TECHNOLOGY AND ADVANCES IN FOREIGN MILITARY CAPABILITIES

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Introduction

Responsible governments around the world are reacting to the threat posed by advanced technologies and weapons[1] in the hands of aggressive actors and potential adversaries. The January 1994 NATO summit agenda included discussions on advanced weapons and technology. President Clinton is soon expected to issue a policy document on the topic. Bilateral agreements, like that between Japan and Belarus, to cooperate in non-proliferation[2] may become more common. Yet despite such focused attention, two questions remain unanswered: what are the prospects for success in controlling the spread of these weapons and technologies, and what are the consequences of failure? It is only possible to answer these questions after examining the proliferation pathways that enable any given actor to acquire advanced arms and technology. Once the paths of proliferation are understood, it then becomes possible to assess the chances of interrupting the flow and the risks attendant with an unsuccessful effort.

This article explores the various modes through which parties succeed in acquiring advanced weapons and technologies. The study briefly examines how specific military-technical capabilities might be exploited, and what kind of threat they might pose to U.S. military forces operating against them. Finally, the paper suggests steps that might mitigate the military significance of advanced, hostile, foreign capabilities.

Patterns of Cooperation and Technical Development

Since the end of the Cold War, the world arms market has grown substantially, with more and more developing countries entering the arena as arms sellers.[3]

1. According to the Defense Intelligence Officer for Science, Technology and Proliferation, "advanced" means anything for which there is no systematic defense or that provides an actor with a major shift in power relative to his adversary.
2. See Joint Publication Research Service (hereinafter JPRS) JPRS-TND-93-036, 8.

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Most of the new entrants' clients are also developing countries which do not demand the very latest technology, but rather, demand weapons that are modern enough to afford them some technical advantage over their (usually long-standing) rivals. Closely related is the sub-national market, in which states sell to insurgents. Israel, for instance, sold arms to the Tamil tigers, and Hungary, Romania, South Africa, and Singapore all supported the Croatian national guard.[4] Other states, however, do offer the most dangerous arms technologies for sale. Brazil's Aerospace Technical Center has developed a laser for uranium enrichment. India offers advanced nuclear reactors and heavy water for export.[5] Others sell or barter away advanced arms to resolve their debts.[6] Open market sales of equipment easily adaptable to military purposes, such as the Global Positioning System (GPS) — which can dramatically improve the accuracy of bombs and missiles and is sold worldwide — and the Geographic Information System — software marketed in Asia and Europe that improves the resolution of imagery from commercial satellites, thus enhancing the imagery's military utility[7] — also contribute to the variety of high quality goods to be found in the world arms bazaar.

In addition to buying finished weapons and equipment, many states are improving their indigenous production capabilities through programs of cooperation. Russia, for example, still cooperates with the other members of the Commonwealth of Independent States on arms production, even though it owns 80 percent of the former Soviet Union's production capability.[8] The arms industries of the industrialized world sometimes cooperate with partners in developing countries. Typical of this so-called North-South collaboration is the Franco-German Eurocopter assistance to the China-Singapore P120L helicopter program. South-South collaboration also occurs, as when Iran made its ranges available to North Korea to test fire its Nodong 1 Missile.[9]

Programs of cooperation may be supported by native experts or foreign experts hired to help with the project. Several thousand Third World scientists and engineers graduate from U.S. and European universities annually and

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3. For example, according to the Stockholm International Peace Research Institute, conventional arms exports in 1992 were valued at $18,133 million (in 1990 dollars). Of that, $8,369 million worth was sold to countries in the developing world: India, Saudi Arabia, Iran, Thailand, Syria, Israel, Egypt, China, Pakistan, South Korea, Taiwan, Bangladesh, Chile, Kuwait, and Argentina. *SIPRI Research Report No. 6, Arms Watch SIPRI Report on the First Year of the UN Register of Conventional Arms*, Edward J. Laurance, Siemon T. Wezeman and Herbert Wulf (London: Oxford University Press, 1993), 21, 29.
4. Amit Gupta, "Third World Militaries: New Suppliers, Deadlier Weapons," *Orbis* 37 (Winter 1993): 57-68.
5. See JPRS-TND-93-034.
6. Russia, for example, transferred five MiG 29s to Slovakia to retire the Russian debt. Moscow made a similar deal with Hungary, trading 20 MiG 29s and air defense and radar equipment in exchange for debt resolution. See "Russians and Slovaks Swap Jets for Debt," *Defense News*, 22-28 November 1993, 18.
7. See *Defense News*, 6 December 1993, 8.
8. See Foreign Broadcast Information Service FBIS-SOV-93-235, 7.
9. Gupta, 63.

return home with their skills. Scientists from the former Soviet military-industrial complex have been recruited by North Korea to help its nuclear program, and were only stopped as they were about to board the aircraft.[10] Others may be working on weapons programs elsewhere.

The pathway of technology proliferation begins typically with North-South collaboration on a project in which country A, a developing country, gains new expertise or equipment from its industrialized partner. When country A later cooperates with another developing country on a subsequent project, country A may impart some portion of its newfound capabilities to its new partner. In this way, the capability for indigenous production of advanced weapons and technology gradually seeps down to less capable actors.

Just as collaborative efforts create a technology proliferation pathway, transfers of finished equipment constitute the proliferation highway. Nations acquire useable arms and equipment that they can employ almost immediately (after some initial training). Moreover, working alone or cooperatively, and perhaps with the support of foreign experts, a state can reverse engineer some of these items and eventually develop a production capability. Ultimately, all proliferation fuels the capability for indigenous production.

Application of Advanced Technology

When countries acquire new technologies, they typically upgrade their current weapons and equipment.[11] Frequently, they will install new components from a variety of suppliers to produce a hybrid weapons system. For example, an airframe that began life as a British fighter aircraft may be improved by repowering it with a U.S. engine, adding French avionics and Israeli ordnance. The performance parameters of these hybrids are difficult to assess, but often they prove to be more capable than expected (most Scud missile derivatives excepted).

However, not all applications of new technology are bolt-on improvements to existing weapons. New weapons are also being developed. Among these, nuclear and biological weapons and their respective delivery systems are of greatest concern to the United States. Biological warfare technology has progressed to bioengineering, a process that involves a development of designer diseases — toxins re-engineered to bypass normal immunizations and vaccines.

There is a second tier of improved arms that, although not as dangerous as nuclear and biological weapons, nevertheless offers marked improvements in military capabilities to states that acquire these items. The weapons and equipment included in this group are: missiles; mines; submarines; and reconnaissance, surveillance, command and control systems. Despite the notorious inaccuracy of the Iraqi Scuds during the Gulf War, many countries are improving their missile range and accuracy. India, for example, has a polar satellite launch

10. See JPRS-TND-93-032.
11. According to an interview with the DIO for Science, Technology and Proliferation.

vehicle that can deliver a 1000 kg payload to a 900 km polar-synchronous orbit. This could become India's first intercontinental ballistic missile (ICBM).[12] The accuracy of many of the intermediate range missiles in arsenals today could be dramatically improved with GPS guidance.[13] Cruise missiles' payload capacity is also improving, while the missiles' relatively low radar cross section makes them difficult to detect and track. Accurate missiles of whatever sort, able to deliver conventional munitions including mines and bombs, would be an important improvement to any military's firepower.

During the Gulf War, mines posed a thorny challenge on land and at sea. Integrated into the Iraqi ground defenses of trenches, ditches and berms, mines threatened to constrain allied mobility. The breaching operations necessary to get through the mine fields and other obstacles required a tremendous amount of planning and called for specialized engineering resources that were in short supply.[14] While many of these mines were old-fashioned, they still posed a significant danger to coalition ground forces. The use of naval mines during the Gulf War also demonstrated the mines' potential; deep water mines, smart mines able to discriminate between high and lesser value targets and let several ships pass before detonating, non-ferrous mines, and other developments made mine sweeping difficult. The damage sustained by the USS Tripoli (LPH 10)[15] illustrated the vulnerability of modern warships to mines. Modern mines not only hamper the mobility of ground forces, but naval mines in particular, have the potential to hold surface forces farther offshore. This reduces the number of sorties possible from carrier-based aircraft by increasing the distances to targets, places many targets out of range for naval gunfire, and confronts amphibious assault forces with longer, and therefore more dangerous, trips to the beach.

Attack submarines pose a number of threats. In addition to their traditional role stalking surface transports and combatants, and more recently, following ballistic missile submarines, attack boats may be used to transport a nuclear weapon to its target — so-called "slow strategic delivery" — or serve as a launch platform for a missile from its deck. These submarines can also conduct mine warfare, gather intelligence and support special operations. Iran is reported to have bought two Kilo class submarines from Russia, and the former Soviet Union has transferred Foxtrot class submarines to several countries, including Libya.[16] In addition, Poland, Algeria, Romania, and Iran all operate Soviet-built submarines. France has exported its submarines to Pakistan, Portugal, Spain, and South Africa. German submarines are being used by Argentina, Brazil, Chile, Colombia, Denmark, Ecuador, Greece, India, Indonesia, South Korea,

12. See JPRS-TND-93-035, 37.
13. CBS Television's *Sixty Minutes*, 26 December 1993, remark by General Horner.
14. For a discussion of the problems posed by land mines, see the Office of the Secretary of Defense Final Report to Congress, *Conduct of the Gulf War* (Washington: USGPO, April 1992), 190, 253-56, 340.
15. LPH is a type of assault ship known as a Landing Platform Helicopter.
16. International Institute for Strategic Studies, *The Military Balance 1993-1994* (London: Brassey's, 1993), 122.

Peru, Turkey, and Venezuela. Widespread sales of these versatile craft continue and raise the risks attendant with many naval operations.[17]

Reconnaissance, surveillance, and command and control equipment may be the most important single improvement a country makes in its military; it may also be one of the easiest changes to accomplish. As noted, there are several commercial satellite services available that could provide information to support military operations. As such services become more abundant, it may be impossible to prevail upon the company to turn its satellites off to deprive an adversary of imagery as the United States did in the Gulf War.[18] Some adversaries may have redundant services. Aircraft and drones can also be equipped with sensors and provide better information on the enemy's size, location, and disposition as well. Finally, command and control, particularly a commander's ability to communicate with subordinates, is improving significantly. Frequency hopping radios, digital communications links, computers, faxes, and fiber-optics are all readily available. Supported by the best intelligence provided by reconnaissance and surveillance, a commander can now communicate with his forces and prepare an appropriate countermove far more rapidly, and with less vulnerability to jamming or to enemy eavesdropping, thanks to fiber optics and frequency hopping radios.

Improvements in Military Operations

Most U.S. military technical assessments of equipment and weapons tend to evaluate an item using analogous U.S. items as the reference point. This process establishes the relative technical superiority of one item over another, but offers little insight into the influence of a weapon or combat system on the effectiveness of military operations. In assessing the potential improvements in an adversary's military operations made possible by the acquisition of certain advanced equipment, it is perhaps more pertinent to ask what fundamental tasks an enemy of the United States must perform when defending itself and how advanced weapons and technology will contribute to the enemy's successful performance of these tasks. A country trying to prepare its defenses against an incursion by the United States faces five essential tasks. First, it must seek to deter the United States and its allies (since the United States seems committed to collective action whenever possible) from taking military action.[19] Second, it must create a buffer zone around its borders large enough to deny the United States bases and facilities in the theater of operations. Next, it must defend its

17. Even if equipment and training are inadequate for submarine commanders to risk a direct attack on the enemy surface fleet, the submarines could still prove troublesome by covertly laying mines right in the path but well ahead of enemy convoys.
18. Iraq subscribed to the French SPOT satellite, as does South Korea and others. In the future, allies and enemies may be relying upon the same imagery sources, so that depriving the enemy would also hurt a partner, making the decision to turn off the satellites more difficult.
19. See Thomas G. Mahnken, "America's Next War," *The Washington Quarterly* (Summer 1993): 171-84, for a thorough discussion of this point.

infrastructure[20] and its military from air attack so that they can continue their operations. Fourth, it must restrict the U.S. tactical and strategic mobility in order to reduce the speed of U.S. forces arrival in theater and their effectiveness once deployed. Finally, it must fight competently enough to inflict casualties and prolong the conflict to the point that the United States disengages.

A country with nuclear or biological weapons and appropriate delivery vehicles may find its quality of deterrence vis-à-vis the United States rather good. These weapons also raise the prospect of high casualties, important to the fifth task. Equipped with such an arsenal, or simply with capable conventional warheads, a nation may be able to threaten other states within range of its weapons, thereby dissuading them from joining the U.S. coalition or denying the U.S. use of their facilities. This may eventually cause the United States to conclude that the risks attendant to the expedition are not worth the price or that the undertaking could not succeed.

Creating a glacis by intimidating neighbor states into inaction may be easiest for nuclear powers, but states with lesser arms may also be able to do it. As missile ranges, accuracies, and payloads increase, it will become easier for some actors to threaten credibly with conventional munitions. Mines might play a role in subverting U.S. operations to seize airfields. Mines could be embedded in the runways in a way that would not disrupt normal operations. When surveillance and reconnaissance systems note that an airfield is about to be assaulted, the mines could be activated. The runways could either be cratered to prevent landings, or the mines might be set to detonate on touchdown of an aircraft, thus adding the remains of U.S. Air Force aircraft to other obstacles already on the ground. Submarines could also contribute to the buffer zone's expansion. Their stealth, versatile armaments, and range make them especially dangerous. They could stalk U.S. transports, mine the harbors for which the ships are destined, and attack the port facilities with missiles: the attack would not require great accuracy to drive off the dock workers and disrupt operations. In some circumstances, they only need to make their presence and hostile intent known, and many maritime insurance firms would prohibit ships that they underwrite from entering those waters. From a U.S. perspective, deprived of local bases, local allies, and dependent upon U.S. transport ships, the buffer zone around the prospective foe would look very wide.

Defending infrastructure and military forces from air attack will be a difficult task. The reconnaissance, surveillance, and command and control systems may make it less difficult, however, if they can detect the attack, issue timely warnings, and coordinate the air defense effort. There is little chance that countries like Iraq will succeed in protecting themselves completely from U.S. air attack in the near term, but equipped with appropriate air defense missiles and new command and control systems, they might inflict far greater U.S. losses than those sustained in the Gulf War air campaign. Limited success in air defense

20. Infrastructure here is limited only to those things necessary for the regime to preserve itself in power.

could thus contribute to task five — fighting well enough and long enough to cause the United States to withdraw.

The United States depends on its strategic mobility to move its forces to the scene of conflict, and ground force doctrine depends on tactical mobility to defeat the enemy in battle. Yet, U.S. strategic and tactical mobility are fragile capabilities. Strategic mobility hinges in part on control of the sea lines of communication, air superiority, and adequate sea and air transports. Tactical mobility is contingent upon ground vehicles and smaller aircraft, principally helicopters, being able to move around the battlefield without being damaged by enemy fire. Submarines and mines could operate as a dual threat to the sea lanes, perhaps by using mines to channel surface ships into the path of submarines. Since there are only 296 strategic sealift ships in the U.S. inventory, the loss of even a few could affect the overall chances for an expeditionary force's success.[21] A well-planned combination of in-depth maritime defenses might find submarines operating in echelons from well out to sea to near the shore. The submarines in turn would be supported by mine fields. Finally, anti-ship missiles based ashore would complete the defenses, all of which might be cued and controlled by a reconnaissance, surveillance, and command and control system. Strategic mobility could be further restricted by denying adequate airfields to U.S. transports as described above.

Tactical mobility rests on the ability to maneuver without being brought under effective fire. Longer range, more accurate weapons — if directed by good, timely intelligence (i.e. the product of a reconnaissance, surveillance, command and control system) — can constrict maneuver.[22] If an opponent were able simply to mass its long-range fires on U.S. forces with great accuracy rather than to try to maneuver against them, its forces might remain relatively safe in prepared fortifications while inflicting maximum damage on the U.S. unit. Mines and other obstacles, if covered by effective fire support, can also degrade tactical mobility and force U.S. units into planned kill zones. Low altitude air defenses, often provided by shoulder-fired missiles, can confine heliborne mobility in a similar way. The heart of the problem is to know where the U.S. forces are, where they are going, and to be able to respond effectively in the time available. A good reconnaissance, surveillance, and command and control system provides some of this crucial information and thus improves an adversary's chances to hinder U.S. tactical mobility.

Fighting competently enough to inflict casualties and prolong the conflict to the point where the United States disengages (the final task for a U.S. foe), depends to a large degree on the training, motivation, and morale of the force, as well as on the quality of their arms. A competent, motivated force directed by a capable reconnaissance, surveillance, and command and control system,

21. International Institute for Strategic Studies, 23. In addition, there are seventy-seven ships in the Fleet Auxiliary Force.

22. For a more complete discussion of the various military-technical influences on maneuver warfare and why it is likely to be more difficult in the future, see John E. Peters, *The U.S. Military: Ready for the New World Order?* (New York, Westport & London: Greenwood Press, 1993), 25-30.

and armed with accurate missiles, modern mines, and submarines in addition to its current arms, might, in some circumstances, endure long enough and inflict enough casualties to give the United States pause.[23] An enemy armed with nuclear or biological weapons would prove even more difficult: if a regime believed it were about to be annihilated by conventional U.S. forces, it might strike the U.S. expeditionary force with its nuclear or biological weapons at the moment of its own defeat, figuring all was lost in any event. While clearly each case depends on the specific details, the discussion above at least illustrates some of the additional difficulties that the United States might encounter when confronting a state with advanced weapons and technologies.

Practical Examples

What can the United States expect in terms of hostile enemy capabilities for the remainder of the decade? The Middle East is an instructive example. Although it contains only three percent of the world's population, it imported about 30 percent of all weapons transferred from World War II until 1992.[24] Despite the losses of the Gulf War and reduced oil revenues that have cut into arms imports, regional inventories remain large. Egypt, Iran, Iraq, Israel, Jordan, Saudi Arabia, and Syria each have sizeable stocks of surface-to-air missiles. Iran has invested in mines, submarines, missiles, aviation, and a nuclear program. Libya, Egypt, Iran, and Iraq each have major chemical weapons programs. The navies of many of these states have mine warfare ships, boats equipped with anti-ship missiles, and coastal defense missile batteries.[25] Iran may also be preparing a large, unconventional capability. Iraq is rebuilding following its defeat at the hands of the Gulf coalition, developing more surface-to-surface missiles, deploying chemical weapons with its southern-most forces, and pursuing its nuclear weapons program.[26]

Among all the regional actors acquiring advanced arms, Iran remains the premier example of how developing countries can exploit technologies for military advantage. Tehran has acquired two former Soviet submarines and integrated them with helicopters for maritime interdiction operations, marking a major improvement in the state's ability to extend a buffer zone around itself. Purchase of additional Silkworm anti-ship missile batteries further reinforce Tehran's capabilities in this regard.[27]

Iran has pursued its military buildup with an emphasis on strategic weapons.

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23. Under some circumstances, far more modest capabilities may suffice if a foe is willing to accept high losses of its own. Consider the Somali militias and irregulars who precipitated President Clinton's directions to withdraw U.S. forces from the region by the end of March, 1994. See Rick Atkinson, "Night of a Thousand Casualties," *The Washington Post*, 31 January 1994, A1.
24. The Congressional Budget Office, "Limiting Conventional Arms Exports to the Middle East," (Washington: CBO, September 1992), vi.
25. The International Institute for Strategic Studies, 107-131. See also the Congressional Budget Office, "Limiting Conventional Arms Exports to the Middle East," 5.
26. See JPRS-TND-93-038, 28-31.
27. See "Iranian Buildup Stirs U.S.-Arab Response," *Defense News*, 6-12 December 1993, 1,28.

As one observer asserts, the Islamic Republic bought nuclear weapons from Kazakhstan, 100-150 combat aircraft from China and hundreds of ballistic missiles from North Korea. Tehran has also built a strategic communications network linking its command center with its ships and shore batteries.[28] Iran has further extended its buffer zone and its ability to co-opt or intimidate its neighbors by taking over Sudanese Scuds and by deploying Silkworms in Sudan. Tehran thus has some control over Red Sea traffic and significant missile forces on both sides of Saudi Arabia.

Nor has the Iranian military buildup occurred in a political vacuum. Tehran has reportedly reached a condominium with Moscow for shared hegemony over former Soviet Central Asia, and has been improving relations with Syria and Iraq. Tehran reportedly offered to include Damascus under its nuclear umbrella once the "Islamic bomb" is ready.[29] As a result, Iran has crafted some type of cooperative relationship with the other strong states in the region and has arrayed its military forces to intimidate the weaker actors.

If the arms acquisitions attributed to Tehran prove to be true, Iran would be a formidable adversary. Its ability to intimidate Riyadh and other neighbors would be significant. Few states, faced with the prospect of Iranian nuclear retaliation, would welcome American requests for basing rights or other support. Moreover, Iran's submarines, maritime patrol aircraft, shore-based missiles and helicopters could further hurt U.S. strategic mobility by disrupting the arrival of sea-borne forces attempting to force their way ashore.

Moreover, Iran is a sizeable state with rugged terrain. As a result, Tehran can afford to trade space for time in a confrontation with foreign expeditionary forces without fear of quick defeat. Iran's large, unconventional forces could operate effectively in the high country, much as the Islamic resistance did in Afghanistan against the Soviet Union. Furthermore, Iranian forces could exploit the advantage of rough terrain by using mines and surface-to-air missiles to further impede U.S. tactical mobility. The Iranian army could thus expect to operate against the U.S. expeditionary forces for a protracted period and to inflict heavy casualties on them as well.

Although Iran may not have the integrated air defense and other systems necessary to protect its infrastructure from attack, it can nevertheless threaten to retaliate against its neighbors for such attacks. Thus, the United States would be put in a position of seeing one of its regional allies struck by nuclear missiles in response to a U.S. raid on Tehran. Given Iran's emphasis on unconventional warfare and terrorism, it might also retaliate with an attack on a U.S. city. Iran's unconventional, terrorist, and nuclear capabilities may enable Tehran to protect its infrastructure more effectively than the best air and missile defense systems by making credible threats of devastating retaliation against the United States or a friendly state.

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28. Yossef Bodansky, "The Grand Strategy of Iran," *Global Affairs* 8 (Fall 1993): 19-36. For an alternative view of Iranian regional security policy, see Shahram Chubin, "Iran and Regional Security," *Survival* 34 (Autumn 1992): 62-80.
29. Ibid.

Responding to Advanced Weapons and Technology

As the Iranian example illustrates, indigenous capabilities are improving and prospects of containing either weapons or technologies are poor. Given that the international arms market is huge, leakage is inevitable. The number of eager sellers increases steadily. Consequently, how should the United States proceed to prepare itself for future confrontations with very capable adversaries?

One of the first steps must be to develop effective countermeasures for the weapons and systems that give some states an advanced military capability. Disruption of their reconnaissance, surveillance, and command and control system should receive a high priority. As part of peacetime intelligence preparation of battlefield activity, specific systems should be carefully studied to determine their vulnerabilities and the most fruitful ways of attacking them. Without this system, the enemy commander is cut off from his forces and can only carry out uncoordinated operations.

Missile defenses, especially when the enemy is thought to have nuclear or biological weapons, are also crucial. These defenses must not only afford reliable protection for U.S. forces, but must also cover regional allies. The United States would thereby avoid having its allies intimidated into passiveness, become reluctant to join a coalition to defeat a regional thug, or refuse to let the United States use their bases and facilities. Missile defenses are crucial to preventing the enemy from creating a buffer zone around its territory. Defense against missiles and weapons of mass destruction are not enough. The United States needs the ability to locate and destroy all potential weapons of mass destruction delivery means, from artillery, to missiles, to crop dusters.

Mines and submarines pose special threats that, until recently, have been underappreciated in developing countries. The United States should act quickly to develop the countermeasures necessary to deal with the submarines and naval mines that threaten its strategic mobility. Land mine warfare and its countermeasures also deserve increased attention in order to ensure U.S. forces their tactical mobility. On land and at sea, the United States must be able to detect mine fields and breach them quickly.

The United States should also anticipate that it may face a very capable foe before theater missile defenses, mine countermeasures and other advances are perfected. Under these circumstances, such an adversary would intimidate its neighbors into passivity by claiming to have nuclear or biological weapons and thus deny the United States use of local bases. The United States should therefore consider what it would need to wage a long-range war, in which its forces lack forward bases and in which it cannot protect a sizeable ground force in the theater of operations.

Most of the activities the United States undertakes against such an enemy must originate in the continental United States or at an intermediate operating base. The American military must consider how it will conduct a long-range air campaign, how it would perform essential ground missions without the usual large conventional troop units in theater, and how it would engage hazardous targets — nuclear reactors, chemical laboratories and other facilities with the

potential to release radioactive materials, toxins or other dangerous agents — without putting non-belligerents in danger.

It is time for the United States to prepare. The first step in responding to the proliferation of advanced technologies and weapons is to acknowledge that it cannot be stopped and that it will persist. The second step is to organize today's U.S. military forces in preparation for long-distance wars, should the United States have to fight them. The final step is to develop the capabilities and countermeasures noted above that will prevent an enemy from deterring American action, preclude construction of a safe buffer zone behind which to hide, forestall effective enemy air defenses, and deny an adversary the ability to impinge upon U.S. strategic or tactical mobility.

There are practical actions that could begin at once. The United States Commander-in-Chief, Strategic Command (USCINCSTRAT) might be designated the executive agent for a long-range war. USCINCSTRAT could begin a requirements study to determine the specific types of capabilities necessary to conduct a long-range war. Once the requirements study is complete, the CINC should be given the forces and resources needed to train and prepare for such hostilities. CINCSTRAT should work closely with the regional CINCs to develop appropriate contingency plans.

Among those working with CINCSTRAT, the United States Commander-In-Chief, Special Operations Command (CINCSOC) should begin planning for the employment of special operations forces to accomplish essential ground tasks. The command should consider greatly varied options: encouraging popular rebellion and annihilation of the enemy leadership, returning opposition leaders to their country and assisting in their ascension to power, preventing enemy use of weapons of mass destruction, and gaining positive control of these weapons and their delivery systems at war's end. Of course, due consideration must also be given to intelligence gathering and reconnaissance as well. The result of CINCSOC's efforts would be a minimum presence force package designed specifically for long-range warfare.

While CINCSTRAT and CINCSOC pursue near-term solutions to deal with adversaries who possess advanced weapons and technologies, the Office of the Under Secretary of Defense (Acquisition) (OUSD(A)) could coordinate the research and development efforts of the Services, the Department, and the national laboratories to produce capabilities and countermeasures that will enable U.S. and coalition forces to operate within the theater and forego the complications of a long-distance war. OUSD(A) could act as a facilitator, ensuring that various researchers are aware of similar or related initiatives that might be underway elsewhere. The objective of OUSD(A)'s efforts would be to speed the development and fielding of new capabilities, thus giving the national command authority and the combatant commanders the greatest amount of flexibility and the greatest possible number of options when contemplating the use of force against a very capable foe.