Kyoto, for example, even when it had an executive representing interests not strongly disposed against it, was not likely. For even a Democratic administration to have initially supported the plan or something like it relied heavily upon that treaty's nesting, implicitly and explicitly, within a wider body of international law (including, e.g., the WTO) the adherence to which was strongly in the US interest. This, of course, reflects that critical element of multilateralism that was, at least initially, entirely lost on the subsequent US administration. That all politics is ultimately domestic does not imply that domestic governments should weigh each individual international agreement for its individual domestic net (political) benefit. The nesting of global governance schemes sometimes helps assuage collective-action problems in the coordinated provision of global collective goods, so, sometimes, individual treaties that seem against domestic (political) interest on their own support a network of cross-issue linkages that induce some other domestic polities to support some other aspect of global governance that is of crucial domestic (political) interest.¹⁹

The Interaction of Global and Domestic Political Games: This, finally, introduces another international consideration worth emphasizing, namely that the international interactions of domestic polities follow what Putnam terms "The Logic of Two-Level Games."²⁰ That is, when two or more domestic governments interact, the international bargaining game nests for each of them within their domestic political game and vice versa. This implies, for example, that the domestic political systems and situations affect what global bargainers may offer each other, which can be advantageous in some and disadvantageous in other circumstances. Conversely, the international bargaining game alters, expanding or contracting, what is possible domestically. Thus, for example, the multilateralism of Kyoto itself enabled signatories to produce, relative to anything attempted alone, considerably more of a global public good at considerably lower cost, shifting much more their domestic constituents behind the accord than would have supported the action required without an international agreement, and this and whatever favorable cross-issue linkages it fostered were ultimately a major reason that many governments signed. This does not argue that Kyoto was optimal, just that it, like other such multilateral approaches, potentially expanded the opportunity set for domestic governments.

Returning to the Questions with Answers:

This brief discussion paper asked at its start "why, despite these similarities in the challenges from global terrorism and climate change and in the approaches prescribed to address them, the coordinated development of adaptive capacity for adaptive management has differed radically in nature and degree across the two arenas as, indeed, has the amount and, perhaps, the efficacy of action," and "why has action on global terrorism been more pronounced and, in some aspects, effective, while in other aspects and in most aspects of the global-climate-change problem it has been considerably less pronounced and/or effective, and what can we learn from this?" It answered, essentially, that the difference was that the dominant power has self-interest in

¹⁹ See, e.g., the increasing diplomatic woes of the current administration.

²⁰Putnam, "Diplomacy and Domestic Politics: The Logic of Two-Level Games," International Studies Quarterly (1988).

providing some of the global public good of international security but not of preventing GCC. There is no dominant player regarding global warming; effective domestic self-interests in most polities are likely less prominent there than along many other dimensions, including global security, for example; and, although the efforts offered will differ across polities depending on particulars of their domestic system, any real hope of much advance must lie in understanding and surmounting or even leveraging those domestic-political differences at an international level to build "multi-level-game" winning coalitions, that lean heavily on cross-issue linkages, across wider globe. In some respects, that defines adaptive capacity and management in world politics.

However, in at least one respect, the emphasis seems very different. The "central tenet of adaptive management is that the management of complex problems...is best viewed as a process of continual learning... [in which] significant complexity and uncertainty... prevents management [from applying] the more traditional (and relatively more simple) means of research and regulatory activity... operating in an equilibrium state of full knowledge and optimum efficiency, productivity, and/or equity. As a result, management should proceed as a series of thoughtful and carefully monitored 'experiments' with replication and comparison at appropriate spatial and temporal scales." From a political science view, however, two strong reservations immediately suggest themselves.

First. some political-science research on multi-level domestic government (federalism, etc.) emphasizes their potential role as policy laboratories.²¹ One core conclusion of that literature is that diversity in those governmental authorities enhances the probability of a problem-solving advance occurring. That bodes well for the experimental notion of global governance in an adaptive-management approach. However, another core conclusion of that literature stresses the difficulties inherent in policy learning surrounding the small number of experiments conducted, the clarity and immediateness of the connection from experimental policy to its effects, the ability of subjects (citizens of the jurisdictions in question) to transmit information about what worked and reward/punish experimenters (policymakers) accordingly. That would seem to bode tremendously poorly for the application of this aspect of the adaptive management notion to the GCC problem practically and scientifically as well as politically. Practically/scientifically, not enough space-time exists in this context for enough "experiments" for much learning to occur. Indeed, meteorology and geography/environmental-studies have only one system for study, so it does not seem much like biology or even political economy in terms of the potential for effective learning from experimentation. Politically, too, the number of broad overall approaches, like adaptive management, possible to adopt for a global problem seem inherently limited (to one?); the clarity and immediateness of connections policies to effects seems likely weak; and the ability of subjects (global citizens?) to transmit information about what worked and reward/punish experimenters (global policymakers?) accordingly seems almost non-existent.

Second, again from a political-science view, the notion that the problem posed by GCC lies to a dominant degree in the complexity, uncertainty, and lack of knowledge regarding climate change and policies to combat it efficiently and/or equitably would seems quite dubious. A political scientist would note that, at least as likely, the majority of the problem is not some lack of such technical understandings. Regarding policy actions, governments can and do easily overcome scientific uncertainty (or, for that matter, even certainty to the contrary in most cases) if the domestic interest-structure and political-systemic capacity align for them to do so. Then again, that political scientists would conclude, "it's all politics!" is perhaps unsurprising.

²¹ Ken Kollman, John Miller, and Scott Page, 2000, "Decentralization and the Search for Policy Solutions," Journal of Law, Economics, and Organizations 16 (April):102-28.