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The Planned U.S. National Missile Defense: Will it Work?

George Lewis

The United States will soon decide whether or not to deploy a limited national missile defense (NMD) system. This system would be intended to defend all 50 states from small-scale attacks by intercontinental-range ballistic missiles (ICBMs).

Supporters of immediate deployment argue that an NMD system is needed to defend against emerging missile states such as North Korea, Iran or Iraq, as well as to protect against accidental/unauthorized launches from Russia or to counter an attack by China. They argue that this limited system should not be a problem for Russia, and some argue that it could be compatible with a modified Anti-Ballistic Missile (ABM) Treaty, while others would like to see the Treaty eliminated. Opponents of deployment argue that the NMD system is not needed, that it will not be effective, and that its deployment will have adverse consequences for U.S. and international security that far outweigh its benefits. For example, the planned NMD system would violate the ABM Treaty, provoke strong reactions from Russia and China, endanger future efforts to reduce nuclear weapons, and could lead to the unraveling of the entire nuclear arms control and nonproliferation regime.

A Pentagon Deployment Readiness Review (DRR) will assess whether or not the NMD technology is ready for deployment. Following the DRR, the President will decide, probably in the fall of 2000, whether or not to begin deployment.

This article describes the planned NMD system and then considers whether the planned system would be effective against real-world missile threats.

The Planned NMD System

Under current plans, the initial NMD deployment would include 20 ground-based interceptors in central Alaska, a new missile defense radar at Shemya in the western Aleutians, upgrades to five existing early warning radars, a battle management center in Colorado, and several communications

relay stations. The system would be supported by existing and new early warning satellites. If the Administration decides to deploy this year, this system would be operational by late 2005. By 2007, the number of interceptors in Alaska would be increased to 100.

This initial system would be oriented primarily against North Korea and would be intended to defend all 50 states from "a few tens of warheads accompanied by simple penetration aids." It is also intended to defend against a smaller number of warheads from the Middle East.

Under the Clinton Administration's plan, this system would be expanded into a much larger system by about 2010 or 2011. This larger system would be intended to counter "a few tens of

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International Control of Ballistic Missiles

Jürgen Scheffran

While there is an intense debate on the technical feasibility and the security implications of the U.S. National Missile Defense (NMD) program, the non-proliferation and disarmament of ballistic missiles has been largely neglected. This article discusses options for preventing an arms race by improving the international control of ballistic missiles.

Dangers of a Missile Arms Race

Since ballistic missiles were first used by Germany in World War II, missile proliferation has been of great concern to many nations. Ballistic missiles allow aggressors to strike distant targets quickly, with little warning, and with a high probability of penetration. They played a destabilizing role and wasted enormous resources during the Cold War. Grave concerns have been raised about the spread of

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While global missile disarmament is a long-term goal, action is needed now. The best way to prevent an arms race and buy more time for political initiatives would be a moratorium on the further development, testing and deployment of ballistic missiles.

—Jürgen Scheffran
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Breaking the Mold: Military Choices for the Twenty-First Century

Cindy Williams

The six-year budget plans that the military services submitted to the Secretary of Defense this spring call for taxpayers to spend another \$30 billion on defense each year beginning in 2002. Service leaders argue that the 10 percent increase over planned spending is urgently needed to cover critical shortfalls and ensure the military's readiness to deploy quickly and fight and win wars. But adding money will perpetuate a more fundamental problem: that today's military is not shaped properly to meet the challenges and capitalize on the opportunities of the new century.

Adding another \$30 billion to annual military budgets would restore military spending to about 98 percent of the average Cold War level — this despite the fact that the United States is the world's only surviving superpower, that the Cold War enemy no longer exists, and that no new enemy has emerged to take its place. Even without additional money, the United States spends more on its military than all of the next six countries — Russia, France, Japan, China, the United Kingdom and Germany — combined.

Part of what drives the services' request for another 10 percent increase is election-year politics. The presidential candidates are formulating positions and offering promises; why not lock in some promises for the military? Another driving factor is the prospect of huge federal budgetary surpluses. But a third factor is the very real budgetary pressure under which the military is working. Independent analysts say that as operating expenses and weapons costs rise over the next decade, the nation will need to spend tens of billions of dollars more a year than it does now just to keep today's forces at current readiness levels and carry out the Defense Department's plans for modernizing equipment.

The Defense Department hoped for years to offset growing budgetary pressures by instituting reforms of its processes for material acquisition and seeking efficiencies in infrastructure activities. But the savings the Pentagon currently projects from these efforts fall far short of the amounts that would be needed to hold budgets at today's levels as new equipment goes into production and other costs rise.

During the 1990s, formal arms control agreements and unilateral measures to reduce nuclear forces and lower their alert levels have saved the country significant sums. U.S. budgets for strategic offensive forces, nuclear weapons activities in the Department of Energy and nuclear threat reduction in the Former Soviet Union fell from about \$70 billion in 1990 to \$30 billion in 2000, freeing resources for other purposes. But further reductions in nuclear forces are unlikely to produce large additional savings. And depending upon the nature of future arms control agreements, the expense of new verification measures might offset any savings that are possible.

Given that future savings from procurement reform and infrastructure efficiencies are uncertain and additional large savings from nuclear reductions are unlikely, is there an alternative to big increases in defense spending for as far as the eye can see? The answer lies in a fundamental reshaping of the

nation's conventional forces. Such reshaping, adopted in concert with a military strategy matched to the country's present and future security needs and interests, might put the armed forces into a far better position to face the future at today's level of spending.

After the Cold War ended, the military made significant reductions in the major elements of conventional force structure. But the remaining forces look very much like a shrunken version of their Cold War predecessors. The Defense Department argues that today's conventional force posture and modernization program are just as they should be to support the

current national security strategy.

But a look at the history shows that the opposite is true: the current national security strategy was fashioned largely as a rationale for limiting the budget reductions

and force structure cutbacks that military leaders during the Bush administration anticipated would take place during the 1990s. If the current strategy is not much more than a justification for preserving cold war forces, then a new strategy based more closely on the nation's current and future security needs and interests seems in order.

In matters that involve the military, the first priority of current strategy is to be able to fight and win in two major theater wars that occur at nearly the same time. But current forces are significantly larger than the ones the military would need to support today's economically strong and militarily capable South Korea against the weakened North and to fight today's Iraq, weakened by the Gulf War, daily no-fly patrols and a decade of economic sanctions. Moreover, the bipartisan Commission on National Security Strategy/21st Century found recently that the two-war yardstick is not producing the capabilities needed for the challenges that the military faces today and will face increasingly in the future. Clinging to the two-war standard no longer makes sense.

Another big driver of force structure is the military's involvement in activities to "shape the international environment." Much of what shaping entails would seem to be old-fashioned diplomacy or a military substitute for it. As such, it seems fair to ask why the burden of it must fall as heavily as it does on the military. Additional spending for the State Department's conduct of diplomacy, for support of international institutions and for aid to foreign countries might allow the nation to shape the international environment at lower expense and less risk.

A telling indicator of the nation's failure to embrace fundamental change in the armed forces has been the continued near-constant apportionment of funding across the services. For

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decades during the Cold War, the three military departments each received a near-steady share of the defense budget. It stands to reason that the end of the Cold War and a world of new technology might have sparked a change in the utility of or preferences for airplanes, tanks, rockets, ships or helicopters. Yet the past decade has seen virtually no change in the budget share each service holds onto each year. Even within the services, shares continue to be set in a near constant pattern across key communities. No wonder the United States military today looks like a smaller version of its former self.

The nation could fix the military's budget squeeze for at least a decade by perpetuating the pattern of constant shares, reducing conventional force structure across the board by 15 to 20 percent from today's levels, trimming procurement plans to match. The resulting force of eight active duty Army divisions, 10 aircraft carrier battle groups, about 250 Navy ships, and 16 tactical fighter wings would be more than adequate to handle a single major theater war of the size currently envisioned by the Pentagon (perhaps two theater wars against the forces of any enemy that exists today).

At the same time, the newly reduced forces would be large enough to handle a significant level of so-called shaping activities, though the pace of such day-to-day commitments would likely have to be reduced from today's ambitious level. By dropping the strategic requirement for fighting a simultaneous second major theater war of the size the Pentagon envisions, the nation would also be assured that the military could continue to handle multiple smaller scale contingencies at least as well as it does today — operations that run the gamut from humanitarian relief and interventions to peace operations. Moreover, by shearing procurement programs to be consistent with the force structure cuts, the remaining forces would be equipped just as the Defense Department currently envisions.

Thus dropping the requirement to fight two theater wars simultaneously would allow the military to get by with and pay for a smaller version of its current force. But keeping forces designed for the Cold War and continuing with weapons programs that were conceived well before the Warsaw Pact collapsed leaves other problems unaddressed.

For one thing, forces are not properly configured for the jobs they are asked to do. The Army's problems in deploying attack helicopters to the war with Yugoslavia and its complaints that it takes months to restore the readiness of forces engaged in peace operations are symptomatic of a wider ill: the military has not restructured to handle the real missions it faces today and in the future. For another, forces that no longer make sense and procurements that are not needed draw resources from those the nation cannot do without. Perhaps most important, retaining Cold War force structure and programs, albeit at reduced levels, fosters a business-as-usual attitude and stifles much needed innovation in every aspect of military affairs, personnel, organization, technologies and systems.

The United States needs a national security strategy that acknowledges the present and looks to the future instead of the past. It needs to reshape the conventional forces to reflect that new strategy and to take advantage of the opportunities afforded by new technologies — getting rid of forces and weapons programs that no longer make sense and emphasizing the ones that position the armed forces for the future. Such reshaping is both possible and affordable within today's budget levels. But it requires decision makers to take a fresh look at strategy, at the relative contribution of each element of force structure and each item of equipment to the security environment the nation actually faces, and at the opportunities afforded by new technologies, new ways of organizing and new ideas for attracting and holding the best people.

Holding the Line: U.S. Defense Alternatives for the Early 21st Century, forthcoming from MIT Press, explores military options for the nation to consider as the new president takes office. Chapters by Lawrence Korb (Vice President and Director of Studies at the Council on Foreign Relations) and Cindy Williams (senior research fellow in the Security Studies Program at MIT), review the recent draw-down and examine real problems and misperceptions that are driving defense budgets up. Williams also analyzes the progress of military infrastructure reform and recommends more aggressive approaches. Gordon Adams (Director of the Security Policy Studies Program of the Elliott School of International Affairs at George Washington University) explores the potential for greater cooperation with European allies. David Mosher (Nuclear Policy Analyst at Rand) cautions that further savings from deterrent forces will be smaller than those already achieved. Owen Cote (Associate Director of MIT's Security Studies Program), James Quinlivan (Senior Analyst at Rand and former Vice President of Rand's Army Research Division), and Karl Mueller (Associate Professor at the U.S. Air Force School of Advanced Airpower Studies) recommend re-shaping the military, each author by drawing on the unique strengths of one of the three military departments. Each holds defense budgets constant in real terms for at least a decade and features substantial innovation.

Edited by Cindy Williams the book will appear as a BCSIA Study in International Security early in 2001. (BCSIA is the Belfer Center for Science and International Affairs of Harvard University; for publication details, consult the MIT Press website, <http://mitpress.mit.edu>, after the first of the year).

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Missile Defense *(continued from page 1)*

warheads with complex penetration aids” from North Korea or the Middle East. It would add a second interceptor site in North Dakota, and bring the total number of interceptor missiles up to about 200 to 250. This system would deploy up to eight more missile defense radars spanning the northern hemisphere from Britain to South Korea. It would also add a constellation of about 24 missile-tracking satellites. This sensor infrastructure would allow for rapid expansion by adding more interceptors.

The Congressional Budget Office recently estimated that this system would cost about \$60 billion to build and operate through the year 2015. However, as with almost any cutting-edge, complex military system at such early stages of development, the actual costs would certainly be considerably higher.

Moreover, many congressional Republicans (and presidential candidate George W. Bush) believe that even this system is inadequate and that a still larger NMD system is needed, which would use sea-based interceptors and ultimately include space-based weapons.

Will the Planned NMD System Work?

Will the planned NMD system work well enough to be useful? The key issue is its operational effectiveness—how well it will work in the real world, where an attacker would likely attempt to defeat it.

The issue is not whether it is possible to “hit a bullet with a bullet” or whether it is possible to hit warhead targets on a test range. There is little doubt that, with enough time and money, the U.S. could build a system that could reliably hit an ICBM warhead on the test range. However, the problem of achieving effective defense against an adversary that attempts to defeat the system is a qualitatively different and much more difficult problem. A testing program against cooperative targets may tell you very little about how the defense will work in the real world.

This situation is highlighted by the only actual use of a ballistic missile defense—the Patriot in the 1991 Gulf War. Prior to the Gulf War, Patriot had 17 tests against ballistic missile targets, and every one was successful. But against the Iraqi missiles it failed completely (although it was a political success). Unlike the test range targets, which flew on smooth, predictable trajectories, the Iraqi missiles broke apart and maneuvered erratically, and Patriot had almost no chance of destroying such targets.

The operational effectiveness of the NMD system will be determined primarily by its ability to deal with steps “countermeasures” that an attacker takes to defeat the system. Countermeasures have been the fundamental problem for ballistic missile defenses from the beginning, and still are. There are many possible countermeasures and if the NMD system is to be highly reliable and effective, it must be effective against all plausible countermeasures.

However, the proposed U.S. NMD system with a well defined design comprised of specific components appears to be vulnerable to a number of straightforward countermeasures. A recent study by 11 scientists sponsored by the Union of Concerned Scientists and the MIT Security Studies Program surveyed a wide range of potential countermeasures and then focused in detail on three specific countermeasures that combined high effectiveness with ease of implementation (this report is available at <http://www.ucsusa.org>):

Chemical and biological submunitions. Rather than using a single large warhead, an attacker using chemical or biological weapons would likely divide the missile’s payload into numerous small submunitions or bomblets in order to better disperse them over the target city. This approach would have the side effect of defeating the defense by overwhelming it with many more targets than it could even attempt to intercept.

Anti-simulation decoys. Rather than trying to make decoys look like the warhead, the attacker could disguise the appearance of the warhead, so that almost any object with a size comparable to a warhead could be a credible decoy. For example, the warhead could be put inside a balloon coated with a thin layer of metal (similar to balloons sold in florist shops but larger) and released along with many empty balloons. The defense would then be confronted with a large number of targets, none of which looked like a warhead, and the defense’s sensors would be unable to determine which balloon contained the warhead.

A cooled shroud. Covering the warhead with a thin shroud cooled with liquid nitrogen (a common laboratory material) would make it invisible to heat-seeking interceptors.

Each of these countermeasures would defeat the planned NMD system, and all are within the means of emerging missile states such as North Korea or Iran.

NMD supporters argue that effective countermeasures are not easy to build and deploy from missiles, and so third world countries may not be able to build effective countermeasures for many years if ever. However, a third world country able to attack the United States with nuclear-armed ICBMs has already solved much harder problems—building ICBMs, building nuclear weapons that fit on such missiles, and solving reentry problems

than those involved in building and deploying simple yet effective countermeasures. Relative to these problems, many potentially effective countermeasures are not difficult to build. This conclusion is consistent with the 1999 U.S. National Intelligence Estimate, which stated that countries such as North Korea or Iran could have a number of countermeasures ready by the time they test their missiles.

Ultimately, the only way to determine whether the planned NMD system will work is through tests against realistic targets. However, there has *never* been an intercept test of a NMD-type defense system when the targets used credible countermeasures. Moreover, even by the time the NMD system is deployed and operational, no such realistic test will have occurred.

There have been several NMD tests in which the warhead target was accompanied by other objects, which were sometimes referred to as decoys. However, these objects were quite different from the warhead, and the characteristics of both the “decoy” and warhead were known in advance to the defense. Such tests do not demonstrate that the system could work in the real world, only that it can function in a controlled test-range environment.

Supporters of the NMD system argue that it is appropriate to start with such simple targets—that one must “walk before running.” While this is true, these simple tests do not in any way demonstrate that the system can work against a real-world attack—one that actually attempts to defeat the defense. The availability of effective countermeasures indicates that while the planned NMD system may be able to “walk” on the test range it will never be able to “run” in the real world.

NMD System Architecture

If a decision is made to deploy, initial deployment would include:

- 20 ground-based interceptors in Alaska
- Upgrades to 5 existing early warning radars
- A new X-band radar at Shemya in the western Aleutians
- DSP/SBIRS-high early warning satellites
- Battle Management, Command, Control and Communications

This system would be operational by late 2005. This is sometimes called the “Capability 1 (C-1)” system.

The number of interceptors in Alaska would be increased to 100 by 2007. This is known as the “Expanded C-1” system.

This initial system is oriented against North Korea and intended to be able to defend all 50 states from a “few tens of warheads accompanied by simple penetration aids.” It is also intended to defend against “a few warheads with simple penetration aids” from the Middle East.

Longer term goal is defense against “a few tens of warheads with complex penetration aids” from North Korea or Middle East. This capability might be achieved as early as 2010/2011. This system is sometimes known as the C-3 or “objective” system, and would include:

- A second interceptor site (North Dakota?)
- More interceptors (200-250 total?)
- More X-band radars (8 to 9 total?)
- SRIRS-Low space-based missile tracking system

Recent cost estimate for C-3 system is about \$60 billion. Actual costs will likely be higher.

Many Republicans argue a larger NMD system is needed, including naval and space-based weapons.

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Current Timetable

Oct. 1999: First intercept test: Hit target.

Jan. 2000: Second intercept test: Missed target.

July 2000: Third intercept test: Missed target.
First integrated system test.

July 2000: Deployment Readiness Review (DRR).
Will assess if technology is mature enough to make a deployment decision.

Fall 2000: Deployment Decision. According to Administration, will consider not only technical readiness, but also threat, cost, and arms control considerations.

Fall 2000: If deployment is to occur by 2005, deadline for giving 6 months notice of intent to withdraw from the ABM Treaty (if Russia has not agreed to change Treaty).

Spring 2001: According to Administration, if system is to be deployed by 2005, construction in Alaska must begin now.

2005: Deployment of initial system (with 20 interceptors in Alaska) completed, system now operational.

2010-2011?: Complete “objective” system deployed, including second interceptor site.

International Control *(continued from page 1)*

ballistic missile systems and technologies, in particular, to the Middle East, South Asia and the Korean Peninsula. The use of ballistic missiles in the two Gulf Wars demonstrated their political significance in regional conflicts, while their military utility is rather questionable. There are good arguments why a world with fewer or no ballistic missiles would be a better place.

While the enormous Cold War missile arsenals have declined, the government of the United States perceives new threats from emerging missile capabilities in Iraq, Iran, and North Korea, which are now called states of concern. While the substance of this threat is still doubted by many experts, influential political circles in the United States promote the early deployment of NMD. Opponents argue that such a system could be easily overcome by countermeasures, would undermine international stability and may even increase the missile threat.

The Current Missile Control Regime is Insufficient

There is still time to prevent a destabilizing and costly arms race between offensive and defensive missiles. This assumes that the development of intercontinental-range ballistic missiles (ICBMs) is a complex and time-consuming task and NMD deployment would be delayed by technical difficulties (especially after the failure of the July 7 test). Although the preamble of the nuclear Non-Proliferation Treaty (NPT) demands "the elimination from national arsenals of nuclear weapons and the means of their delivery," ballistic missiles in the past have been largely ignored in international arms control and disarmament negotiations. In his speech to the House of Commons in London on July 3, U.N. Under-Secretary-General for Disarmament Affairs Jayantha Dhanapala raised the question "Why is public debate mired today in a duel between deterrence and defence, with scant attention to missile disarmament?"

Previous efforts have focused on export control by the major suppliers of missile technology and bilateral arms control and disarmament of the former superpowers (INF Treaty, START Treaties). The current restrictions on the transfer of missile-related technology are embodied in the Missile Technology Control Regime (MTCR), created by the G-7 States in 1987. Although membership has grown from seven to 28 countries and some missile programs could be delayed, the effectiveness of the regime is limited by fundamental problems and shortcomings. The MTCR is a voluntary, non-binding agreement with restricted membership. It does not address the already existing ballistic missile arsenals, and ignores the asymmetry between "haves" and "have nots." Various shorter-range missiles are already deployed in developing countries, and the MTCR has no specific verification and enforcement mechanisms. Furthermore, rigid export control of dual-use goods impedes civil technology cooperation.

To improve the present control regime, a few countries have made preliminary proposals within the limits of the MTCR. At an MTCR meeting in Paris April 23-24, 2000 the United States, Britain, and France offered steps to reinforce MTCR export controls by an increased dialogue with non-MTCR parties, pre-launch notification for missile and space launches, and international standards in the missile field. The proposals will be discussed at a meeting in September to prepare for the MTCR October 2000 plenary session.

New political initiatives

Some governmental levels are now considering options for a stronger missile non-proliferation regime as an alternative to missile defense. The former Russian President Boris Yeltsin at the June, 1999 G-8 summit in Germany proposed a Global Control System for the Non-Proliferation of Missiles and Missile Technology (GCS). In his statement at the NPT 2000 Conference on April 25, the Russian Foreign Minister Igor Ivanov urged consideration of a Russian proposal for a global missile confidence-building and non-proliferation regime. The GCS proposal was discussed on March 16 at an expert-level meeting in Moscow, attended by representatives from 46 countries and the United Nations, including Iran and large delegations from China, India, and Egypt. The United States sent an observer but did not participate.

A goal of the GCS is to increase transparency and reduce the risk of miscalculation or misunderstanding. Nations would be required to provide notification of missile or space-launch vehicle (SLV) test launches. To discourage proliferation, the GCS would offer incentives to members of the regime that forswore the use of missiles to deliver weapons of mass destruction, including security assurances against the use of missile systems, assistance from the U.N. Security Council if such weapons were used, and assistance in the peaceful uses of space for members that gave up missiles as weapons. Despite strong criticism, U.S. officials expressed interest in discussion of the GCS. The Russian government has stated its intention to open the proposal for debate at the "millennium session" of the U.N. General Assembly.

The GCS proposal is valuable in opening the international debate on missile control, but still is confined to a rather narrow non-proliferation regime, comparable in some respects with the NPT but without the disarmament obligation of Article VI. In this form it is improbable that major developing countries would accept another "discriminatory" regime with the five declared nuclear weapon states as the only missile powers. If, on the other hand, all of the current missile owners were allowed to keep their missile arsenals, then the effectiveness of the regime would be severely limited.

The only way to deal with asymmetries between countries would be to create an international norm against ballistic missiles that would allow the same rights to any country. As the Canadian Foreign Minister, Lloyd Axworthy, explained in his speech at the 2000 NPT Review Conference on April 25, "there exists no treaty, no code of conduct, no set of guidelines defining responsible behavior in these areas. This is a matter that must be addressed."

On March 30-31, 2000, ballistic missile experts from Canada, United Kingdom, Germany, Norway, Russia, and the United States met with Axworthy for a roundtable in Ottawa to examine options for a multilateral approach to more effective ballistic missile control, international monitoring, and early warning. Their first priority was the public defense of the value and need for the Anti-Ballistic Missile Treaty, which they believed should be expanded and strengthened. To prevent instabilities and accidents, they suggested risk-reduction and confidence-building measures should be developed (such as de-alerting, improved ballistic missile early warning and launch notification). In addition, they determined that the concept of no-first use could

be extended to ballistic missiles. The monitoring and surveillance of missile and space-related activities, and the exchange of technical data, would be a key to building a verification system of missile control.

The link between space and missile control was seen as crucial. The experts suggested there was a need to negotiate and clarify multilateral space regulations and reserve the use of space for commercial rather than military uses. Steps to pursue would include a Canberra-style commission on "Cooperative Security in Space," expert meetings on space surveillance and regulations, and the involvement of the commercial space business.

It was suggested that Canada should play a lead role in elaborating a multilateral action plan on ballistic missiles, by including key NATO countries. They also thought Russia and China should be involved in multilateral cooperation, addressing their broader security concerns. For the long-term success of a missile control regime it is important to "de-rogue" relations with countries such as North Korea and Iran and better understand their reasons for pursuing their missile programs. Recent political developments in these two countries have been positive (to mention the North-South-Korean summit). This clearly shows that the chances for a new missile control regime could be best served by creating regional security environments that could reduce the demand for ballistic missiles.

International organizations would play an important role in facilitating this process. One potential forum to discuss and negotiate multilateral missile control would be a conference of MTCR member states and the U.N. Conference on Disarmament. Alternatively, an international conference of the crucial countries with ballistic missile capabilities could be considered.

Missile Ban and Missile Freeze - Two Sides of One Coin

According to the Ottawa expert group, the long-term goals include "demilitarization, the elimination of non-civilian ballistic missiles, and the elimination of nuclear weapons." While the report did not go into detail about how these goals might be achieved, some experts referred to the Reykjavik talks between Presidents Gorbachev and Reagan of 1986, and to proposals made by independent researchers. A model for the elimination of ballistic missiles is the ZBM (Zero Ballistic Missile) regime, which was developed and discussed by the Federation of American Scientists (FAS) in 1992, with Paul Nitze and Alton Frye as strong supporters.

Such a regime would aim at the complete elimination of offensive ballistic missiles and combine unilateral declarations with regional and global multilateral agreements. The ZBM proposal suggested a step-by-step approach, including bilateral cuts between the United States and Russia, ballistic missile-free zones, an international missile conference, the creation of an International Agency for Ballistic Missile Disarmament, and finally agreement on the varying schedules to zero ballistic missile capability. To implement ballistic missile elimination, the FAS proposal presented a complete draft treaty. Such a Ballistic Missile Convention would aim at global non-proliferation and elimination of offensive ballistic missiles, in conjunction with conventions on the elimination of all weapons of mass destruction.

Dr. Jürgen Scheffran is a physicist and senior researcher at the Technical University Darmstadt, Germany, and co-founder of the Network of Engineers and Scientists Against Proliferation (INESAP). As a co-author of the Model Nuclear Weapons Convention he joined the Ottawa expert group mentioned in the article.

While global missile disarmament is a long-term goal, action is needed now. The best way to prevent an arms race and buy more time for political initiatives would be a moratorium on the further development, testing and deployment of ballistic missiles. Such a "missile freeze" would institute a break in the arms race, during which countries could consider and negotiate the next steps without time pressure. A key element would be a ballistic missile flight test ban that would preclude the testing of new missiles and reduce the chance of accidental or intentional war. To address concerns about asymmetries and discrimination, a test ban would have a contemporary character and would need to be accompanied by negotiations on missile reductions. To minimize incentives for missile development, the missile freeze should be extended to missile defense systems. Regional security initiatives, to include the whole range of delivery systems, could help to overcome asymmetries.

Verification of Missile Disarmament

A crucial aspect of missile control would be verification. Most important would be measures to prevent the application of space launched technologies to ballistic missiles. Despite their inherent similarity, differences in basing mode, testing procedures, payload, flight trajectory, guidance systems and re-entry could be used as indicators to distinguish between space launchers and ballistic missiles. During testing, production and deployment, national technical means of verification (sensors, intelligence) would focus on observable rocket characteristics (number, size, range, payload, deployment mode, launch preparations, flight trajectory). Most visible is the infrastructure, which includes production facilities, development programs and test ranges, tracking and communication facilities, missile containers and missile-carrying vehicles. A ballistic missile flight test ban would be not very difficult to verify since missile launches are visible using early warning satellites and ground- or air-based radar.

To limit the risk of using space launchers for ballistic missile development, technical means of verification would need to be accompanied by measures of cooperative verification and confidence building. Most important would be inspections, using non-intrusive devices and techniques, to reliably detect evidence of non-compliance and help provide assurance that no military ballistic missiles were being developed under a civilian space program. A safeguards system for space launchers could place some of the "most critical" items under supervision by an international organization. International cooperation in civilian space programs would also be important in containing the use of space technology for missile development.

The Role of Citizens and the Public

As with nuclear disarmament, citizens and non-governmental organizations would play an important role in promoting and implementing missile control. To increase public awareness, a greater public discourse on the missile problem and its resolution is needed. By building a network of information exchange and debate, experts, officials, and civil society would be jointly engaged in this process. Activities could include meetings and conferences with scientists and technicians, as well as protests and citizen inspections of critical facilities. Only by such a joint endeavor is there a chance that ballistic missiles will not stimulate a new arms race and undermine the prospects for nuclear disarmament.

Mergers Benefit Arms Industry, but Erode Controls

Kelley Bates

Because of recent arms industry consolidations, the business of defense has become increasingly commercial.

Some say business is business, one sector is no different from another, and this is as it should be. But others believe the commercialization of the defense industry is anathema because it makes it next to impossible to monitor and regulate the sale of weaponry and dual-use products—machine tools, high-speed microchips and processors as well as other types of equipment that foreign militaries can use for surveillance and information gathering purposes.

To explore the issue, Economists Allied for Arms Reduction (ECAAR) in June at the United Nations helped organize a panel of well known specialists in the field. Panelists included: Joel Johnson, Aerospace Industries Association; Natalie Goldring, the Program on General Disarmament, University of Maryland; Bill Hartung, World Policy Institute, New School University; and Janne Nolan, the Century Foundation. Hartung, Nazir Kamal of the U.N. Department for Disarmament Affairs, and ECAAR, organized the event, which was moderated by David Gold, visiting fellow, Rutgers University, and Lucy Webster, director of ECAAR. Mr. Joao Honwana, Chief, Conventional Arms Branch, DDA represented the United Nations.

Johnson opened the meeting by putting the issue of consolidation in historical context. He said industry leaders in the mid-1990s chose to consolidate because of the less than enviable track record sustained by many in the non-defense sector who throughout the 1970s and 1980s had tried unsuccessfully to diversify. But the move to save money in a time of increasingly tight defense dollars went too far. As a result, he explained, the government took the position that the industry had imploded, and it was not going to permit further consolidation. Worried that there would not be enough competition left in the system, the government prohibited Northrop Grumman from merging with Lockheed Martin and Newport News from merging with its competitor, Electric Boat. But it wasn't until his final remarks about arms exports and the commercialization of the industry that Johnson became the symbolic "bad guy" against whom the other speakers would rally later in the meeting.

Improved Coordination for Major Transfers Still Poor

Goldring did not dispute Johnson's chronology of industry consolidation, but she did take issue with the policy's ramifications. In a briefing paper addressing the implications of restructuring the global arms industry, she concluded that prospects for improved coordination of major conventional weapons transfers "seem poor, given the apparent disinterest of the U.S. government in accepting any limitations on its weapons transfers." Furthermore, she said in the paper, while many useful steps have been taken by regional and international organizations, the level of coordination among these efforts is unclear. "As a result, the efforts are neither mutually exclusive nor collectively exhaustive, which creates a risk that weapons will fall through the cracks in the system."

Post-Gulf War Sales Killed Efforts to Limit Transfers

Hartung, picking up where Johnson left off, showed how the industry after the Persian Gulf War used arms sales to generate

revenue. "I think . . . the push for arms exports, which accompanied and to some degree preceded the merger wave, helped kill off one of the most promising recent attempts to have a global arrangement to limit arms sales," he said, referring to former President George Bush, who in the run-up to the 1992 presidential election tried to show his concern for middle-class Americans by announcing in front of cheering defense workers in St. Louis the multi-billion dollar sale of F-16s to Saudi Arabia. Hammered at that time by candidate Bill Clinton for being out of touch with the public, Bush again attempted to demonstrate his so-called empathy by announcing yet another arms sale, this time to Taiwan. Hartung said these two announcements effectively ended a series of arms reduction talks then taking place between France, Russia, the United Kingdom and the United States.

Defense consolidations had other consequences too, however. "Another impact of consolidation, and the fact that it's essentially a buyer's market, is that . . . there's a push for higher and higher levels of technology," Hartung pointed out. Referring to Clinton's 1995 sale of F-16s to the United Arab Emirates (UAE), he said any country with a lot of cash to spend has a tremendous amount of leverage. And the companies? Lockheed Martin, its stock prices half then what they had been months earlier, "basically gave [the UAE] a system more capable than the United States has in its own arsenal." In addition, consolidation led to increased supplies of surplus weapons. "Everything from AK-47s on up to F-16s were sold for little or nothing essentially as a cheap way to buy allies or open the door to what would help sales of new weapons in the future," Hartung claimed. In some cases, he noted, it was cheaper to give the weapons away than to destroy them. He also said defense industry consolidation helped to create a leaner, meaner lobby. "They're even more wired than they were in the old days of multiple companies, and they can put that to their advantage both to push for subsidies for arms exports and also for certain procurement projects."

Laissez-Faire Approach is Risk to Saudi Arabia

And Nolan, chairman of a presidential commission to review U.S. armaments and defense technology policy prior to President Clinton's 1995 decision to permit the United States to sell armaments with commercial interests in mind, faulted Johnson for his support of an industry which until recently was not viewed as commercial. "F-16's ain't washing machines," she said, quoting late Israeli Minister of Defense Moshe Dayan. Reminding audience members of the massive supply of U.S. weaponry left in the hands of those who came to power in 1979 after the fall of the late Shah of Iran, and suggesting that the same thing could happen in Saudi Arabia which she described as suffering from external indebtedness and questionable internal cohesion, she said, "The risk . . . of selling weapons and weapons technologies without effective monitoring is very high." Citing yet another example, she said the "laissez-faire approach to the sale of technologies to Iraq throughout the 1980s led to its ability to develop a variety of programs for weapons of mass destruction, with a minimum of monitoring through commercial channels, some clandestine, most overt."

She encouraged the United States to take the lead in reforming its export control system, but describing the system as "elaborate

and extremely Byzantine,” she seemed less than hopeful that the government would ever be able to regulate weapons and their technologies. So ineffective is the system, she said, that it is next to impossible to know whether critical technologies will actually arrive at their intended destinations. “This is the world in which Congress is increasingly transnational, [and business is] done by entities, companies and others that owe allegiances to no country.”

Noting the process of reform hangs in the balance between idealism and fatalism, she described a Defense Science Board report to the Secretary of Defense that acknowledged the growing commercialization of the industry and concluded – fatalistically, in her opinion – “that there are no effective ways to manage through any kind of controls the commercial trade in weapons technologies.” For this, she faulted the government, saying the U.S. bureaucracy is organized in such a way as “to maximize inefficiency and failure.” This, she said, “is no longer appropriate for any kind of advanced technology.”

Business is Business

Almost anticipating what Hartung and Nolan would say about the Gulf War and the commercialization of the defense industry, this perfect bad guy — Johnson — concluded his remarks by crediting Desert Storm for having put an end to years of negative

press attention about weapons that didn’t work. “The tanks ran, and the helicopters flew, and the precision weapons by and large hit their targets,” he said, also crediting Desert Storm for having greatly reduced political opposition to the sale of sophisticated weaponry to Arab countries. The fact that the Iraqis were unable to use many of their high-tech weapons proved “they didn’t have the intelligence capability; they didn’t have the aerial capability; they didn’t have the communications capability; and they didn’t have the ability to find out where we were and to move their guys,” so they basically dug in almost in a World War II fashion.

Is This As It Should Be?

To him, foreign militaries in the future will want communications equipment, information gathering and processing systems as well as dual-use equipment. “Everyone else in the world is now looking pretty seriously at their militaries, which [will] have to buy a whole lot of stuff that increasingly will come out of the commercial sector, [making] arms control . . . much more complicated.” Business is business, and this is as it should be, Johnson would say privately. But Goldring, Hartung, and Nolan see it differently. For them, an industry involved with the production and sale of arms needs to be monitored and controlled by the an efficient intergovernmental system. And so the beat goes on.

Politicians Beware: Defense Increases Could Carry an Unpleasant Kick

Government officials interested in winning public support by increasing defense expenditures may want to think twice.

At the very least, they should read *Public Preferences and Decisions on Levels of Military Spending*, written by ECAAR-Australia Chairman David Throsby and economist Glen Withers.

In this study about public spending preferences, the two economists show why 420 or 70 percent of 600 survey participants from Sidney, Australia, believe defense spending in their country benefits them and their so-called community at large “little or not at all.” In addition, it shows that 50 percent of those surveyed said they preferred a reduction in defense spending, 34 percent said it should stay the same, and 17 percent indicated it should increase.

The study, which included a comprehensive, across-the-board survey on government spending, showed that many Australians believe their government could reduce defense spending by as much as 20 percent. “Now this might be too high to take seriously as a number,” Throsby cautioned in May while speaking about the research project at the home of ECAAR’s NGO United Nations Observer Dorrie Weiss, “but it does indicate the direction of change.”

He noted that even a 10 percent reduction in defense expenditures would go a long way to replenish the coffers of health, education and transportation, to name only a few of the possible beneficiaries of a scaled back defense budget. But defense spending was only part of the survey. “We were interested in finding out what people would pay for a whole range of govern-

ment expenditures across the board,” he explained, noting the importance of identifying spending in context of the overall budget and not in isolation to avoid “skewed results.”

He said the respondents identified two general areas where the Australian national budget could be reduced: general government administration and defense. “There was a general feeling that the cost of running the government was too high But defense spending in Australia at the time we did the survey also stood out as too high.” He pointed out that at the time the survey was done, the Cold War had ended, and it was clear there wasn’t a serious regional threat. “In other words, there appeared to be the prospect of some sort of peace dividend.”

He cautioned the audience not to take the results of the study at “face value.” But he did say the survey or study results should be “thrown into the ring to be evaluated.” In his opinion, the study raised important issues “about how far, on the one hand, government should be go to be responsive to public sentiment and, on the other hand, how far you can expect the public to be well informed about these things to make decisions and choices which should be relied upon.”

Throsby said he was not advocating that this sort of thing should be poll driven. “I’m suggesting something a little deeper than that in terms of what economists have a responsibility for, that is to be able to articulate what the economy is, what the demand looks like, how far we can rely on it, how far it is empirically stable, and then what it tells us about the sorts of decisions that should be made in the public interest.”

Toward Wider Consensus on Development and Security

Sample Essay

Lucy Webster

The "Washington Consensus" that prevailed in recent years, setting economic policy for many countries has proved inadequate. It does not serve the needs of most of the world's six billion people. Also the international system that should secure peace and protect human rights has instead secured military establishments and protected government leadership groups.

A Better Way Depends on Many Actors

It is the sovereign duty of the state and the international institutions to ensure that basic needs are met according to the standards of the Universal Declaration of Human Rights and the Action Programs of the U.N. Conferences on Food, Sustainable Development, Environment, etc., to which almost all governments have affixed their names. These programs call for action by international institutions, regional and sub-regional bodies, national governments and civil society.

It is not just the national state and the global institutions that are responsible. Regional bodies, non-governmental groups, corporations and individuals all need to help ensure economic justice, freedom from war and basic human rights. NGOs are not only critical as actors, they are essential to put forward new ideas and hold officials to their obligations.

The scale of what the World Bank and IMF can do is insufficient for the pace and size of global capital flows—a major reason IMF policies are so harsh on the poor. I doubt there is much intent to keep poor people in poor countries out of the world economy or blocked from healthy lives. But bringing them in with dignity has not been a top goal either. It should be.

A Few of the Many Development Actions Needed

National governments need to help people and villages invest in their own potential. Regional banks should be expanded to back up national banks as lenders of last resort. Many countries with dire poverty areas have total productivity levels that could support rural and industrial investments in the poorer areas. This would spread and increase national wealth.

Such action in countries throughout the world with support from global and regional institutions and banks, and from NGOs and corporate leaders would result in a wider consensus on development because it would entail practical steps to bring most

of humanity into the world economy. Here is a suggestive, non-comprehensive action list for governments and others to bring millions of people into lives of freedom and well-being:

- Invest in sustainable agriculture, and rural housing
 - to end famine and reduce migration to urban slums;
- Provide primary education for all and further education for most
 - to upgrade work and productivity;
- Give girls and women access to education and jobs
 - to empower women to have fewer children and care for them better;
- Ensure clean water, basic health care, and accessible credit
 - to allow everyone to contribute to peace and plenty.

Protecting Peace and Human Rights

The militarized, weapon-infected nations that emerged from the Cold War are geared to do what they have learned. It is the sovereign duty of the international community to change this. If a state cannot itself provide peace and human rights to its citizens, others must. No government and no individual is outside the international legal system established in the conventions and norms endorsed by almost all nations over the past half century.

United Nations peacemaking and peacekeeping capacities need to be strengthened so the Security Council can authorize quick action to separate civilians from paramilitary forces and others who start any gross systematic violation of human rights.

If willing citizens of all countries are directly recruited either to U.N. Peacekeeping Units or to U.N. Law Protection Teams (LPTs) based at home, there need not be real conflict between the Peacekeepers and others. With enough civil authority committed to peace in each U.N. member state, anyone (whether criminal or rebel or government officer) who starts to violate the recognized norms of the International Criminal Court system can be made to back off before extensive harm is done—with a minimum use of force by U.N. Peacekeepers supported by local LPTs.

The Security Council should also take charge of any boost-phase capacity to prevent missile launches from reaching people.

Global practices must be changed so the duties of sovereignty to uphold law and community are fulfilled. Meeting global needs is a task for citizens, who are ultimately sovereign, and for the agencies that serve them in the national state and beyond.

ECAAR Announces Essay Competition

You are invited

to take part in an international essay competition on:

- Toward Wider Consensus on Development and Security**, on
- Toward a Wider Consensus on Development**, or on
- Toward a Wider Consensus on Global Security**

We are looking for new ideas and fresh perspectives that are practical. The sample essay above is intended to be suggestive of the scope of the issues to be addressed if you choose the first topic. The second or third topic would go into greater detail on either development or international security. Essays may be as short as 500 words and no longer than 2000.

The rules of the essay competition may be obtained from the ECAAR office:

+ 1-212-557-2545

katecell@mail.ecaar.org

To allow time for people in different parts of the world to learn about this competition, essays are not due until August 2001. The winner or winners will be announced at the January 2002 ECAAR Annual Dinner in Atlanta, Georgia. The winner or winners will be hosted at the expense of ECAAR, given certificates, and awarded \$2,000 each. The best essays will also be published by ECAAR.

Toward a Wider Consensus on Development and Security **Forthcoming Events in this Series**

August 29, 2000: Midday ECAAR Panel at the United Nations (New York) on:

Action to Overcome the Limits to Global Solidarity

This panel, part of the Annual U.N. Department of Public Information Conference for NGOs, will be opened by ECAAR leaders in the New York area, David Gold, Isabelle Grunberg, Inge Kaul, Lucy Webster and Dorrie Weiss.

September 13, 2000: Evening Seminar/Reception/Discussion at the NY Soho studio of Henry Buhl on:

National Missile Defense and Arms Reduction

To be opened by Richard F. Kaufman, ECAAR Vice Chair, on NMD News and Views from Washington, and Randy Rydell of the U.N. Department for Disarmament Affairs on A United Nations Perspective on Missile Defense.

This is a modestly priced fund-raising event. Reservations may be made with the ECAAR Office (212-557-2545).

September 24, 2000: 4:30 pm Seminar/Reception at the Palo Alto home of Peggy and John Law on:

Building a Wider Consensus on Development and Security

This seminar discussion will be opened by Kenneth J. Arrow, Richard F. Kaufman, James K. Galbraith, and Isabelle Grunberg. Other leading thinkers and also key members of the business community will participate.

This is a fund-raising event. Information and reservations can be obtained from ECAAR (212-557-2545).

Second ECAAR Annual Dinner

Keynote Speaker: Joseph E. Stiglitz

Saturday, January 6, 2001 (7:30 pm)

During the AEA/ASSA Conference in New Orleans

Please contact ECAAR at 212-557-2545 for reservations.

ECAAR Board Meeting: 5:00 pm to 6:00 pm, Saturday, January 6, 2001, followed by ECAAR's Annual General Meeting: 6:15 to 7:15 where all members and potential members are welcome.

ECAAR Panel Sessions at the AEA/ASSA New Orleans Conference

ECAAR Panel: *Toward a Post-Washington-Consensus on Development and Security* (FO, GO, 01)

Presiding: James K. Galbraith and Isabelle Grunberg

- Zéphirin Diabré: The Washington Consensus Seen from Africa
- John Eatwell: International Financial Liberalization: The New Wisdom
- Inge Kaul: Changing Development Paradigms
- Jose Antonio Ocampo: Building a Post-Washington Consensus
- Joseph E. Stiglitz: Revisiting "More Instruments and Broader Goals"

ECAAR Panel: *Military Economics in the New U.S. Administration* (HO)

Presiding: Lawrence R. Klein

- Lloyd J. Dumas: The Economic Impact of Dangerous Military Technologies: Policy Implications
- Kenneth Flamm: Is the U.S. Defense Industry in Crisis?
- James K. Galbraith: Air Power After Kosovo: What Should We Learn?
- Steven I. Schwartz: The Full Costs of U.S. Nuclear Weapons

Discussant: Richard F. Kaufman

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