September 1985

Memorandum, US National Intelligence Council, NIC M 85-10001, 'The Dynamics of Nuclear Proliferation: Balance of Incentives and Constraints'

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Summary:

The most recent CREST release included this analysis of “The Dynamics of Nuclear Proliferation: Balance of Incentives and Constraints.” The analyst sought to explain why “no additional overt proliferation of nuclear weapons has actually occurred” since the Chinese nuclear test, India had not weaponized while Israel and South Africa had not “taken any action to signal overt possession of nuclear weapons.”

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The Dynamics of Nuclear Proliferation: Balance of Incentives and Constraints

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NIC M 85-10001

The Dynamics of Nuclear Proliferation: Balance of Incentives and Constraints

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SCOPE NOTE

This Memorandum offers a perspective on the balance of incentives and constraints on Third World nuclear decision makers over the last two decades to attempt to understand why there has been as little proliferation as apparently has occurred. The hypothesis of the study is that the nuclear proliferation process is highly dynamic. That is, virtually every event or decision in the process sets off other events and decisions, some of which move the process in the same direction as the initial occurrences, but others of which just as often move it in the opposite direction.

The study provides evidence for the proposition that there have been many multiple-impact events and trends over the last decade that have affected the decisions and abilities of governments to develop nuclear explosives and that the future is likely to see many more such action-reaction chains. It attempts to identify the most important of these chains, to ascertain what additional ones may occur, and to estimate what cumulative impact they have had and will have on nuclear decisions in the Third World over the next five to 10 years. It also examines briefly what particular challenges the United States may face as it continues to strive to limit or preclude further proliferation.

For the purposes of this analysis, *proliferation* is defined as having occurred when a country comes into the possession of all the components of a nuclear explosive device, whether that possession is declared or undeclared.

Note: This Memorandum has been discussed with the Directorate of Intelligence and with experts both within and outside the Intelligence Community and has been approved by the National Intelligence Council. It was authored by [redacted] Deputy Director of the NIC Analytic Group, under the auspices of the National Intelligence Officer at Large, David B. Low.

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KEY JUDGMENTS

The most striking characteristic of the present-day nuclear proliferation scene is that, despite the alarms rung for some decades by past National Intelligence Estimates, no additional overt proliferation of weapons has actually occurred since China tested its bomb in 1964. Clearly, India proliferated when it detonated a "peaceful" nuclear device in 1974, and other major proliferation-related occurrences have taken place in the last 20 years. But these events seem not to have had the systemwide impacts that the Intelligence Community earlier anticipated would occur.

The main reason for this situation is that the incentives that Third World nuclear decision makers perceive for making choices that lead toward proliferation have not been as strong as once thought. In addition, to the extent that the incentive structure has changed in the last decade, movement has almost uniformly been in the direction of raising the costs of developing a weapon or explosive capability and diminishing the expected gains.

Some of the dissuasive influences have risen from changes in the external environment (for example, the reversal in energy trends) that sharply reduced the attractiveness of developing nuclear power industries and, consequently, the prospect that numerous Third World nations would acquire their own sources of fissile material. Furthermore, the sharp economic contractions undergone by most Third World countries since 1981, in addition to reducing their energy needs, have also affected their nuclear plans by making it virtually impossible to carry through ambitious development efforts as rapidly as they had hoped. In particular, the high debt servicing requirements of countries like Brazil have eliminated foreign exchange that might have been used for importing nuclear technologies and materials. In addition, these countries have been placed under pressure to avoid actions that make them appear irresponsible to the developed countries in order not to risk losing access to international loans and developed-country markets.

Other disincentives for creating nuclear explosives or weapons have been created by the strengthening of the international nonproliferation regime that has occurred during the last 10 years or so. The three most important changes that have taken place in this arena are:

— The demonstration by the United States that it can and will exercise leverage to influence the nuclear programs of countries that depend on it for military security [redacted] and Pakistan).

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— The consensus that has developed among supplier governments that it is legitimate to restrict the transfer of sensitive nuclear technologies and materials abroad.

— The power that the international norm against developing explosives, or at least overtly displaying them, seems to have acquired.

These developments have created a number of obstacles to proliferation:

— No new deals to transfer reprocessing or enrichment technology abroad have been concluded in about 10 years. Moreover, all major supplier governments have created nonproliferation bureaucracies, which, although they vary widely in size and influence, facilitate quick communication among these governments to stop potentially dangerous sales. Countries like Pakistan and Argentina, which have persisted in developing capabilities to produce fissile material, have been forced to build their own by buying components of components, vastly increasing the technical difficulties involved.

— The growing strength of the international norm is reflected in the fact that the newest exporters of nuclear technology (for example, Brazil, Argentina, and China) are voluntarily placing their exports under International Atomic Energy Agency safeguards. Moreover, the bulk of the evidence is that serious North-South disputes will not occur at the September 1985 Nonproliferation Treaty Review Conference and that the attendees will reaffirm the primacy of the bargain in the treaty that they will forswear developing nuclear weapons if their neighbors do likewise.

— In giving up pursuit, at least for now, of a weapons option, Taiwan and South Korea have provided testimony that even those countries that face real military threats can obtain more national security from a military alliance than from developing nuclear weapons. This helps undercut the rationale for pursuit of weapons by other countries.

Each of these external disincentives has retarded movement toward proliferation directly. But their most important impact has been the less direct one of creating delay—time during which the internal economic, political, bureaucratic, and psychological forces working against proliferation in each country of concern could exert influence on decisionmakers. In the longer run, this outcome of creating delay probably is the most crucial because it can result in not just slowing up

the spread of technological capabilities, which ultimately probably cannot be prevented, but in changing motivations, perhaps permanently, for wanting a nuclear weapon. Among the most significant domestic considerations in many countries of proliferation concern in this regard are:

— Many more interest groups than before are competing for resources and policy control within the nuclear arena, and, in the broader political context, nuclear matters have become more subject to the normal pull and tug of domestic politics. The costs of making decisions now that favor proliferation are higher and more likely to be criticized by groups with clout than when the programs first began.

— The support of military leaders for developing a nuclear weapon cannot be taken for granted, because seeking possession of one can actually degrade national security. Experience shows that beginning a nuclear explosives program can stimulate a neighbor to do likewise or to launch a preemptive armed attack and can threaten to disrupt important alliance relationships.

— The international political rewards of achieving advanced nuclear status are also probably less certain than they once seemed. It is neither a sure road to international prestige nor to regional dominance. Moreover, a country like Brazil may have more to gain by demonstrating leadership in "newer" technologies involving space, computers, or biogenetics than in "older" nuclear technology.

Over the next five years or so, there is a good chance that today's relatively favorable nonproliferation regime will not be seriously endangered. The principal factor leading to this conclusion is that only arguments of national security, particularly if they involve serious fears about potential national annihilation, are likely to carry enough weight with decisionmakers to override the negative reactions they might anticipate from supplier countries, neighbors, the international community, and from domestic critics of decisions to develop nuclear weapons. Few, if any, countries with developing nuclear capabilities seem likely to perceive so ominous a threat to their survival during this period.

The main challenge the United States will face in this shorter run concerning its nonproliferation policies probably will continue to be how to deal with specific situations, such as ambiguous evidence that Pakistan is producing fissile material suitable for weapons. Public revelation of such information might cause a cutoff of US military aid, the one thing that is most likely to stimulate Pakistan to build and stockpile weapons.

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Predictions up to 10 years are obviously more difficult—although there is at least a reasonable chance the nonproliferation regime will survive generally intact—because it is impossible to know what outcomes various trends now under way will actually produce. On the one hand, for example, the norm against developing weapons may become psychologically harder to breach the longer it persists overtly unbroken. On the other, the technologies used for making nuclear explosives almost certainly will continue to spread, leaving a number of countries in 10 years potentially only a short step away from building a weapon, should they so choose. This trend may create a special risk, for example, with respect to [redacted] leaders there came to believe that the US security commitment to their country had weakened. A number of other damaging possible scenarios also exist:

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— Pakistan might test or build weapons, provoking India to do the same. This would not necessarily cause a scramble for explosives by other nations, however, since none is motivated by the same considerations as Pakistan. Moreover, the obvious state of insecurity it would introduce into regional relations might reinforce this disincentive for decisionmakers elsewhere.

— Truly xenophobic regimes might take power in South Africa or Argentina. Governments that already felt cut off from the rest of the world might gain some psychological satisfaction from brandishing a nuclear capability.

— Most dangerous, the capabilities the United States and the Soviet Union currently have to support their parallel interests in preventing proliferation might decline. This would be especially damaging because part of the consensus that supports the nonproliferation regime is the belief that neither superpower will permit its allies to develop nuclear weapons and that the issue of horizontal proliferation will not become enmeshed in East-West politics.

Over the longer term, in addition to coping with specific proliferation threats, another challenge for the United States will be how to deal with the probable decline in the effectiveness of the policy of attempting to deny to nonweapon states the technological ingredients for making nuclear explosives. If the industrial capabilities for developing an advanced nuclear infrastructure continue to spread, as seems virtually inevitable, the United States and other supplier countries may need to focus more on attempting to boost antiweapon motivations in Third World countries than on technological denial, seeking to take advantage of doubts that already exist about the potential regional security and domestic political costs of making proweapon decisions. The challenge here is to find ways to enhance those concerns without causing a nationalistic backlash against perceived foreign interference in sensitive domestic matters.

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DISCUSSION

Introduction: Past Estimates

1. For almost 30 years the Intelligence Community has been writing about which nations might next get the bomb. In addition to Estimates on individual countries, major worldwide Estimates on the subject were produced in 1966, 1974 (with a Memorandum to Holders in 1975), and 1982. All of the Estimates share a number of characteristics, including:

— A stress on the concern that the principal constraint on proliferation—lack of access to fissile material—will progressively disappear as large quantities of plutonium, for example, become available to more and more countries as they acquire nuclear power reactors.

— A tendency to focus on predicting when countries will become *technically capable* of producing a nuclear explosion, even though the Estimates acknowledge that many political, security, and economic factors will be at least as important as technical considerations in making the national decision whether or not to build an explosive device or weapon.

— A consensus that a "chain reaction" or "scramble" of other nations going for nuclear weapons could easily occur if even one additional state demonstrates a nuclear explosive capability.

— A somewhat surprising absence of analysis of such major events as the Indian "peaceful" nuclear test in 1974, the agreement in 1976 of the major nuclear suppliers to place restrictions on sensitive nuclear exports, and the Israeli destruction of the Iraqi nuclear reactor in 1981, particularly in terms of the likely future impact of these events on the international nonproliferation regime.

2. The ways in which the Intelligence Community's perspective on the dangers of proliferation shifted between the 1960s and the 1980s with changing events is even more interesting, however, than the shared characteristics noted above. In the 1966 Estimate, for example, considerable attention was devoted to the chances that other advanced industrial countries might join the five existing nuclear weapons states. By 1974-75 only Japan among the industrial states [redacted] In the 1982 document, advanced industrial countries were not mentioned except as nuclear suppliers; the proliferation threat was seen as existing only among developing countries.

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3. A second major difference is the apparently varying, although never clearly stated, views among the Estimates of what constitutes proliferation. The focus in the earliest Estimate was almost entirely on the prospects for spread of a *weapon* capability. The 1974 Estimate shares this concentration, but a shift occurred in the 1975 Memorandum to Holders. It was written explicitly to examine the earliest date when countries might develop primitive *nuclear-explosive-capabilities*. By 1982 the focus had become even more diffuse. It analyzed the actual and potential proliferation of *sensitive nuclear materials and facilities* that might contribute to an explosive (or weapon) capability but do not individually represent that capability.

4. Third, the views of the actual and, especially, potential effectiveness of the international nonproliferation regime, primarily with regard to the influence of the Nonproliferation Treaty (NPT) and the functioning of the International Atomic Energy Agency's (IAEA) safeguards system, differ quite sharply. The 1966 document concluded that the safeguards system is likely to detect any significant diversion of sensitive nuclear materials or equipment, although future competition among suppliers may erode the effectiveness of safeguards. The 1974/75 Estimate agreed that significant diversions probably would be detected but added that this would not stop any state bent on developing a weapon and that, moreover, some suppliers—France among them—probably would succumb to potential economic and political gains available from exporting technology, materials, and equipment relevant to nuclear weapons programs. By 1982 the view was even more pessimistic: the credibility of the IAEA's safeguards system was judged to have been declining, and concern was expressed that a consensus might develop that the IAEA was incapable of ensuring effective implementation of safeguard agreements.

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5. A fourth major difference among the Estimates is a change in tone that occurs in discussions about the inevitability and magnitude of possible future proliferation. The earliest study estimates that "only India is likely to undertake a nuclear weapons program in the next several years . . . ." The mid-1970s documents assert [redacted] that India (having already accomplished a "peaceful" explosion) is likely to fabricate weapons covertly. It adds that in the 1980s the production of nuclear weapons will be within the technological and economic capabilities of "many" countries, especially Taiwan, Argentina, and South Africa. In the 1982 Estimate, proliferation is discussed in a tone more of *when* rather than *if*. The Estimate asserts, "Nuclear proliferation *will* become a greater threat to US interests over the next five years . . . the spread of nuclear weapons capabilities to additional countries *will* add to the long-term nuclear threat to US citizens and property [emphasis added]."

The Present: What Actually Has Happened

6. The most striking characteristic of the present-day nuclear proliferation scene is that, despite the alarms rung by past Estimates, no additional overt proliferation of nuclear weapons has actually occurred since China tested its bomb in 1964. Clearly, some proliferation of nuclear explosive capabilities and other major proliferation-related developments have taken place in the last two decades. But they seem not to have had the damaging, systemwide impacts that the Intelligence Community generally anticipated they would, and reactions to some of them may actually have diminished, at least for some period, the prospects that new weapons proliferation will occur. For example:

— *India* did proliferate in 1974 when it exploded a "peaceful" nuclear device, but it has not proceeded with weaponization, as the Estimates (and other analysis) before and after 1974 consistently predicted would happen, nor even with additional nuclear tests. There now seems to be general agreement that India will resume testing only if Pakistan tests. Moreover, most analysts believe that India is not likely to develop weapons unless it becomes convinced that Pakistan has not only developed a weapon capability but also has proceeded actually to build and stockpile weapons.

— *Pakistan* is developing the capability to separate plutonium and to produce highly enriched uranium, and it probably has a workable design for a nuclear explosive device. Sufficient separated plutonium for explosives probably could not be available, however, until several years after a pilot-scale reprocessing plant commences operation. In any case, the only source of spent fuel for reprocessing is a reactor that is under international safeguards. [redacted] 25X1

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Although the Pakistanis may theoretically be capable of producing very small quantities of highly enriched uranium, they probably are technically at least a year or two away from a capacity to produce enough HEU for an explosive device.

— [redacted] *South Africa* probably have developed nuclear explosive devices (or the ability to put one together on short notice), but they apparently have not tested [1] nor taken any other action to signal overt possession of weapons, probably because the political costs would outweigh the benefits if they did. This has lessened the adverse impact their development of a nuclear capability otherwise would have had on the international system for containing proliferation.

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— [redacted] *Argentina*, and *Brazil* had made decisions by the 1970s to develop advanced nuclear infrastructures (in particular, the capability to produce fissile material), which would give them at least the option to build a nuclear explosive device at some future date, [redacted] actually decided to create a weapon capability.

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– Argentina and Brazil maintain they eventually intend to master the complete nuclear fuel cycle, including the ability to produce fissile material in facilities that are free from foreign restrictions. To that degree, both are leaving open the option of developing a nuclear explo-

[1] There is still considerable disagreement within the Intelligence Community as to whether or not the flash in the South Atlantic in September 1979 was a nuclear test and, if so, by South Africa.

sive capability. Both, however, have recently experienced major economic setbacks and political changes that are already showing signs of causing significant delays—up to several years or even possibly indefinitely—in the completion of some sensitive nuclear facilities. Moreover, both of the new civilian governments seem even less interested in developing nuclear explosives than were the military governments they replaced.

— A few other countries (such as *Iraq*, *Iran*, *Libya*, and possibly *Egypt*) remain of proliferation concern because they have shown interest in developing the kinds of capabilities that, if they succeed, might eventually bring them to the technological level where they could create an explosive device. But events and other governments have conspired in the last several years to place such major obstacles in their paths that there is virtually no chance any of them could reach that level in the next 10 years. Since the 1970s, only one country—*North Korea*—has been added to the list of those countries that are developing nuclear facilities and that, because of regional ambitions, pariah status, or regional security situation, might be motivated to seek nuclear weapons.

What Causes Proliferation Not To Occur?

7. There are a number of explanations for why so much less proliferation occurred in the past decade or so than was generally anticipated. For one thing, earlier projections about the probable rate of proliferation were based on too narrow a perception of the process by which the spread of a nuclear explosive capability comes about. These earlier analyses, for example, acknowledged that whether or not a country proliferates will be determined at least as much by political and economic factors as by technical considerations. But the analysts found it extremely difficult to specify what those nontechnical factors were and how they would affect nuclear decisionmaking. Consequently, their predictions tended to be driven by straight line projections of such matters as how soon a country could have the ability to produce sufficient fissile material for an explosion, given its recent pace of technological acquisition. These projections gave an air of technological inevitability to the proliferation process, implying that, if a country acquired more and more of the technical ingredients that go into making a nuclear device, the decision to consummate that option would become increasingly easier to make and, in fact, eventually would be made. What they generally failed to take into account was that, even as technical accretions were occurring, nuclear decisonmaking was becoming increasingly complicated as the number of actors in national decisionmaking establishments expanded who had a stake in decisions concerning what kind of nuclear capabilities to develop. Moreover, the decisions themselves became more difficult as events and trends from the external environment impinged to raise substantially the political and economic costs of developing several kinds of nuclear capabilities, including weapons-related ones.

External Events and Trends

8. Among the nondomestic influences that have had the greatest impact in the last decade on decisionmakers in those countries with developing nuclear industries have been changes in international economic conditions, particularly in the energy field. From the vantage point of the mid-1980s, it is difficult to imagine fully how buffeted nuclear decision makers must have felt by quantum shifts that occurred during the 1970s in perceptions of the relative attractiveness of nuclear-generated power versus fossil-fuel-generated electric power. At one point in the early 1970s—because of unprecedented increases in the price of oil and some concern about secure access to supplies—predictions abounded that dozens of Third World countries would have nuclear reactors in the 1990s and a concomitant ability to produce plutonium. Moreover, nuclear industry analysts believed that rapid expansion of nuclear power generation throughout the world would create demands for so much enriched uranium that world capacity for enriching natural uranium would soon be exhausted, leading to decisions by many states to develop their own enrichment capability in order to have an assured supply of fuel. By the early 1980s, however, almost a complete reversal of perceptions had occurred. Oil prices steadied and then declined, the rate of increase in demand for energy greatly slowed, and other, cheaper, power sources (such as new hydroelectric production) were brought on line. Nuclear power came to appear relatively uneconomic. The market in developing countries for nuclear power reactors virtually collapsed. Only eight developing countries had built or begun construction of power reactors by 1983, and, according to one analysis, only another eight to 10 Third World countries at the most seem likely to join that group by the year 2000.

9. The fact that nuclear power has not spread rapidly in the developing world has had a number of

favorable consequences from a nonproliferation viewpoint:

— The reversal in energy trends significantly reduced the number of nuclear reactors built worldwide and, hence, the amount of plutonium-containing spent fuel that those reactors would have produced. This, in turn, has greatly diminished the pressure on supplier countries to sell reprocessing plants abroad, including to countries that might have had some interest in keeping open a nuclear weapons option. In this regard, it is noteworthy, for example, that no reprocessing plants have been included in international nuclear sales since the 1976 West German–Brazil deal.

— A large overcapacity in uranium enrichment developed as nuclear power projects throughout the world were scaled back or canceled. Because this overcapacity is expected to last at least through the end of the century, the economic incentive for more countries to build capital-intensive, long-leadtime enrichment facilities is greatly reduced. Even those countries (such as Brazil and Argentina) that decided to build pilot uranium enrichment plants are finding it increasingly difficult to justify completing those facilities.

— Downward pressure on enriched uranium prices combined with rising costs for reprocessing spent fuel have also reduced the attractiveness, for those few countries that did build a nuclear power industry over the last decade, of reprocessing spent fuel to obtain plutonium for recycle through thermal reactors. One recent analysis concludes, for example, that the average current price of enriched uranium would have to increase five times before it would be cheaper to fuel thermal reactors with plutonium rather than enriched uranium.

— Another worrisome prospect—that the rapid growth of nuclear power industries would create so much spent fuel that the storage capacities of some countries would be quickly exhausted, causing them to turn to reprocessing as the best available alternative—has also not developed. Because of the relatively high costs of reprocessing, in the absence of noneconomic reasons for developing a reprocessing capability, storage of the comparatively small quantities of spent fuel that are being produced will be the most reasonable disposal method for most nuclear power countries for many years to come.

10. Another major international economic trend that has affected the calculations of developing country national decisionmakers on nuclear matters has been the general economic distress experienced by most Third World states in the last four or five years. The high growth years of the 1970s made decisions to commit large amounts of capital to nuclear development relatively painless. The sharp contractions undergone by most Third World economies since 1981 have made it virtually impossible to carry through those ambitious plans as rapidly as they had hoped. In particular, the very high debt servicing requirements of countries like Brazil have eliminated a large part of the foreign exchange that they had counted on for importing the nuclear technologies and materials for which they had contracted.

11. A more subtle consequence of the changing economic circumstances of these countries is that their high indebtedness has placed them under pressure to avoid actions that make them appear irresponsible to the developed countries, particularly the United States. For at least the time being, they have accepted that their economic fortunes depend on retaining access to the international financial system controlled by the developed countries and on expanded access to developed-country—especially US—markets. This undoubtedly has had an inhibiting effect on affronting US nonproliferation policy too blatantly.

12. In addition to these external economic pressures, Third World decisionmakers have also been restrained by the strengthening of the international nonproliferation regime that has occurred during the last 10 years or so. There have been two notable changes in this regard. The first is the consensus that has developed among supplier governments that it is legitimate to place restrictions on the transfer of sensitive nuclear technology and facilities abroad. The second has been in the power that the international norm against developing nuclear explosives seems to have acquired, particularly in the last five years.

13. The consensus among supplier governments seems to have developed primarily in response to India's "peaceful" nuclear test in 1974. In the immediate aftermath of that explosion, the judgment of nonproliferation supporters was that the reaction of supplier and other governments (with the exception of Canada) was unfortunately mild in their failure to censure strongly India's action or to impose sanctions. In actuality, however, the actions supplier governments have taken to prevent other governments from duplicating India's course have been firmer, more comprehensive, and more successful than any rational

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observer might have expected based on previous historical experiences, except in time of war, of intergovernmental attempts to restrict trade. Rather than being driven into ever-spiraling, more dangerous competition to export sensitive nuclear materials and technologies, supplier governments drew together—in the form of the London Suppliers Group—to limit substantially the dissemination of those items and knowledge that contribute most directly to making a nuclear explosive.

14. Supplier government efforts to restrict nuclear trade have created four obstacles to proliferation:

— No new deals to transfer abroad reprocessing or enrichment technology have been concluded in about 10 years, and almost all governments that are capable of supplying this kind of technology [redacted] have accepted what appear to be binding legal or political commitments not to do so. The key turning points in this regard were France's cancellation in 1977 of its contract to build a reprocessing plant in Pakistan and West Germany's commitment, after the negative US reaction to its 1976 deal with Brazil, not to include reprocessing or enrichment technology in any future sales.

— Suppliers have ended sales not only of plants to produce fissile material, but also, to a significant extent, of the sensitive equipment (such as centrifuges) that goes into these plants. This has forced countries such as Pakistan and Argentina to attempt to import components of components in order to try to build the sensitive equipment themselves. In every case, this has vastly increased the technical difficulty, cost, and time required beyond what it otherwise would have been of developing a domestic ability to produce or separate plutonium or to enrich uranium.

— Two bureaucratic obstacles to proliferation have developed on the supply side. First, nuclear policy has become a matter of "high" politics in key governments such as that of France. This has brought top national political leaders into the decisionmaking loop, which almost automatically makes nuclear sales decisions subject to a much wider set of constraints. Top-level leaders usually are forced to consider a broader array of domestic and foreign policy consequences of their decisions than are lower level decisionmakers. Second, a nonproliferation bureaucracy has been created in each of the major supplier governments. Although these bureaucracies vary widely in size and influence, their existence facilitates quick communication among these governments, a routinized way in which the United States or other concerned government can request action to prevent a potentially dangerous sale, and a body of knowledgeable people who can work on strengthening the international regime generally.

15. As indicated earlier, the 1982 Estimate said the effectiveness of the international safeguards regime seemed to be declining and that countries might lose their faith that it could function as a barrier to proliferation. Part of that gloominess probably stemmed from the failure of the 1980 NPT review conference to issue a final document reaffirming the value of the treaty. In retrospect, it appears that the standoff that occurred between the industrial and the developing countries on the substance of the final document probably had more to do with the general North-South struggle that was going on at the time than it did with any serious doubts about the value of the treaty and of the safeguards regime. In fact, there is considerable evidence, especially in the last three years or so, that the international norm against developing nuclear explosives—and, especially, testing them—probably has been much stronger and psychologically more difficult to breach than we have generally realized.

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16. It may be that the power of norms can only be judged retrospectively by observing how much or little they have been respected and what happens when they are violated. Examined in this light, it appears that all but a tiny handful of nations have believed that the essential bargain in the NPT is that they will forswear developing nuclear weapons in exchange for assurances that their neighbors will do likewise. Concern exists—in the eyes of most nonnuclear countries—about the failure of the superpowers to restrict vertical proliferation of nuclear weapons and about the refusal of countries with advanced nuclear industries to share "peaceful" nuclear technology more widely. Nonetheless, developing-country dissatisfaction with how these subordinate bargains have been respected seems not to have diminished the hold of the primary bargain. It can even be argued that the decision of the newest members of the nuclear club—[redacted] South Africa—not to brandish overtly their nuclear capabilities is partly due to their desires not to take on the political and practical consequences of having obviously broken the norm, even though they are not signatories to the NPT.

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17. Some of the evidence that the safeguards regime (although not necessarily actual inspection capa-

bilities) has gained strength since the 1980 review conference is as follows:

— There are few signs the nonaligned countries will attempt to confront the developed countries at the September 1985 NPT Review Conference as they did at the 1980 conference. In fact, they have accepted a three-committee structure for the 1985 conference that will permit the subject of nonproliferation and safeguards to be discussed separately from disarmament and the peaceful uses of nuclear energy. The two-committee structure of the 1980 conference did not permit a separate review of safeguards. This may have contributed to uncertainty among observers concerning how serious developing states were about maintaining their agreement not to seek nuclear weapons, even if developments in the other two bargain areas were not fully acceptable to them.

— No country has used ambiguous evidence of possible breaches in safeguards—which might have permitted illegal diversion of safeguarded materials to occur in Argentina and Pakistan—as ammunition either to attack publicly the safeguard system or the country in question. Analysis of all available evidence later indicated diversions probably did not occur, but India or the Soviet Union, for example, could have used these incidents in propaganda attacks on Pakistan. India undoubtedly held back partly out of concern that some of its accounting procedures for handling safeguarded sensitive materials might be similarly challenged. But there is at least some possibility that the apparent conspiracy of silence that existed among IAEA members on these problems was due in part to concern not to call into question safeguards generally.

— Possibly the most significant evidence of the current psychological strength of the safeguards system is that a number of countries that are just entering the nuclear export market and that are not signers of the NPT have recently indicated they will require acceptance of IAEA safeguards as a condition for their exports of nuclear materials and equipment.[8] In 1984, for example, South Africa announced that it would henceforth transfer nuclear exports only in accordance with the Zanger Committee "trigger" list. Moreover, during 1984-85, Brazil, China, and Argentina also began to include references to the necessity of IAEA safeguards in nuclear agreements among themselves and, in some cases, with third parties. Argentina, for example, will require safeguards on a nuclear reactor it has just sold to Algeria.

[8] These safeguards are not as strict as the United States would prefer because they attach only to the items being transferred and do not bring all of the receiving country's nuclear facilities under IAEA purview (so-called comprehensive safeguards). Nonetheless, they do sharply cut the chances that, as additional countries develop the capability to export nuclear products, the system of supplier country restraints will be undermined by the arrival of "rogue" suppliers.

The Internal Decisionmaking Dynamic

18. At the same time that external developments have increased the complexity of the tradeoffs involved in deciding what nuclear course to follow, the internal decisionmaking process in most countries of proliferation concern has also become more complex. This is best illustrated by examining what the nuclear decisionmaking establishments looked like in several of these countries in their earlier days compared with those same establishments today.

19. There are a number of interesting similarities in the way these programs began and subsequently evolved. One is that in virtually all of these countries the nuclear development efforts that either led directly to an explosives capability or are of greatest proliferation concern now were shaped by a few key figures, motivated in part by great personal ambition, who generally had unusually direct and influential access to the top political figure in the country.[9] Another is that nuclear decisionmaking was a very closed affair in those early days. Decisions were secret, involved very few people, funds were appropriated and spent with virtually no outside controls, and the possible negative ramifications of the decisions seem hardly to have been considered. In virtually every case, the decision to build an explosive device or to acquire the capability to produce fissile material appears to have been gut-level reaction by the top political leader at the time. They were responding to some mixture of the need to cope with recent security developments that were perceived as possibly threatening the country's existence (especially [redacted] Sout25X1 Africa, South Korea, Pakistan, and Taiwan) and to a need to acquire international prestige (especially Argentina, Brazil, and India).

20. The nuclear decision making process in many of these countries has evolved considerably over the last decade. The most important changes are that in

[9] The individuals who stand out in this regard are Munir Ahmed Khan and, later, A. Q. Khan in Pakistan; Dr. Homi Bhabha and Raja Ramanna in India; Vice Admiral Carlos Castro Madero in Argentina; Dr. Rex Nazare in Brazil; Chien Chi-peng in Taiwan; A. J. Roux in South Africa; and Ernst Bergmann in Israel.

several of these countries many more interest groups are competing for resources and policy control *within* the nuclear arena, and, in the broader political arena, nuclear matters have become much more subject to the normal pull and tug of domestic politics. This has considerably changed the context *within* which top political leaders make nuclear decisions because, unlike when current development programs were set into motion, the costs of making decisions that favor proliferation are higher now and more likely to be criticized by groups with political clout.

21. There are several issue areas where the tradeoffs are particularly consequential between spending resources for explosives or weapons development (or in some cases even to keep that option open) as opposed to other purposes. One concerns questions of nuclear power versus nuclear weapons. At one time, acquiring the infrastructure for a nuclear power industry appeared to be a direct route to acquiring important capabilities for developing nuclear weapons. In retrospect, however, it seems that the desire to develop a nuclear power industry has created at least as many problems as it did benefits for most of those countries that also directly sought nuclear explosives or that built unsafeguarded facilities partly in order to keep open the explosive/weapon option. For one thing, building a nuclear power industry absorbs massive amounts of skilled personnel, money, and other material resources, often creating a quandry as to whether these scarce resources should be spent on developing safeguarded or unsafeguarded facilities. India, for example, has had a difficult time deciding whether to build safeguarded nuclear power reactors that cannot legally be used for weapons-related purposes or to take the slower, more expensive route of constructing unsafeguarded facilities that allow for the option of production of fissile material that is free of restraints.

22. Another problem for countries that have chosen to develop major nuclear power industries is that the existence of the power program creates points of vulnerability that can be exploited by foreign suppliers of nuclear goods to attempt to influence other aspects of a country's nuclear development. One factor, for example, that works against a decision by either South Korea or Taiwan to attempt once again to acquire reprocessing technology is the prospect that such a decision would result in a cutoff by the United States and other suppliers of crucial imports for expanding their nuclear power industries.

23. A host of other considerations—involving perceptions of national security, attitudes of the military, domestic bureaucratic and political consequences, and potential impact on regional and international political relations—have also developed strength over the last decade that complicate the nuclear decision makers' task:

— It is probably not nearly as clear as it once seemed, for example, how much additional national security possession of a nuclear weapon actually brings. Among other negative considerations, decisionmakers probably have become increasingly aware that a nuclear weapons program could a) stimulate a neighbor to develop its own weapon, b) provoke an armed attack by a neighboring state (for example, Israel on the Iraqi reactor), and c) cause military alliance problems, including the cutoff of crucial conventional military aid.

— The support of military leaders for developing a nuclear weapon cannot be taken for granted. In this regard we know that military leaders in India have been among those who are reluctant to see India weaponize. They are concerned that this course might reduce their ability to acquire more immediately useful conventional arms by diverting money from their acquisition program and by complicating relations with the sources of the new arms they seek. Similar concerns have been expressed by some military commanders in Brazil and Argentina.

— The government bureaucracies that handle nuclear matters in many of the countries of concern have evolved to the point where factions now exist that support various programs and approaches that often are in competition with each other for resources and policymaker attention. As indicated above, one of the commonest splits is between those officials who are responsible for developing the power program and those involved in building unsafeguarded fuel-cycle facilities. Even within the effort to produce unsafeguarded fissile material, some resource competition has occurred, for example, between programs to build reprocessing and enriched uranium production capabilities in Argentina and among separate Navy, Air Force, and Army nuclear development efforts in Brazil.

— The isolation that once characterized nuclear decisionmaking has also broken down in several countries so that nuclear programs are becoming fair game for criticism and manipulation in domestic politics. As, for example, authoritarian political tendencies in Argentina and Brazil are giving way to more democratic, competitive

politics, factions within the nuclear arena feel freer to debate their differences publicly and to seek allies from other political sectors. This has the effect of politicizing nuclear issues and creating a larger set of tradeoffs that must be considered by a political decision maker as he, for example, has to deal with the environmental, employment, economic development, and possibly the election consequences of choosing to invest in a particular nuclear facility rather than in something else.

— The international political rewards of achieving advanced nuclear capabilities also probably are considerably less certain than they once seemed. The examples of Great Britain and France, on the one hand, and West Germany and Japan, on the other, demonstrate that possession of a nuclear weapon is not necessarily the best avenue to acquiring usable international power and prestige. Not even regional dominance is assured if the main consequence of developing a nuclear weapon capability is to stimulate a neighbor to do the same. Moreover, there seems to be a faddishness in displays of technological prowess, so that a country like Brazil, for example, may have more to gain by demonstrating Third World leadership in space technology, computers, or biogenetics than in "older" nuclear technology.

24. The primary conclusion of this examination of the incentives and constraints that influence Third World nuclear decisionmakers is that the incentives they perceive for making decisions that lead toward proliferation have not been as strong as often believed. Moreover, to the extent that the incentive structure has changed in the last decade, movement has almost uniformly been in the direction of raising the costs of developing a weapon or explosive capability and diminishing the expected gains.

25. The fact that the barriers to proliferation have grown rather than shrunk is not primarily the result of luck. Some of the economic forces (for example, the change in the energy outlook and the international recession) and political forces (for example, movement toward more open, competitive systems) that have counteracted tendencies toward proliferation are not attributable to deliberate government efforts to prevent the spread of nuclear weapons. Most of the other countervailing forces, however, are. Some of the most prominent nonproliferation successes, such as the decisions of South Korea [redacted] to end those efforts that could have led directly to acquisition of a weapon capability, and the decision of the French Government to renege on its contract to build a reprocessing plant in Pakistan, were the direct result of significant US Government initiatives. Those decisions were crucially important in reversing the momentum toward proliferation that seemed to be developing in the mid-1970s.

26. The subsequent actions of the nuclear supplier countries, led by Canada and the United States, to establish the supplier restraint philosophy and to strengthen the normative presumption against using nuclear technology for potentially nonpeaceful purposes, while less dramatic, have also been essential. Their most important effect has been to create delay. They have done this directly by drawing out the construction time of unsafeguarded facilities and indirectly by causing Third World decisionmakers to postpone actions—such as South Africa's decision in 1977 not to test its nuclear device—which might have seriously damaged the nonproliferation regime.

27. Even more important than the specific antiproliferation accomplishments of government action, however, may be the fact that every moment of delay has permitted the other economic, political, bureaucratic, and psychological forces that work against proliferation to develop, gather force, and exert influence on decisionmakers. For the long run, this outcome of creating delay probably is the most important, because it can result in not just slowing up the spread of technological capabilities, which ultimately probably cannot be prevented, but in changing motivations, perhaps permanently, for wanting a weapon.

Outlook

28. In looking ahead at the prospects for proliferation in the next five to 10 years, the one relatively sure judgment is that nuclear decisionmaking is unlikely to become any less complex. The number and weight of conflicting pressures from external and domestic sources on decisionmakers are likely to grow in the nuclear arena because the relevance and viability of "nuclear" solutions are so uncertain for addressing the major developing-country needs of economic growth, national security, political stability, and acquisition of international or regional prestige.

29. This by no means rules out the prospect that events of proliferation concern will occur in the next five to 10 years, including the possibility that another country or two will develop a nuclear explosive or

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weapon capability in that time frame. It does suggest, however, that:

— Only arguments of national security, particularly if they involve serious fears about potential national annihilation, are likely to carry enough weight with decisionmakers in the next several years to override the adverse reactions they might anticipate from supplier countries, neighbors, the international community generally, and, possibly, from domestic critics of decisions to develop nuclear weapons.

— There is a good chance that those few states that proceed for reasons of national security with an explosives program will be persuaded to stop short of overtly demonstrating that capability. Israel is a powerful example of how an overtly ambiguous nuclear status can bring whatever political benefits are available from possession of a weapon capability while taking on very few accompanying penalties.

— The international nonproliferation regime can cope with isolated events such as the 1974 Indian explosion or with nuclear developments that it can officially ignore, such as the probable possession of nuclear devices by Israel and South Africa. In the one case, it has time to adjust to the event by designing procedures to attempt to ensure that the event will remain an exception. In the other, there has been no official challenge to the norm and the regime's procedural rules. Consequently, in the absence of a desire by any country to call the effectiveness of the regime into question, the members can pretend nothing has happened and avoid the extremely difficult—and possibly divisive—exercise of attempting to repair the norm and establish new rules.

Over the Next Several Years

30. If these conclusions are accurate, there is a good chance that the nuclear status quo will not be seriously endangered in the next five years or so. Predictions for 10 years are obviously more difficult, but even within that extended time frame there is a reasonable possibility that the current norm that favors nonproliferation will not be overturned. The main underpinnings for these optimistic views are:

— The great majority of influences on nuclear decisionmakers today work in the direction of causing delays in their ability or willingness to acquire the technological ability to make explosives.

— There are no looming new security situations that would boost motivations to acquire weapons or for Israel and South Africa to declare their probable weapons.

— The self-interest of supplier and other states in guarding against proliferation will continue strong.

— These patterns are stable and resilient enough to persist for several years, such that one "bad" event will not reverse them.

— The system will remain dynamic in the sense that counteractions would be set into motion by a proliferation event to isolate and contain its effects.

These trends combined with likely individual country developments suggest the following scenarios for the period to 1990 for countries of proliferation concern.

31. *Pakistan's* nuclear decisions over the next five years probably will continue to be shaped primarily by its need to protect its security relationship with the United States, and particularly to retain access to US military aid. Although the Pakistani Government will almost certainly continue its clandestine program to acquire technology to support development of a nuclear weapon, the balance of incentives and constraints is likely to remain against pursuing that course to the point of producing and stockpiling weapons. Fear of losing US military aid will also probably continue to act as a powerful disincentive for testing a nuclear device, for diverting safeguarded spent fuel to obtain sufficient plutonium for a weapon, or possibly even for producing enough highly enriched uranium for a device. These disincentives would be severely weakened by loss of the US security shield, and they would be tested by a sharp deterioration of relations with India.

32. From the *Indian* perspective, it is difficult to see what positive benefits have accrued to India from its decision to test in 1974. That perception probably underlies and will continue to influence its extremely conservative behavior so far on pushing further in the nuclear explosive or weapon field. To this point, indications are that India prefers not to test or to weaponize and that it will not unless forced to by Pakistani actions. Given the constraints on Pakistan and the other forces working on both governments to improve relations, there is no current reason to believe that India's relations with Pakistan are likely to become so negative as to reverse this situation. Nor does

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it appear that India's relationship with China is likely to deteriorate in the next several years to the point that New Delhi will be persuaded it needs nuclear weapons to hold off Chinese aggression. In the meantime, India's need to increase safeguarded nuclear imports to improve nuclear power production may prove strong enough to expand its dependence on foreign suppliers, creating additional disincentives to again risk ties to those suppliers.

33. The economic problems that have caused the *Argentine* Government to reduce its outlays in the nuclear field have no end in sight. Consequently, the chances are good that the government will not soon reestablish completion of a reprocessing capability (safeguarded or unsafeguarded) as a high priority. Plans exist to begin construction of an unsafeguarded nuclear reactor before the end of 1985, but it will take a minimum of five to seven years to complete and will not be of immediate proliferation concern unless a reprocessing capability is also developed. The efforts to complete the unsafeguarded uranium enrichment facility may continue as a matter of national pride. However, the Alfonsin government shows no inclination that it wants even a "peaceful" explosive capability and, in fact, is taking several initiatives—including proposing a mutual inspection arrangement with Brazil, placing its nuclear exports under safeguards, and seeking new domestic legislation that prohibits weapon development—that move it in the other direction. The retrenchment that is occurring in the power field, however, is freeing up resources that could be used in an explosives program, and a covert military faction could conceivably attempt to develop weapons clandestinely. But it is difficult to believe that such a program could be sustained long enough to develop all the components of an explosive device without the government discovering it or that the government would not move against such a central challenge to its authority.

34. *Brazil* is also many years away from having a reactor that can produce unsafeguarded plutonium or from acquiring a significant reprocessing capability, and its uranium enrichment efforts still have many difficult hurdles to surpass before success. There is some chance that its commercial enrichment process, even if all the technical difficulties are solved, will never be used to produce significant quantities of enriched uranium because it is so uneconomic compared with the cost of purchasing the same product in the international market. The unsafeguarded nuclear development programs of all three military services will probably continue, but the Army's graphite reactor project, which has just begun, is expected to take eight years to complete, and the Navy's uranium enrichment program is not likely to produce HEU before the early 1990s. There is no significant reprocessing capability under active development.

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36. Iraq, Iran, Libya, and North Korea are the only other countries in the world at present with nuclear programs or interests that might pose a proliferation threat in the medium term. Their prospects are as follows:

— *Iraq* and *Iran* remain interested in developing facilities that, although they would be under safeguards, could eventually produce fissile material that could be used in a weapon. However, neither will be in a position to devote significant resources to such a project until their war ends, and, even then, it would take at least a decade for either country to develop the nuclear facilities that could support a nuclear weapon development effort. Within that extended time period, any number of political or economic developments could call into question the wisdom of creating weapons.

— *Libya* continues to require attention, not because its nuclear program has any prospects for achieving a weapon capability within the next 10 years, but because Qadhafi may once again attempt to buy or steal a weapon or its components. There is very little chance he will obtain the assistance he would need, either from the Soviets or some West European source, to manufacture his own weapons-grade fissile material.

— *North Korea* has recently become a proliferation concern because of evidence that it is building a reactor that will be capable of producing significant quantities of plutonium by 1990. There is no evidence they are building a reprocessing facility, however, nor that they are working on the development of a nuclear explosive device. One major disincentive for North Korea to build a nuclear weapon capability is that South Korea probably would be provoked to do likewise, a development that might be perceived in North Korea as endangering its security more than does the current conventional status quo. Although South Korea probably is militarily more vulnerable to nuclear attack than is North Korea, it is difficult to believe North Korea would prefer to face a nuclear-armed enemy rather than one that has only conventional weapons. Moreover, although the degree of influence of the Soviet Union and China on North Korea is limited, the possibility that these powers would react negatively to the prospect of having one, and quite likely two, additional nuclear weapon countries on their borders and a new source of instability on the Korean peninsula may also act as a disincentive on North Korea.

The Longer Term

37. There are at least as many reasons to believe that the nonproliferation regime will grow stronger over the next 10 years as that it will weaken. Judgments about how strong the international barriers to proliferation will continue to be—especially five to 10 years out—must remain very uncertain, however, because it is impossible to know what outcomes various trends now under way will actually produce. On the one hand, for example, the norm against developing weapons may become psychologically harder to breach the longer it persists overtly unbroken. It could even end up more powerful in reaction to an unsettling event, much as occurred in reaction to the 1974 Indian explosion, if there were developed for the first time agreed-on sanctions against countries that attempt to build weapons. On the other hand, the technologies that are essential for making nuclear weapons almost certainly will continue to spread. Ten years from now, several additional countries, such as South Korea [redacted] having shortened lead times by developing dual-use technology, may only be a small step away from being able to put together a nuclear device, should they so choose. This situation, if it developed, would still be less dangerous than one in which those nations had a device in hand. But uncertainty about the survivability of the nonproliferation regime might be considerably higher because, if an untoward event occurred that created the right motivation, some countries could "go nuclear" much more quickly than at present, and with little warning.

38. Another central question about the future that will affect nonproliferation trends is how much strength US security relations with potential proliferators will have in 10 years. The credibility of the US security commitment will remain the crucial element for persuading South Korea [redacted] not to build nuclear weapons and for inhibiting the Pakistani program. These security relations probably will not unravel quickly or easily because there are powerful motivations on both sides to maintain them. Nonetheless, even the *perception* by any of these three that the commitment was weakening could precipitate a decision to develop weapons overtly.

39. There are a number of ways the trend toward the spread of nuclear technology and the possible loss of force of security relations might work separately or in tandem to damage the nonproliferation regime. One negative scenario, for example, would be if Pakistan, despite the illogic of such a decision, tested a nuclear device and/or began to build and stockpile weapons. As indicated earlier, this would be the trigger for India to do likewise, and the world would end up with, for the first time, two *neighboring* nuclear-armed enemies possessing primitive and highly destabilizing weapons. An additional complication is that such an action on Pakistan's part probably would force a cutoff of US military assistance, leaving Pakistan even more isolated and vulnerable. Despite earlier concerns that this kind of situation would boost the interest of other nations in acquiring weapons or a weapons option, it is quite possible that it would not have an adverse effect on the prospect for proliferation more generally. There is no particular reason to believe that Pakistan's gaining a weapon would change, for example, Argentina's calculations as to whether following a similar course would serve its interests. And the obvious state of insecurity it would introduce into regional relations might reinforce this disincentive in minds of decisionmakers elsewhere.

40. Another, more dangerous, turn in the nonproliferation scene could occur if truly xenophobic regimes took power in states with advanced levels of nuclear development or which already possessed a weapon capability. A further turn inward in South Africa, for example, might lead to a regime that, because it already felt cut off from the rest of the world, perceived no drawbacks—and in fact gained some

psychological satisfaction—from brandishing its nuclear capability. This kind of reaction is also at least conceivable from a military-controlled regime in Argentina, which became completely alienated from the industrialized world because of a cutoff of financial and trade relations.

41. A third, longer term threat to the nonproliferation regime comes from the probably unstoppable tendency of nuclear technology to spread to nations that have less capability and, possibly, less will to protect it than do the present advanced nuclear powers. It seems highly unlikely that Pakistan, for example, would consciously share its sensitive nuclear secrets with other Muslim nations because most responsible Pakistani leaders are very aware that, in the Muslim world particularly, today's friends can become tomorrow's enemies. Nevertheless, technological leakage could occur through theft or penetration, considerably aiding the nuclear program of Iraq or Egypt, should the latter ever decide that it wanted a weapons option. Pakistan may also have less ability than more developed nuclear powers to protect sensitive nuclear technology and materials from theft by terrorist groups.

42. A fourth possibility that could reverse the trend toward containment of proliferation would be a decline in the capabilities the United States and the Soviet Union currently have to support their parallel interests in preventing the spread of nuclear explosives. Although the possibility is not high because the security interests of both superpowers are so well served by denying nuclear capabilities to additional countries, this scenario probably could cause the most damage to the nonproliferation regime. Part of the consensus that supports the nonproliferation norm is the belief that neither superpower will permit its allies to develop nuclear weapons and that the issue of horizontal nuclear proliferation will not become enmeshed in East-West politics. If that belief crumbles, the resulting insecurities could spark efforts in many quarters to look to nuclear weapons for self-protection.

Implications for US Interests

43. For the United States, the last few years have been ones of considerable activity in terms of carrying out established nonproliferation policy. There have been relatively few instances, however, when policymakers were faced with new, really difficult foreign policy tradeoffs of the kind that occur when execution of US nuclear foreign policy collides sharply with accomplishment of other, usually bilateral, foreign policy objectives.

44. It is impossible to know how much longer this situation can last. Most likely, we have been treated to an unusually long stretch of relative calm and, within the next two years or so, new hard choices will have to be made. That is almost certain to be the case within the next five years. The kinds of situations that will require coping with making difficult tradeoffs probably will range from having to react to specific proliferation events in some countries to questions of how best to adapt existing US antiproliferation policies to an ever-evolving nuclear developmental process.

45. One of the first extremely difficult choices we may face could involve the Pakistani nuclear program. The coming dilemma here could be how to deal with what will probably be ambiguous evidence that Pakistan is producing fissile material that is usable for weapons. Even if Pakistan had not decided to assemble an explosive device (let alone weapons), evidence of this kind might force the United States to cut off all military aid. This, in turn, could cause such a loss in confidence in the US-Pakistani security relationship that Pakistan might then be stimulated to proceed with testing or weapons development, which would provoke India to follow suit.

46. Somewhat farther down the road may come new challenges to the long-term effectiveness of blanket US opposition to the export of sensitive nuclear technology and materials to countries of proliferation concern. US leadership in this area has without question been the key factor in creating many of the technological delays that have retarded acquisition of an explosive capability in such countries as Argentina and Pakistan. Export denial, however, has also unavoidably had the less beneficial effect of causing countries to seek to develop domestic capabilities to produce those items that were denied them. Argentina claims, for example, that it decided to develop a uranium enrichment capability in 1978 in direct response to the cutoff of supplies of enriched uranium from the United States caused by passage of the Nuclear Nonproliferation Act. There is at least some possibility that this short-term versus long-term tradeoff will arise again. This might happen, for instance, if at some point improved economic conditions permit Argentina or Brazil to renew construction of reprocessing or heavy water production facilities. It is conceivable that being able to negotiate on possibly selling sensitive materials to those countries might enable the United States to influence internal Brazilian or Argentine decisionmaking on the desirability of completing those domestic facilities. More flexibility in this area might also be important for preventing

major policy conflict with other supplier nations, many of which are almost certain to continue their resistance to the US preference for comprehensive safeguards as a prior condition for sensitive exports.

47. More generally, the challenge in the nonproliferation arena for the United States during the next decade will be to avoid becoming so tied to technological denial that opportunities are missed to boost the powerful motivations that already exist in Third World countries not to develop nuclear weapons, even as the technical capability to do so continues to spread. Two areas, in particular—perceptions of regional security and of the domestic political costs of making proweapon decisions—may offer openings for influencing Third World decisionmakers away from choosing to develop weapons. In this regard:

— The only security justification that seems to carry much weight for developing primitive nuclear weapons is their potential utility as the ultimate deterrent against possible annihilation by an overwhelmingly powerful, aggressive neighbor. This suggests that there might be merit in ensuring rough conventional military balances in regions where countries are inclined to fight each other and where they have the potential to develop nuclear weapons.

— Military leaders remain an extremely important target for influence on nuclear subjects because they probably are susceptible to arguments that primitive nuclear weapons have very limited warfighting utility and that, in fact, seeking them can expose a country to such hostile counteractions that its security is actually degraded rather than enhanced.

— More broadly, the number of potential domestic allies in Third World societies in favor of US efforts to prevent the spread of weapons probably is expanding as awareness of the costs to economic development, environmental protection, security, and regional politics associated with acquiring nuclear weapons increases, especially among scientific, professional, and political elites. The challenge here is to find ways to enhance those concerns without causing a nationalistic backlash against perceived foreign interference in sensitive domestic politics.