Report on Nonproliferation and Counterproliferation Activities and Programs

May 1994

Office of the Deputy Secretary of Defense

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Washington, D.C. 20301-1000

THE DEPUTY SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301-1000

May 1, 1994

Members of Congress:

Section 1605 of the FY94 Defense Authorization Act directs the Department of Defense to lead an interagency study of nonproliferation activities currently underway in Executive Branch agencies. This letter transmits the required report, prepared in a collaborative effort by the Departments of Commerce, Energy, State, and Defense; the Chairman of the Joint Chiefs of Staff, the Intelligence Community, the Arms Control and Disarmament Agency, the Office of Science and Technology Policy, and the National Security Council.

President Clinton has identified countering the proliferation of weapons of mass destruction and their delivery systems as "one of the most urgent priorities." A great deal has been accomplished by this administration toward meeting this challenge, and the study provides a welcome opportunity to report to Congress on current activities, progress that has been made, and opportunities for improvement.

The terms of reference for the study as specified in the authorizing legislation required a thorough review of all activities underway in the relevant agencies that are directly or indirectly related to nonproliferation or to counterproliferation. Our charge was to focus on technologies and programs that contribute to nonproliferation and counterproliferation capabilities.

Our review found that federal agencies have achieved significant progress:

1. Through its Nonproliferation Center, the Intelligence Community has established effective interagency procedures to identify intelligence needs for early detection of nonproliferation threats.

2. The Department of Energy maintains an extraordinarily competent and broad technology base that has the potential to make major contributions to nonproliferation and counterproliferation technologies.

3. The Department of Defense has developed an entirely new approach for focusing counterproliferation programs in the areas of technology and acquisition, intelligence programs, and military planning.

4. The Departments of State and Commerce are working on new, expedited export control procedures to support nonproliferation efforts.

5. The Arms Control and Disarmament Agency has strengthened its capability to coordinate arms control and disarmament research through the Arms Control Research Coordinating Committee and Annual Report to Congress on Arms Control Research.

Many agency programs that are not exclusively directed at proliferation make important contributions to this objective, such as reconnaissance systems, theater missile defense systems, and political reporting. But we also found that agencies have different management practices and procedures that make it difficult to compare easily their proliferation efforts. Thus, this initial study should not be viewed as the final word in identifying gaps or overlaps among agency program efforts. The report does, however, identify fourteen priority areas for additional effort that we believe have the greatest potential for making a contribution to our proliferation technology efforts. Approximately $400 million per year are required to pursue these initiatives. The group assumed that this requirement could be addressed within budget planning ceilings of the agencies for FY96 and later years.

Our effort also identified several areas where additional progress is necessary. First, certain technologies are not currently being pursued adequately; an example is biological agent detectors. Second, generally it has proved easier to develop promising new technology ideas than to field useful new capability. This reflects the absence of a common program structure that enables management and application of resources government-wide to achieve desired ends. It is important to assure that agency efforts are not too fractionated and that a critical mass exists for development and deployment of needed capability. Third, the reorientation of national security programs to the post Cold War world, including to our nonproliferation objectives, is still incomplete. Fourth, our study demonstrates the value of interagency attention and coordination to nonproliferation and counterproliferation technology efforts that are being pursued by several agencies. We describe an ongoing interagency process that can continue the coordination and oversight activity that this Congressionally mandated study has begun.

Sincerely,

John M. Deutch

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EXECUTIVE SUMMARY

1. INTRODUCTION

At least twenty countries—many of them hostile to the United States and its allies—have now or are seeking to develop the capability to produce nuclear, biological and/or chemical weapons of mass destruction and the means to deliver them. More than twelve countries have operational ballistic missiles, and others have programs to develop them.

Weapons of mass destruction may directly threaten US forces in the field and, in a more perplexing way, threaten the effective force employment by requiring dispersal of those forces. Potential adversaries may use weapons of mass destruction to deter US power projection abroad. As President Clinton stated to the United Nations in September 1993, *"If we do not stem the proliferation of the world's deadliest weapons, no democracy can feel secure."*

Because of concern over this threat, the National Defense Authorization Act of 1994 (NDAA 94) required the establishment of an interagency review committee composed of representatives from the Departments of State, Defense, Energy, the Intelligence Community, the Joint Chiefs of Staff and the Arms Control Disarmament Agency and tasked the committee to report on nonproliferation and counterproliferation activities and programs. To ensure comprehensiveness, representatives of other departments and agencies were asked to participate.

In accordance with NDAA 94, this report provides a top-down overview of existing, planned and proposed capabilities and technologies, as well as a description of priorities, programmatic options and other issues. Other than Nunn-Lugar activities, this report specifically excludes activities and programs for dealing with extant weapons of mass destruction and the means to deliver them in the Former Soviet Union (FSU) and China, but does address non/counterproliferation activities and programs for dealing with issues germane to the proliferation of WMD through illicit export of materials, technology, and expertise from FSU states. The report discusses ongoing and planned Agency programs and activities that are unique to the non/counterproliferation problem as well as those that are strongly related. The funding summaries presented for these efforts are estimates. The report focuses on the non/counterproliferation capabilities to support US policy goals.

2. DISCUSSION

a. Findings

The review committee performed an assessment of current and proposed non/ counterproliferation activities. The following summarizes the findings of this assessment:

- Current non/counterproliferation programs and activities that are unique to non/counterproliferation are approximately $1 billion in FY95 and those that are strongly related are approximately $3 billion. A substantial Intelligence Community effort is not reflected in these numbers (see classified annex).
- High priority shortfalls in operational capability needed to implement US non/counterproliferation policy have been identified in nine areas, along with technology opportunities that exist for addressing them. The Chairman of the Joint Chiefs of Staff is conducting a six-month study, in conjunction with the Services and combatant commands, of counterproliferation military requirements, including a detailed evaluation of the functions of the Services and missions of the combatant commands.
- Sixteen capability areas for progress have been identified to address current and future national non/counterproliferation needs, 14 of which are believed to be underfunded at present. (See Figure 1).
- Better coordination and communication across Departments and Agencies are needed among the more than 80 different groups and entities at all levels in the Federal Government now engaged in supporting national non/counterproliferation policy.

Non/Counterproliferation Areas for Progress	Recommended Increases in Annual Investment (For FY96 and Later)
• Real time detection and characterization of BW/CW Agents including stand-off capability	$75M
• Underground structures detection and characterization	$75M
• Hard underground target defeat including advanced non-nuclear weapons (lethal or non-lethal) capable of holding counterforce targets at risk with low collateral effects	$40M
• Detection and tracking of shipments and control and accountability for stocks of WMD-related materials and personnel including worldwide WMD and dual-use item tracking	$25M
• Capability to detect, locate and render harmless WMD in US	$10M
• Enhancement of Collection and Analysis of Intelligence	$25M
• Support of Chemical Weapons Convention and Biological Weapons Convention	$10M
• Support of Conclusion of a Verifiable Comprehensive Test Ban Treaty	$10M
• Capability to detect, locate and disarm, with high assurance and in a timely fashion, outside the United States WMD hidden by a hostile state or terrorist in a confined area	$15M
• Passive defense capabilities enabling military operations to continue in contaminated conditions-actual or threatened (low cost, lightweight)	$15M
• Rapid production of protective BW vaccines	$15M
• Detection and interception of low flying/stealthy cruise missiles	$50M
• Transparency and control of foreign fissile material	$15M
• Safe disposition for foreign missile- and WMD-related materials (except fissile material)	$20M
• Intercept capability in boost phase	Adequately funded
• Prompt mobile target kill	Adequately funded

Figure 1.

b. **Ongoing Actions**

Consistent with the findings above, the review committee is taking the following actions:

1. The review committee principals will continue to refine the "order of magnitude" estimates of investment increases for the areas for progress shown in Figure 1 to address them within budget planning ceilings of the agencies for FY96 and later years.

2. The review committee has recommended to the NSC the creation of a Nonproliferation and Counterproliferation Technology Working Group ("The Technology Working Group") within the National Security Council structure. This Technology Working Group would be charged with reviewing all the technology efforts underway in the various agencies that pertain to nonproliferation or counterproliferation. The Technology Working Group would also have authority to set priorities for non/counterproliferation technology efforts in the various agencies and to make specific resource allocation recommendations to the participating agencies, the NSC, the OSTP and the OMB. Moreover, the Technology Working Group would have representation from and a strong connection to the National Science and Technology Council. The Technology Working Group would be comprised of representatives with management, resource allocation, and program planning authority. The existing Research and Development Subcommittee of the Community Non-Proliferation Committee provides a good basis for building the Technology Working Group.

3. Technology development should not take place in a policy vacuum. Accordingly, the Technology Working Group would be integrated with the other working groups addressing important proliferation issues. Overall policy guidance would come from a new NSC-chaired Standing Committee of the IWG on Nonproliferation and Export Controls. This Standing Committee would have broad policy oversight and coordination responsibilities and bring together senior managers from the various agencies responsible for proliferation issues to assure communication and integrated management attention across all nonproliferation and counterproliferation efforts and working groups. A conceptual organization diagram is:

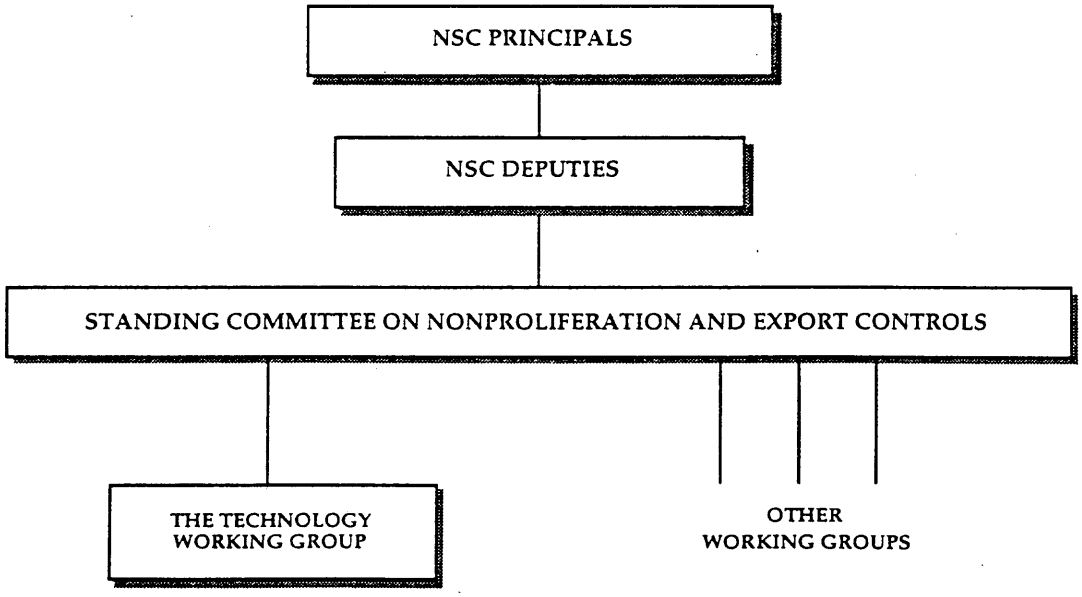


Figure 2.

4. The proposed Technology Working Group and the new Standing Committee on Nonproliferation and Export Controls should have as one of their priorities the continued, careful examination of non/counterproliferation programs to locate and eliminate marginal or unnecessarily redundant activities. This will enhance US capabilities to prevent and defend against proliferation and it could free modest amounts of resources to help fund higher priority areas.

3. SUMMARY

The new consensus on nonproliferation policy that President Clinton called for last September requires, among other things, the creative use of technology and the reallocation of government resources. It is not easy to change the direction of the ship of state--especially when its course for over 45 years was primarily aimed at preparing for threats that have receded, while the problems of proliferation have grown and become more urgent. The actions of this review committee are designed to help steer the new course.

1.0 INTRODUCTION

1.1 REPORT REQUIREMENTS

In the 1994 National Defense Authorization Act (NDAA), the Secretary of Defense was tasked to report on the findings of a review committee comprised of representatives from State, Defense, Energy, the Intelligence Community, the Joint Chiefs of Staff and the Arms Control and Disarmament Agency on nonproliferation and counterproliferation activities and programs. To ensure the comprehensiveness of the report, representatives of other departments and agencies were asked to participate.[1] The Secretary of Defense was represented by the Deputy Secretary of Defense who chaired the review committee. As specified in the NDAA, this report contains the following:

- A complete listing of existing, planned and proposed capabilities and technologies, including all directed-energy and laser programs
- A description of the capability requirements and priorities established by the review committee
- A discussion of near-, mid- and long-term programmatic options for meeting these requirements and eliminating deficiencies, including funding requirements and completion dates
- A review of the Department of State counterterrorism (CT) programs
- A discussion of existing and planned DoD capabilities for:
  - Detecting and monitoring clandestine weapons of mass destruction (WMD) acquisition and production programs
  - Responding to terrorism, thefts, or accidents involving WMD and WMD materials
  - Assisting in the interdiction and destruction of WMD, related materials and advanced conventional weapons
- A description of:
  - The extent to which nonproliferation and counterproliferation capabilities are incorporated into missions of unified combatant commands
  - How the US Special Operations Command might support other unified combatant commands

Definitions: Proliferation refers to the spread of nuclear, biological, or chemical weapons and the missiles used to deliver them. Nonproliferation is defined as the use of the full range of political, economic and military tools to prevent proliferation, reverse it diplomatically or protect our interests against an opponent armed with weapons of mass destruction or missiles, should that prove necessary. Nonproliferation tools include: intelligence analysis, global nonproliferation norms and agreements, diplomacy, export controls, security assurances, defenses, and the application of military force. Counterproliferation refers to the activities of the Department of Defense across the full range of US efforts to combat proliferation, including diplomacy, arms control, export controls, and intelligence collection and analysis, with particular responsibility for assuring US forces and interests can be protected should they confront an adversary armed with weapons of mass destruction or missiles.

[1] The participants are shown in Appendix B.

1.2 THE THREAT

"One of our most urgent priorities must be attacking the proliferation of weapons of mass destruction whether they are nuclear, chemical or biological, and the ballistic missiles that can rain them down on populations hundreds of miles away.... If we do not stem the proliferation of the world's deadliest weapons, no democracy can feel secure."

President Bill Clinton in a speech to the United Nations General Assembly, September 1993

The national security requirements of the United States have undergone fundamental changes in just a few short years. The Soviet threat that dominated US strategy, doctrine, weapons acquisition, and force structure for so long has diminished to the point that it is now believed that the greater threat to US national security is from WMD proliferation. History did not end with the end of the Cold War. The United States must be prepared to face new threats to its people and its interests. Of these dangers, the one that most urgently and directly threatens American interests is the proliferation of WMD:

"I know of no problem with which (the Department of Defense) will be confronted more important than the problem of the proliferation of weapons of mass destruction."

Dr. William Perry, Secretary of Defense

At least twenty countries—many of them hostile to the United States and its friends and allies—have now or are seeking to develop nuclear, biological and/or chemical weapons and the means to deliver them. More than twelve countries have operational ballistic missiles, and others have programs to develop them. The classified annex to this report outlines today's assessment of the WMD threat.

Weapons of mass destruction may directly threaten US forces in the field and, in a more perplexing way, threaten the effective employment of those forces by forcing dispersal. In contrast to the Cold War, today, it is the United States that has unmatched conventional military power, and it is potential adversaries who may use weapons of mass destruction to deter US power projection abroad.

The United States does not want to see the emergence of new full-fledged nuclear powers and countries with significant CW, BW and ballistic missile arsenals. There is also a possibility of one or more nuclear devices getting into the hands of rogue states or even terrorist groups. This increased threat is the product of two new developments. The first is the breakup of the Former Soviet Union (FSU). The second is the nature of technology diffusion in this new era. Each of these developments has profoundly changed the nature of the proliferation problem.

The continued existence of the Former Soviet Union's arsenal amidst revolutionary change gives rise to four potential proliferation problems. First, and most obvious, is that nuclear weapons are now deployed on the territory of four states, instead of only one. The safe and secure transport and dismantlement of Soviet weapons outside Russia is one of the US government's highest priorities. Second, there is the potential for nuclear weapons to fall into the wrong hands. In a time of political transition and economic dislocations in the Former Soviet Union, it is possible that nuclear weapons, or the materials or technology used to make them, could find their way to a nuclear black market. Third, nuclear and other weapons experts could be hired by would-be proliferators. Fourth, whatever restraint the Former Soviet Union exercised over its client states with nuclear ambitions, such as North Korea, is much diminished. At the same time, regional power balances have been disrupted and age-old enmities have reemerged, creating incentives for proliferation.

Biological and chemical warfare agent proliferation also remains of great concern. The Former Soviet Union had massed the most extensive chemical/biological warfare capability in the world. Many of these substances are believed to have been actually used in modern combat in places such as Afghanistan, Vietnam, Laos, and Cambodia.

At its height, the Former Soviet Union was believed to have more than 45,000 ground forces personnel involved with chemical warfare alone, with some 30,000 CBW decontamination and reconnaissance vehicles. The continuing existence of the FSU BW/CW inventory, coupled with the military doctrine and personnel trained to use it, remains of great concern. The exodus of such personnel, with their technical knowledge, is a significant danger when they face unemployment at home but potentially high demand for their expertise abroad.

The other new development that exacerbates today's proliferation problem is a byproduct of growth in world trade and the rising tide of technology everywhere. The world economy today is characterized by an ever-increasing volume of trade leading to ever greater diffusion of technology. Simply put, this will make it harder to detect illicit diversions of materials and technology useful for weapons of mass destruction or missile development.

1.3 OVERALL PROLIFERATION POLICY

President Clinton's September 1993 policy statement on nonproliferation and export controls establishes the groundwork for a new consensus among the Executive and Legislative Branches, industry and public, and allies abroad for overall proliferation policy. While continuing its strong support for existing nonproliferation norms and agreements, the US is putting increased emphasis on developing effective multilateral approaches to reduce incentives and motivations for proliferation. Nonproliferation is an integral part of national security strategy and is crucial to US national security. In the post Cold War era, the United States must be concerned as much with the prevention of conflict as in its resolution. For this reason, the United States is seeking to strengthen international nonproliferation norms, undertake global nonproliferation initiatives, promote regional arms control and confidence-building, and develop active nonproliferation strategies for the regions of greatest risk.

Several broad policy considerations are shaping the US approach to the proliferation problem:

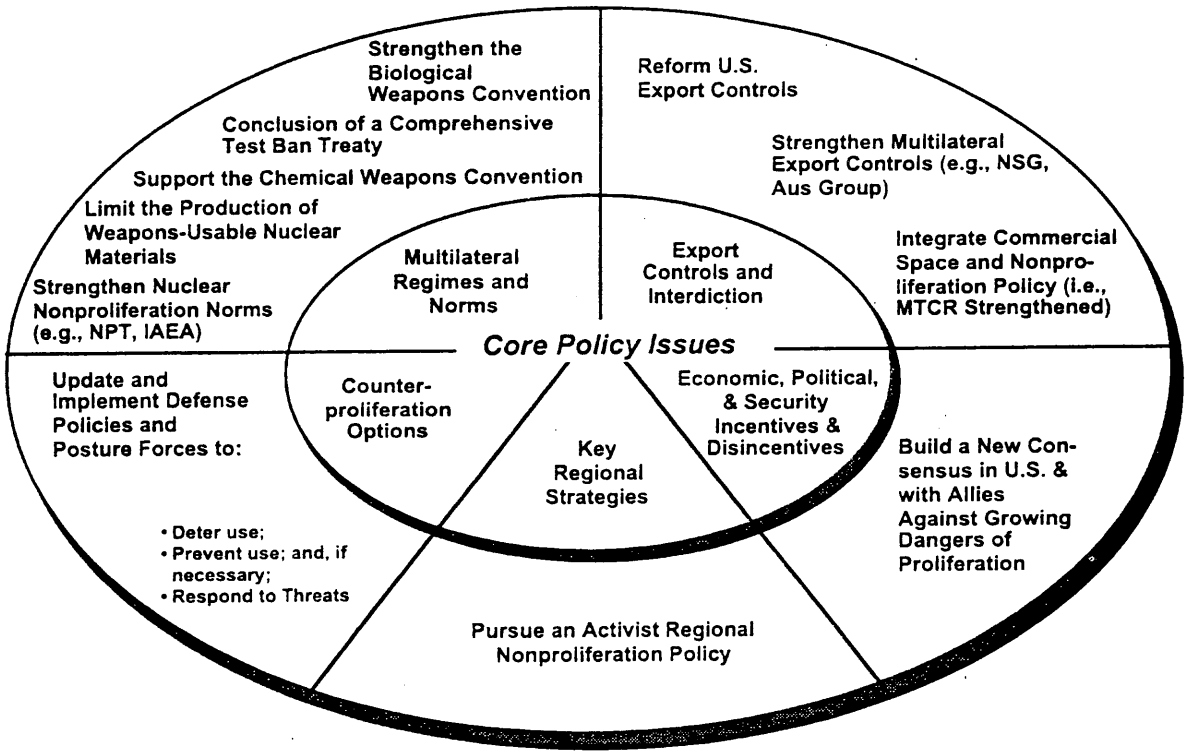
- Nonproliferation and counterproliferation initiatives have a high priority on the US national security agenda
- The US will implement domestic export controls that recognize both our nonproliferation objectives and the commercial needs of US exporters
- The US cannot rely on technology denial alone
- The US will devote special attention to regions and countries where the dangers of proliferation are particularly acute
- The US will lead global efforts to reduce reliance on missiles and weapons of mass destruction

To this end, the US is pursuing a broad-based approach to address the threat posed by weapons of mass destruction:

- Strengthening international nonproliferation norms, including indefinite extension of the NPT
- Limiting the production of fissile materials
- Strengthening multilateral export controls on WMD and ballistic missile technologies
- Reforming US export control implementation
- Pursuing an activist regional nonproliferation policy
- Integrating commercial space and nonproliferation policy
- Supporting the Chemical Weapons Convention

- Strengthening the Biological Weapons Convention
- Updating our military planning and doctrine
- Restraining destabilizing conventional arms transfers
- Strengthening our nonproliferation efforts through the Missile Technology Control Regime.

The figure below highlights the US Government's approach to nonproliferation.



1.4 SCOPE

The US Government is approaching the problem posed by the proliferation of WMD and missiles through a balanced program of prevention, reversal, and protection:

Prevention/Reversal

- Detection/Identification -- detection and identification of proliferation activities. This activity is the initial step of any prevention/reversal action.
- Dissuasion -- convincing non-WMD states that their security interests are best served through not acquiring WMD. This can be accomplished through, e.g., reduction of regional tensions through dialogue and confidence building measures, security assurances, security assistance, public diplomacy, forward presence of US troops, joint military exercises, and military contacts.
- Denial -- curtailing access to technology and materials for weapons of mass destruction through export controls or other tools. It is particularly important to strengthen multilateral export control regimes, as this enhances the effectiveness of the controls while reducing the economic costs to US suppliers. Other, more direct techniques could include the disruption of black markets.

- Arms Control -- reinforcing the Nuclear Non-Proliferation Treaty, the Biological and Chemical Weapons Conventions, a Comprehensive Test Ban Treaty, nuclear-free zones, conventional arms treaties that stabilize regional arms races, and confidence- and security-building measures. These regimes strengthen the norms against acquiring these weapons and help to assure states that their neighbors are not acquiring them either.

- International Pressure -- punishing violators with trade sanctions, publicizing and exposing companies and countries that assist proliferators, and sharing the intelligence to heighten awareness of the proliferation problem.

Protection

- Defusing -- undertaking actions to reduce the threat from WMD already in the hands of selected countries -- for example, agreements to destroy, inspect, convert, monitor, or even reverse their capabilities.

- Deterrence -- bringing to bear military, political, economic, and commercial tools by the United States, it allies, and friends in an effort to persuade even the most ardent proliferator that the risks of the acquisition threat or use of WMD are not acceptable.

- Offense -- protecting US forces and responding to allied requests for assistance to meet legitimate security needs, by being prepared to seize, disable, or destroy WMD in time of conflict, if necessary. It is also important to monitor, track and interdict shipments of WMD or their precursors, and the capability to fight in a contaminated environment.

- Defense -- responding to a potential adversary armed with WMD or missiles to deliver them by employing active and passive defenses that will mitigate the effects of these agents and enable US forces to fight effectively even on a contaminated battlefield. It also includes border control against unconventional delivery and terrorists.

This report focuses on US Government activities and programs that exploit advanced technology in support of all of these objectives.

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2.0 SURVEY OF CURRENT PLANS, PROGRAMS AND BUDGETS

2.1 OVERVIEW OF NON/COUNTERPROLIFERATION ACTIVITIES AND PROGRAMS

The review committee defined two classes of US Government effort as within the meaning of the Congressional reporting requirement:

- **Unique to Nonproliferation or Counterproliferation:** If weapons of mass destruction were to disappear as a threat or as an international concern and if there were confidence that they would never return, these programs and activities would be eliminated.

- **Strongly Related to Nonproliferation or Counterproliferation:** If weapons of mass destruction were to disappear as a threat or as an international concern and if there were confidence that they would never return, the investments in these programs and activities would be changed significantly, but not eliminated.

Activities associated with the existing FSU WMD and their delivery means (e.g., START implementation) are not covered within this report. The proliferation threat from these weapons is covered. The narrative below discusses ongoing and planned programs and activities assuming the criteria above. Section 2.2 discusses ongoing and planned programs and activities in the eight functional areas specified in the 1994 Authorization Act. Section 2.3 summarizes the budgets for these efforts.

Interagency Procedures

This Administration has established a National Security Council (NSC) structure (Figure 3) consisting of a Principals Committee (PC) as the senior interagency forum for consideration of issues affecting national security and a NSC Deputies Committee (DC) as the senior sub-cabinet interagency forum for review and monitoring the work of the interagency process. There are also two Special Assistants to the President, one for Defense Policy and Arms Control and one for Nonproliferation and Export Controls who chair Interagency Working Groups (IWGs) to address issues in these areas.

To coordinate science, space and technology policies throughout the Federal Government, in addition to the NSC/PC, NSC/DC and IWGs, the President has established the National Science and Technology Council (NSTC). As one subgroup of the NSTC, the Committee on National Security (CNS) has been established to serve as a part of the internal deliberative process of the NSTC, advising and providing assistance in increasing the overall effectiveness and productivity of Federal efforts addressing the technical aspects of national policy, planning and administrative matters related to national security.

In addition, individual departments and agencies have created interagency committees (e.g., the Arms Control Research Coordinating Committee, the Forum on Arms Control Technology and the Community Nonproliferation Center) and interagency entities and groups to coordinate research and development in support of counterproliferation goals and priorities.

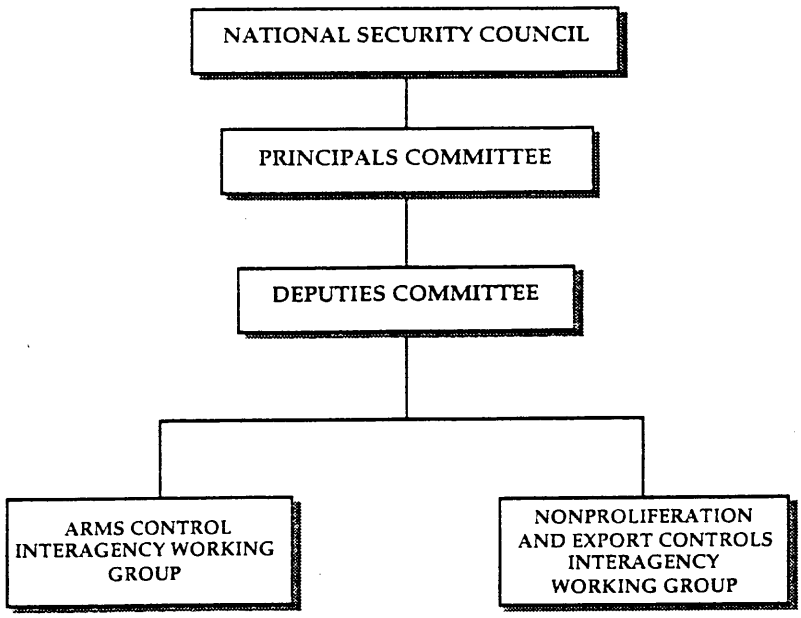


Figure 3. Clinton Administration NSC Structure

Department and Agency Procedures

Arms Control and Disarmament Agency

Various components of nonproliferation are carried out by the Agency's four substantive bureaus: the Bureau of Nonproliferation and Regional Arms Control, the Bureau of Multilateral Affairs, the Bureau of Intelligence, Verification and Information Support, and the Bureau of Strategic and Eurasian Affairs. The work of these bureaus is closely supported by the Office of the General Counsel.

The Bureau of Nonproliferation and Regional Arms Control (NP) is responsible for representing the Agency in policy development, implementation, and international negotiation concerning efforts to halt the proliferation of nuclear, chemical, and biological weapons and missiles; controlling conventional arms transfers; and fostering regional arms control initiatives. NP is responsible for all matters related to the implementation of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and the Treaty of Tlatelolco, including for example, preparations for the 1995 NPT Extension Conference and support for the application of more effective International Atomic Energy Agency (IAEA) safeguards.

The Bureau of Multilateral Affairs (MA) is responsible for the preparation of, guidance for, backstopping of, and the logistical support for many US arms control delegations. FY 1993 has been marked by significant negotiating activity across the arms control spectrum. One such effort has been the Chemical Weapons Convention Preparatory Commission (CWC PrepCom) work in The Hague. MA serves as the interagency lead office, heads the US Delegation, chairs backstopping meetings, provides across-the-board expertise within the US and multilateral arms control community, and interfaces with the US pharmaceutical and biotechnological industry. MA has been assigned the lead for backstopping and manning the Comprehensive Test Ban Treaty (CTBT) negotiations within the Conference on Disarmament, a key component of the Administration's nonproliferation policy.

The Bureau of Intelligence, Verification and Information Support (IVI) is responsible for providing intelligence analysis and information support for the execution of arms control policy within ACDA. IVI provides the Agency with expert analysis with respect to the full panoply of verification and compliance issues. It provides intelligence, economic and other analysis, mathematical and statistical support, and information retrieval services to negotiations, on-site inspection activities, compliance determinations, and nonproliferation and regional arms control efforts. The Bureau's analytical responsibilities include the performance of analyses of strategic and conventional force structures, nonproliferation, defense

conversion, and other arms control issues. The Bureau also manages computer databases used both within ACDA and by other organizations involved in nonproliferation. IVI works closely with the Intelligence Community (IC), producing intelligence analyses for ACDA, representing the Agency on IC bodies, and coordinating Executive Branch research and development efforts with respect to arms control and nonproliferation. IVI is responsible for producing certain mandated Congressional reports and ACDA reference and statistical publications.

Within the Bureau of Strategic and Eurasian Affairs (SEA), the Strategic Transition (ST) and Defense Conversion (DC) Divisions are responsible for leading ACDA' s contribution to negotiating programs of assistance with the states of the Former Soviet Union (FSU) on matters related to US denuclearization policy. This includes US efforts on early deactivation of nuclear weapons located in the FSU; Safety, Security and Dismantlement (SSD) assistance to the FSU under the Nunn-Lugar legislation; and conversion of elements of the FSU defense sector into civilian programs.

ACDA promotes the United States interest in multilateral nonproliferation regimes including:

- Treaty on the Non-Proliferation of Nuclear Weapons (NPT)
- Nuclear Suppliers Group (NSG) and Zangger Committee (ZC)
- Treaty of Tlatelolco (Latin America Nuclear Free Zone)
- International Atomic Energy Agency (IAEA)
- Missile Technology Control Regime Agreement
- Australia Group (Chemical/Biological Weapons issues)
- Chemical Weapons Convention
- Biological and Toxin Weapons Convention

The NPT continues to receive broad international support as the cornerstone of efforts to prevent the further spread of nuclear weapons. Because of the NPT's vital contribution to US and international security, the United States is committed to seeking the indefinite, unconditional extension of the Treaty when the Parties meet in 1995 "to decide whether the Treaty shall continue in force indefinitely, or shall be extended for an additional fixed period or periods." ACDA is the lead agency in the Executive Branch with regard to NPT, including preparations for the 1995 NPT Extension Conference. As such, ACDA expends considerable resources in ensuring the widest possible adherence to and full implementation of the NPT. ACDA will have an increased level of activity related to negotiation of a global ban on producing fissile material for nuclear weapons purposes and to international efforts to achieve more effective controls on weapons usable material.

ACDA will have an increased level of activity in Chemical Weapons Convention (CWC) negotiations as they focus on the remaining outstanding issues that will allow the Convention's entry into force. ACDA is providing the leadership and principal support for the US delegation to the CWC PrepCom in the Hague. ACDA budgets for US participation in the PrepCom, including the US assessed contribution for the CWC PrepCom and the costs for maintaining the US delegation. The increase from FY 1994 to FY 1995 results in large part from the $4.5 million additional funding requested for US contributions to the CWC PrepCom and $1.8 million additional funding for US contributions in support of the NPT Extension Conference.

ACDA is charged with managing the multilateral negotiations of a comprehensive ban on nuclear tests, including interagency backstopping and carrying out the negotiations in the Conference on Disarmament. Prompt negotiations of a CTBT is a high priority for the President in view of its importance to the Administration's nuclear nonproliferation strategy.

Department of Commerce

The Bureau of Export Administration's overall mission as it relates to the nonproliferation of weapons of mass destruction is to: (1) administer and enforce controls on dual-use exports to protect national security and to further US nonproliferation policy; (2) participate in the formulation of dual-use

export control policy; (3) enforce export control laws along with other agencies; and (4) participate in the training of officials of Eastern Europe and the newly independent states of the Former Soviet Union (FSU) to help them develop effective export control systems.

The implementation of the Enhanced Proliferation Control Initiative in FY 1991, as well as the more recent National Performance Review and Trade Promotion Coordinating Committee reports, have increased the level of resources the Bureau of Export Administration (BXA) is required to devote to the regulation and implementation of nonproliferation export controls. The FY 1995 nonproliferation-related budget increases that BXA is requesting will strengthen our nonproliferation efforts.

Management and Policy Coordination The Office of the Under Secretary determines policy, directs the programs, and is responsible for the activities of BXA. The staff provides policy support to the Secretary of Commerce and plays a major role in high-level policy initiatives that involve other agencies and the intelligence community.

Export Administration (EA)— As part of the Bureau of Export Administration, EA is involved in the following export administration activities:

- Developing export control policies for commercial and dual-use items through an interagency consultative process;
- Participating in the creation of US and international control lists through negotiations in the various international export control regimes concerned with nonproliferation;
- Participating in bilateral government-to-government negotiations concerning the adoption of nonproliferation export controls;
- Assisting in coordinating export control functions of various nonproliferation regimes and in redeploying Commerce expertise in COCOM control to support the US nonproliferation agenda;
- Participating in the interagency review process to make recommendations as to sanctionable activities by foreign entities under the missile, chemical weapons, and biological weapons (CBW) sanctions laws and to implement regulations restricting exports to sanctioned foreign entities;
- Providing analyses of and dissemination for appropriate interagency review US export license applications for items controlled under the various nonproliferation regimes or to end-users involved in proliferation activities, including screening of specific end-users identified in ongoing investigations and intelligence activities;
- Providing formal findings to industry on the classification of its products or technologies with respect to the Commerce Control List and advice on the likelihood of exportability of specific items;
- Reviewing the foreign availability of items controlled for proliferation purposes;
- Conducting training sessions, seminars, and individual counseling for members of the exporting community on their licensing and enforcement obligations with respect to nonproliferation export controls;
- Issuing distribution and other special licenses;
- Conducting systems reviews to ensure that US companies are in compliance with licensing restrictions designed to preclude exports contrary to US nonproliferation export controls;
- Providing instruction and training in nonproliferation export controls for countries in Eastern Europe and the FSU, and for other nations capable of supplying items of proliferation concern;
- Serving as the coordination point for US businesses on industry-related undertakings in support of the Chemical Weapons Convention, the Biological Weapons Convention, and the US-U.K.-Russia Understanding on Biological Weapons;

- Coordinating the statutory mandated Technical Advisory Committees composed of representatives from the business community who provide technical guidance on nonproliferation export controls;
- Promulgating rules in the Export Administration Regulations to implement nonproliferation export controls;
- Providing technical experts in the areas of nuclear physics, chemical engineering, biology, and aerospace to evaluate the significance and relevance of proposed controls and to explain new nonproliferation controls to US industry; and
- Improve automated information and data-exchange with Energy, Defense, and State to enhance the efficiency of the automated licensing system.

Export Enforcement (EE)— As part of the Bureau of Export Administration, EE's nonproliferation enforcement activities have increased substantially and have focused on its efforts to halt the illegal transfer of goods and technologies to known and suspected proliferating countries and end-users. Export Enforcement is increasing its nonproliferation enforcement efforts by:

- Hiring additional criminal investigators for its enforcement field offices to handle increased nonproliferation investigations more effectively;
- Increasing the training of its criminal investigators to focus on special issues relating to proliferation cases;
- Strengthening its "Strategic and Nonproliferation Enforcement Program," by sending teams of special agents to conduct pre-license checks and post-shipment verifications in known or suspected proliferating countries;
- Participating in the training of officials of the newly independent states of the FSU, as well as other nations around the world that have the capability of supplying items of proliferation concern, to help them develop effective nonproliferation export enforcement programs;
- Reviewing commercial and dual-use export license applications for items controlled under nonproliferation regimes or for end-users involved in proliferation activities;
- Expanding its outreach program to industry, particularly to those involved in products of proliferation concern who have not had previous experience with export controls;
- Developing US export enforcement policies in the interagency consultative process and participating in bilateral and multilateral negotiations with other governments concerning the adoption of common nonproliferation export enforcement policies and procedures;
- Expanding and refining export investigative and enforcement activities -- through the targeting of regions of concern, and conducting pre-license checks and post-shipment verifications, -- and maintaining an active preventive enforcement program, including continual review of export license applications and export documents to determine the likelihood of diversion to projects of proliferation concern.

Department of Defense

The proliferation of weapons of mass destruction (WMD) and their associated delivery systems is one of the major threats facing the United States and its allies. The Department of Defense contributes to the full range of US efforts to combat proliferation including diplomacy, arms control, export control, and intelligence collection and analysis, but places particular emphasis on assuring that US forces and interests are protected should the US confront an adversary armed with WMD.

Office of the Assistant Secretary for International Security Policy--The Assistant Secretary for International Security Policy (ASD (ISP)), inter alia, is responsible for the formulation and implementation of DoD counterproliferation policy to prevent and protect against the threat posed by proliferation of nuclear, chemical, and biological weapons, delivery systems and other sensitive technologies. The ASD (ISP) oversees the Nunn-Lugar program with the assistance of the Special Coordinator for Cooperative Threat Reduction, and also oversees the broader policies of threat reduction with the FSU. The Deputy

Assistant Secretary for Counterproliferation Policy provides policy guidance and oversight for the implementation of the overall DoD counterproliferation effort.

Office of the Assistant to the Secretary for Atomic Energy--The Assistant to the Secretary for Atomic Energy is coordinating acquisition's counterproliferation efforts, leading the development of an acquisition strategy to focus technology developments. This office, supported by the Defense Nuclear Agency, is working with the Services and JCS to pinpoint gaps, build on existing programs and develop the necessary technology base to counter effectively the proliferation threat.

Counterproliferation Initiative-- To focus DoD's unique expertise to enhance the effectiveness of United States global nonproliferation activities, the Department has launched the Defense Counterproliferation Initiative. This initiative recognizes the preeminent goal of preventing proliferation of WMD and their associated delivery systems while at the same time recognizing that if proliferation should occur, the US must continue and expand efforts to protect forces, interests, and allies in the event of a confrontation with an adversary armed with WMD. The initiative adapts defense policy, technology and acquisition strategies, and military planning to provide the US with these prevention and protection capabilities.

This Initiative has two fundamental goals:

- To strengthen DoD's contribution to government-wide efforts to prevent the acquisition of these weapons in the first place or reverse it diplomatically where it has occurred. DoD contributes through marshaling its unique technical, military, and intelligence expertise to improve arms control compliance, export controls, inspection and monitoring, interdiction of shipping for inspection during periods of crisis, and otherwise strengthening the norms and incentives against WMD acquisition in the first place;
- To protect US interests and forces, and those of its allies, from the effects of WMD in the hands of hostile forces through assuring that US forces have the equipment, doctrine, and intelligence to confront an opponent with WMD on some future battlefield should that prove necessary. In this regard, the Department is developing an acquisition strategy which will recommend high payoff technologies and acquisitions in the areas of C^3I, counterforce operations, active defense and passive defense. The outcome of this development process will be a focused department strategy which addresses the following critical counterproliferation challenges:
  - Detection and destruction of WMD capabilities from production through storage to deployment
  - Conducting military operations in a WMD environment
  - Intercepting unconventional delivery of WMD
  - Dealing with consequences of WMD use to include medical treatment, clean-ups and recovery
  - Coping with the diffusion of new technologies.

The strategy will identify unique counterproliferation technologies which address the challenges as well as existing conventional warfighting capabilities and programs which are essential to the success of the counterproliferation initiative.

In accordance with the provisions of the FY 1994 National Defense Authorization Act, DoD expects to reprogram up to $30 million for counterproliferation policy support. These funds will support DoD participation in a variety of international nonproliferation activities and studies relating to counterproliferation. Activities will include inspection and monitoring programs in support of multilateral agreements (e.g., the U.N. Special Commission on Iraq, and the IAEA) and export control assistance efforts in various regions around the world. Proposed studies in FY 1994 will address regional security issues and battlefield scenarios in a WMD environment.

Defense Technology Security Administration (DTSA)-- DTSA's mission is to ensure that international transfers of defense-related technology, goods, services, and munitions are consistent with US foreign policy and national security objectives. DTSA which is organized under the office of the

DASD for counterproliferation, provides substantial support to US counterproliferation goals. DTSA reviews export licenses referred to DoD by the Department of State (in the case of munitions) and by the Department of Commerce (in the case of dual-use items) for their potential to contribute to the proliferation of weapons of mass destruction, missile delivery systems, and other significant military capabilities. DTSA also contributes to DoD policy development in these areas.

Joint Staff-- The Joint Staff monitors counterproliferation on behalf of the operational commanders and military Services; participates in the formulation of national non/counterproliferation policy; and coordinates action between Services and operational commands to accomplish military tasks and missions in support of national non/counterproliferation objectives.

The Chairman of the Joint Chiefs of Staff has designated the J-5 to manage counterproliferation within the Joint Staff. The J-5 has established and chairs an Executive Committee at the General/Flag Officer level that directs and supervises a Planners Group. The Planners Group will provide recommendations to the Chairman on military planning, outline intelligence support, and review the Defense Technology Acquisition Strategy. Following coordination of the DoD counterproliferation policy statement, the Chairman will complete the definition of Service functions and combatant command missions for non/counterproliferation to support the Defense Counterproliferation Initiative. At that time, the Joint Staff, CINCs and Services will assess the military capabilities in relevant mission areas and identify additional military requirements for counterproliferation.

Defense Nuclear Agency-- DNA continues to fulfill a unique role in the Department, providing support to OSD, the Joint Staff, the Unified Commands, the Military Services, and other defense agencies on matters concerning nuclear and advanced conventional weapons, counterproliferation, and the Cooperative Threat Reduction program. DNA is providing critical support to the Department's new Counterproliferation Initiative by focusing technologies in the areas of military response options. The program seeks to provide discriminate, optimized lethality against counterproliferation targets while minimizing collateral effects. Specifically, DNA's program emphasizes hard target kill capability, collateral effects research, targeting technical support and methodology development, and chemical weapon/biological weapon agent defense research and proliferation path assessments. DNA serves as the executive agency for the Assistant to the Secretary of Defense (Atomic Energy) in support of a DoD counterproliferation acquisition strategy. DNA also conducts RDT&E of technology related to arms control treaty verification and compliance. Further, DNA manages the DoD nuclear stockpile, ensuring its reliability, safety, and security by conducting training, custody inspections, and applications and research and analysis.

On-Site Inspection Agency -- The On-Site Inspection Agency is a joint Service Department of Defense organization responsible for the implementing inspection, escort and monitoring requirements under the verification provisions of US international arms control treaties and confidence-building agreements. The Agency implements on-site inspection, escort and continuous monitoring provisions of the Intermediate-Range Nuclear Forces treaty between the United States and the Former Soviet Union. OSIA has subsequently been assigned similar inspection, escort, and monitoring responsibilities of other US international arms control agreements and related activities.

Advanced Research Projects Agency -- Traditionally, ARPA has worked to stimulate, develop, and demonstrate technologies that enable fundamental change in future systems and operations. ARPA also is chartered to work on those technologies that have potential for addressing multi-Service requirements or technologies so dynamic as to require exceptional handling for optimal exploitation. ARPA's program is structured into three broad areas: (1) continuation of the Technology Reinvestment Project, (2) innovative new technology development, and (3) advanced military systems, particularly embedded signal processors. Examples of ARPA programs in related to non/counterproliferation applications are: Simulation - creating artificial environments for enhanced operational readiness through realistic training and improved system acquisition through more effective system assessment; War Breaker - developing and demonstrating technologies and systems enabling a fully integrated, end-to-end system capable of targeting and neutralizing time-critical targets within enemy strike cycle times; and Contingency Mission Technology Programs - developing technology for lightweight, deployable vehicles to form a basis for a variety of platforms (e.g., scout or target acquisition roles) for the next century.

Defense Intelligence Agency -- The changing world security environment and fiscal pressures have combined to challenge the Defense Intelligence Agency (DIA) and the entire military intelligence community to redefine relationships, systems, and resources brought to bear in providing effective intelligence support. DIA coordinates DoD's intelligence inputs in the non/counterproliferation areas. Several initiatives will enhance this support. DIA has established National Military Intelligence Centers for collection, production and infrastructure support that will functionally manage intelligence efforts throughout the military intelligence community to ensure that resources of the future are not wasted. In addition, the combatant commanders' capabilities are also being strengthened through the full implementation of on-site Defense Intelligence Support Offices from DIA. Critical to the success of DIA's efforts is a seamless communications interface among all levels of decision making from the national level to the tactical level. The Joint Worldwide Intelligence Communications System (JWICS), and its companion system, the Joint Deployable Intelligence Support System (JDISS), provide this interface as the backbone for military intelligence exchange and communications. Both JWICS and JDISS were fielded early in support of contingency operations and are still being tested under rigorous operational conditions.

Active Defense--DoD has also reoriented the Strategic Defense Initiative into the Ballistic Missile Defense Organization so that it concentrates on responding to theater ballistic missile threats that are here today. The US Government has also proposed a clarification in the ABM treaty. It would distinguish between restricted strategic ABM systems and unrestricted theater missile defense systems to meet a real threat without undermining an important agreement. The Department has recently made two significant decisions that will provide support to non/counterproliferation capabilities: an aggressive boost phase intercept program has been defined and funded and the decision on the Patriot PAC III Upgrade was made for the hit-to-kill interceptor option in large part due to unique capabilities that address the WMD threat. THAAD has been funded to provide a wider defended area once it is inserted into a theater.

Nunn-Lugar-- Under the Nunn-Lugar program, DoD is authorized to assist eligible states of the FSU to destroy nuclear, chemical, and other weapons; transport, store, disable, and safeguard weapons in connection with their destruction; establish verifiable safeguards against the proliferation of such weapons; facilitate demilitarization of defense industries and conversion of military technologies and capabilities to civilian purposes; and expand military-to-military contacts between the US and the newly independent states. DoD received $400 million for FY 1994 to provide Nunn-Lugar assistance. Four states (Russia, Belarus, Ukraine, and Kazakhstan) have been certified by the Secretary of State as eligible for Nunn-Lugar assistance in accordance with the legislation that established the Nunn-Lugar program. All four states have signed the necessary legal framework, or umbrella agreement, as well as implementing agreements for specific projects. The Defense Nuclear Agency serves as the executing agent for these funds.

The US committed $25 million in Nunn-Lugar funds to support the International Science and Technology Center (ISTC) in Moscow that will aid the transition of FSU weapons scientists and engineers to peaceful endeavors. The European Union and Japan are our partners in the ISTC, contributing similar sums, while Russia is providing in-kind support. Similarly, in Ukraine, the US has pledged $10 million to establish a Science and Technology Center in Kiev. The Science Centers program is managed by the DOS. It is closely coordinated with DOE, which also provides substantial support.

Beyond facilitating the transition of weapons scientists and engineers to peaceful endeavors, a need remains for better FSU controls that will effectively account for and protect nuclear materials that could pose proliferation concerns and that will restrict other WMD-related exports that might contribute to WMD programs in other states. To fill this need, the US has signed a Nunn-Lugar implementing agreement with Belarus, and has signed an agreement and amendments to provide up to $16.26 million in assistance to augment Belarus' export control capabilities by providing training and equipment. Further, the US has signed export control assistance agreements with Ukraine ($7.26 million) and Kazakhstan ($2.26 million).

The US has also signed agreements to provide assistance to Russia, Ukraine, and Kazakhstan in designing material control and accounting (MC&A) and physical protection systems for civilian nuclear material. The US will provide $10 million in such assistance to Russia, $7.5 million of MC&A assistance to Ukraine, and $5.0 million to Kazakhstan.

Department of Energy

The main nonproliferation activities of the Department of Energy (DOE) include:

- Conducting proliferation-detection technology programs;
- Establishing nonproliferation-related analytical support programs at the DOE's national laboratories;
- Providing proliferation intelligence analyses to support DOE responsibilities and support Intelligence Community nonproliferation efforts;
- Providing technical and policy support to international export control regimes and nonproliferation communities including the International Atomic Energy Agency (IAEA);
- Supporting regional nonproliferation activities and initiatives in the Middle East, Korean Peninsula, and South Asia;
- Supporting US activities aimed at assisting states of the Former Soviet Union (FSU) in nuclear materials control, accounting, and physical protection; emergency response capabilities; export controls;
- Supporting US and international efforts aimed at minimizing the use of highly enriched uranium in international fuel-cycle commerce;
- Providing technical support in the formulation and implementation of US policy related to nuclear nonproliferation treaties, international safeguards, and physical protection;
- Developing advanced technologies to enhance international safeguards and conducting bilateral and multilateral exchanges on international safeguards and physical protection;
- Operating and enhancing a proliferation information network system to support the evaluation of export application cases related to nuclear proliferation;
- Maintaining the Nuclear Materials Management and Safeguards Systems to track US nuclear material and foreign nuclear materials pursuant to US obligations under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT); and
- Supporting post-proliferation assessments with regard to proliferant nuclear device design information.

Program funding increased by $100.9 million from FY 1992 to FY 1993. This increase resulted from the redirection of funds from lower priority activities, as well as the increase in funding for DOE nonproliferation activities provided for by the FY 1993 Appropriation. This increase reflects the rising importance of the threat of proliferation of nuclear and other weapons of mass destruction and the means to deliver them, to US national security interests. The increased funding is being used to establish a strong nonproliferation program at the DOE's national laboratories as well as to provide increased technical assistance needed by other US departments and agencies and international agencies to enhance their efforts to stem proliferation.

The FY 1994 budget contains a requested increase of $14.5 million over FY 1993. This increase will enable DOE to continue the expansion of its nonproliferation activities and programs, as provided for by the FY 1993 Conference Budget and as called for in the Department's September 1992 Nonproliferation Initiative. The increase in funding requested for FY 1994 is to develop and implement:

- A program of technology development to enhance US and international proliferation detection capabilities;
- Policies, regulations, and procedures relating to DOE's international safeguards and physical protection activities; and

- Policies, regulations, procedures governing the export of nuclear and nuclear-related equipment, materials and technologies.

The majority of the DoE's nonproliferation related activities are conducted under three larger program areas: 1) Verification and Control Technology, 2) Nuclear Weapons R&D, and 3) Nuclear Safeguards and Security.

Verification and Control Technology The objectives of this program are to support the development and implementation of US national security and foreign policies on nonproliferation; provide intelligence analyses of the nuclear capabilities of foreign countries, their potential for nuclear proliferation, and possible support to nuclear terrorism; develop and execute a program of technology development to enhance US and international proliferation detection capabilities; develop and implement DOE's nuclear nonproliferation policy; develop and implement policies, regulations, and procedures relating to DOE's international safeguards and physical protection activities; and develop and implement policies, regulations, and procedures governing the export of nuclear and nuclear-related equipment, materials, and technologies.

Weapons Activities Research and Development Utilizing capabilities and facilities that already reside in existing Weapons R&D programs and technical infrastructure, this program supports nonproliferation, post-proliferation assessment and response, arms control, and verification activities.

Nonproliferation support activities include assessments related to proliferant nuclear device design; assessments of events or conditions that can have military implications, including tritium monitoring support, and terrorist threat assessments.

Nuclear Safeguards and Security The objectives of this program are to support international safeguards and reporting activities pursuant to US obligations under the NPT, and to support international standardization and compatibility of nuclear material measurements on materials subject to inventory verification by the IAEA.

Program activities include:

- Maintaining the Nuclear Materials Management and Safeguards System (NMMSS) which is an accounting and control system for nuclear material that the United States is required to maintain as part of its NPT obligations. All US facilities possessing reportable quantities of nuclear material report to the NMMSS. In FY 1995, NMMSS will be incorporated into the International Nuclear Material Tracking and Analysis (INA) system funded under the Verification and Control Technology Program. Activities and databases monitored through NMMSS related to nonproliferation include:
  - Facility inventory changes for US facilities selected by the IAEA for safeguards inspections;
  - Nuclear material imports and exports;
  - Material balance, inventory, and transaction information for US facilities reporting to the IAEA;
  - Foreign-origin nuclear materials in the US; and
  - Foreign-origin nuclear materials in foreign countries, including transfers of US-origin material between countries.
- Supporting New Brunswick Laboratory (NBL) certification and provision of reference materials to the international nuclear community. NBL also serves as a Network Laboratory of the IAEA, providing both analytical services and consultation regarding inspection, sampling and monitoring activities. Methods development programs applied to the NBL's mission are also applicable to international safeguards and nonproliferation.

Department of State

The Department of State (DOS) participates in the following major activities supporting nonproliferation and export controls:

- Nonproliferation-- The Department of State participates in formulation and implementation of US policy to prevent the proliferation of weapons of mass destruction, including chemical, biological, and nuclear weapons and their delivery systems. DOS has the lead in contacts with other governments and international agencies regarding nonproliferation issues.
  - State participates in USG policy formulation, and has the lead in bilateral and multilateral diplomatic contacts, in support of implementation of nonproliferation agreements (NPT, MTCR, AG, NSG, ZC, and IAEA safeguard programs) and arms control agreements (START and INF), as well as in the negotiation (and ratification) of the CTBT and the CWC.
  - State has the lead in negotiating SSD agreements with FSU states.
  - State chairs interagency groups responsible for ongoing review of worldwide trade and coordinates numerous demarches to foreign governments in response to available intelligence on illicit transactions in nuclear, chemical, biological, missile, munitions, and sensitive dual-use goods or technologies. DOS is responsible for determining whether such activity is potentially sanctionable under US law.
- Export Control Policy-- DOS participates in formulation and implementation of overall US export control and arms transfer policies, consistent with US foreign policy objectives. In addition, DOS:
  - Leads US bilateral and multilateral negotiations concerning export controls for MTCR, Australia Group, Zangger Committee, Nuclear Suppliers, the new multilateral export control arrangement for dual-use and armaments, and efforts for a multilateral regime for the prohibition of land mine exports.
  - Conducts bilateral and multilateral negotiations for the development and support of international control lists.
  - Decides questions relating to commodity jurisdiction between the US Munitions List (State) and the Commerce Control List.
  - Supports US formulation and implementation of economic sanctions imposed by the U.N., regional organizations, or by the US.
- License Review-- Provides the DOS position on licenses administered by Commerce (national security; nuclear, chemical and biological nonproliferation; missile technology; and foreign policy), Energy, Nuclear Regulatory Commission, and Treasury, as appropriate.
- Conventional Arms Transfers and Defense Trade-- The DOS:
  - Sets policy guidelines for commercial defense trade, as mandated in the Arms Export Control Act and the International Traffic in Arms Regulations (ITAR).
  - Licenses US exports of items on the US Munitions List (USML), in accordance with the Arms Export Control Act and the ITAR.
  - Provides guidance to US embassies on assistance to defense industry marketing efforts.
  - Conducts industry outreach and consultations through the Defense Trade Advisory Group (DTAG).
  - Conducts enforcement efforts in coordination with other agencies.
- Nonproliferation Assistance-- The DOS nonproliferation assistance program includes:
  - Programs to help countries establish effective export controls on destabilizing weapon systems and components, and prevent smuggling of such items.
  - Assistance for dismantling and destroying WMD and the conversion of WMD production facilities to peaceful uses.

- Support for bilateral and multilateral efforts to create verifiable safeguards and nonproliferation regimes.

DOS efforts in these areas are supported by the Nonproliferation and Disarmament Fund ($10 million in FY94). The State Department also coordinates planning and implementation of Nunn-Lugar assistance in these areas under the Cooperative Threat Reduction Program (CTR -- formerly SSD, Secure and Safe Dismantlement).

- Administrative Support for Science and Technology Centers and National Laboratories Cooperation-- State Department resources support policy and program management of two programs:

  1) Science and Technology Centers in Moscow and Kiev (multilateral)-- Interagency policy coordination, technical and policy reviews of project proposals; funding recommendations for allocation of the $35 million US contribution (from DoD/Nunn-Lugar); monitoring USG-funded projects, support to USG Governing Board and Scientific Advisory Committee members; and personnel and administrative support for USG-detailed staff at the Centers. The Centers' primary purpose is to engage former Soviet weapons scientists and engineers in civilian research projects, in order to preclude their employment by weapons-proliferation states.

  2) DOE national Lab-to-Lab interactions (bilateral) -- Department coordination of project approval and oversight; development and implementation of department policy guidance for program; and monitoring and evaluation the effectiveness of a cooperation and exchange program (financed by DOE laboratory budgets) between DOE national laboratories and their NIS counterparts. The program's primary purpose is to engage former Soviet weapons scientists and engineers in collaborative civilian research projects with DOE national labs to preclude their employment by weapons-proliferation states.

International Atomic Energy Agency (IAEA) Safeguards-- The US provides political, technical, and financial support to the IAEA. The US provides yearly payments bound by treaty and voluntary contributions. The IAEA uses the voluntary contribution for development and continued implementation of their program of technical assistance to safeguards. The safeguards portion of the US payments support:

- Planning and execution of inspections of nuclear facilities under international safeguards agreements;
- Training in inspection and analysis;
- Developing verification instrumentation;
- Designing and developing safeguard systems;
- Performing analysis of data, including nuclear accounting techniques; and
- Providing experts and consultants to support operations, research and development.

Department of the Treasury

One of the primary missions of Treasury's Customs Service is the enforcement of US export laws. Customs enforces US export laws through investigation and seizure of illegal exports, including components of WMD training seminars in dozens of countries. In addition, Customs gathers intelligence concerning nonproliferation issues that is shared on an interagency basis.

The Customs export control mission has four components:

- Interdiction— The interdiction of illegal exports, including restricted WMD-related items, at the border rests with Customs inspectors. Inspectors examine cargo, review shipping documents, and detain questionable merchandise and seize merchandise being exported contrary to law.

- Investigation— Customs special agents conduct investigations of illegal exporters and present their investigative findings to the US Attorney's Office for prosecution. The US Customs Service possesses the traditional law enforcement resources and personnel to effect sophisticated enforcement operations.
- Intelligence — Currently, Customs is actively engaged on several fronts in acquisition and exchange of both strategic and tactical intelligence concerning nonproliferation issues. These activities are conducted on a daily basis and include continuous dialogue with several agencies within the Intelligence Community and various agencies and entities within the Departments of Defense, Commerce, Justice, State and Energy.
- International Cooperation -- Customs has established foreign enforcement offices in 21 locations which have investigative oversight for all countries around the world. Customs is authorized by law to conduct overseas investigations for all violations of US export laws, including those related to the proliferation of WMD. Formal training has been conducted in dozens of countries, most recently in Taiwan, Turkey, Romania, Bulgaria, Hungary, and Poland. Current efforts are focused on stemming proliferation from the Former Soviet Union.

Federal Bureau of Investigation

The Federal Bureau of Investigation provides support to national nonproliferation efforts through three of its programs.

Counterterrorism. The FBI has primary jurisdiction over terrorist acts committed against US persons. This jurisdiction is statutory and extends domestically and internationally.

Maintaining current intelligence on terrorist groups and coordinating this intelligence with worldwide collection efforts serve to monitor the activity of those who would have the capacity and predilection to act as terrorists using WMD. This activity would need to be monitored even in the absence of any nuclear, chemical, or biological weapons potential.

Counterintelligence. The FBI has primary jurisdiction over investigations involving the activities of agents of a foreign power acting within the United States in all cases. (In cases of violations of the Espionage Statute this jurisdiction extends abroad.) The source of this jurisdiction is contained in an Executive Order. The jurisdiction is also supported by criminal statutes which the FBI enforces such as those against espionage, Foreign Agent Registration Act violations, and other related laws. FBI investigations would focus on any agents of foreign powers seeking to assist that power in obtaining WMD or their delivery systems.

Such activities would need to be monitored in the absence of any nuclear, chemical, or biological proliferation potential, but their significance would increase if the foreign agents were engaged in efforts supporting proliferation of WMD.

Criminal Investigative Responsibilities. The FBI has sole investigative jurisdiction over violations of the Atomic Energy Act of 1954 and the Biological Weapons Antiterrorism Act of 1989.

United States Intelligence

A broad array of US policy agencies have responsibilities for countering proliferation, each with its own set of levers that can be brought to bear on the proliferation problem. Identifying the leverage they have to advance US goals is a key feature of developing tailored, actionable intelligence. Efficiently focusing intelligence capabilities and resources on this high priority issue requires coordination of many intelligence organizations and activities against many countries and topics which support policy maker actions that can range from diplomatic approaches to the use of military force. (See classified Annex).

2.2 OVERVIEW OF NONPROLIFERATION AND COUNTERPROLIFERATION PROGRAMS BY FUNCTIONAL AREA

Figures 4 through 10 summarize the nature of activities in the eight functional categories specified in the legislation requiring this report: Intelligence, Battlefield Surveillance, Passive Defense, Active Defense, Counterforce Capabilities, Inspection Support, Support to Export Control Programs, and Counterterrorism. The figure also summarizes the NP/CP technology development activities emphasis.

Figure 4. Arms Control and Disarmament Agency

Functional Area	Nonproliferation/Counterproliferation Activities
Intelligence	Unique: • Activities Related to Nuclear Nonproliferation Treaty, BWC, CWC, the Comprehensive Nuclear Test Ban Treaty and countries of proliferation concern Strongly Related: • None
Battlefield Surveillance	None
Passive Defense	None
Active Defense	None
Counterforce Capabilities	None
Inspection Support	Unique: • Policy Activities Related to Verification of BWC, CWC, IAEA Safeguards, and CTBT • Research on Nonproliferation Strongly Related: • None
Support to Export Control Programs	Unique: • Policy Activities Related to U.S. and Multilateral Nonproliferation Export Controls and to bilateral cooperation on interdiction Strongly Related: • None
Counterterrorism	None
General Nonproliferation/Counterproliferation	Unique: • Other Activities Related to Support of Policy Formulation and International Negotiations on the NPT, CWC, BWC, NWFZ, CTBT, fissile material convention and other regional arms control initiatives Strongly Related: • None
Summary Heavy Emphasis on Treaty Negotiation and Compliance; Little Technology Development	

Figure 5. Department of Commerce

Functional Area	Nonproliferation/Counterproliferation Activities
Intelligence	Unique: • Integration of data bases for export commodities and end-users • Compliance Assessments • Information Sharing Strongly Related: • Enhanced Proliferation Control Initiative (EPCI) • Export denial notifications
Battlefield Surveillance	• None
Passive Defense	• None
Active Defense	• None
Counterforce Capabilities	• None
Inspection Support	Unique: • Industry liaison for domestic BW facility inspections • Pre-license checks (PLC) and post-shipment verification (PSV) • CWC/BWC Industry Liaison and Compliance Strongly Related: • Open Skies Industry Liaison
Support to Export Control Programs	Unique: • Formulation of Export Control Policies • Development of U.S. Dual-Use Export Control Mechanisms • Development of International Dual-Use Export Control Mechanisms • Participation in Bilateral Negotiations on Export Controls • Analysis/Review of License Applications • Classification of Products and Technologies in coordination with other agencies • Foreign Availability Assessments • Coordination of Technical Advisory Committee • Export Control Enforcement and Related Investigations, in coordination with other agencies • Training, Seminars, and Counseling Strongly Related: • NIS Defense Diversification Assistance • Foreign Technical Assistance Program
Counterterrorism	Unique: • None Strongly Related: • Regional Stability Controls
Summary Heavy Emphasis on Export Controls; Little Technology Development	

Figure 6. Department of Defense

Functional Area	Nonproliferation/Counterproliferation Activities
Intelligence	Unique: • Integration of Intelligence Databases for Proliferatoin • Integration of Intelligence with Military Operations • Target Characterization • Target Resolution Information Strongly Related: • Technology Applications for Mission Support
Battlefield Surveillance	Unique: • Detection of NBC Hazards Strongly Related: • Timely Collection/Transmittal of Information on Difficult-to-Defeat Targets (Hardened or Mobile) • Application of Other Surveillance Assets to Non/Counterproliferation (e.g., UAVs, Unmanned Ground Sensors)
Passive Defense	Unique: • Detect, Predict, Mitigate and Provide Protection Against NBC Hazards • Restore Warfighting Capabilities after WMD Attack Strongly Related: • Technology Base Supporting Passive Defense
Active Defense	Unique: • Defeat of NBC Tactical Ballistic Missiles and Aircraft • Prediction of Consequences of WMD Effects - Impact of Subsequent Defenses - Collateral Effects Strongly Related: • Technology Base on Active Defense • Adaptation of Defense Systems to Make Effective Against WMD
Counterforce Capabilities	Unique: • Training, Doctrine and Operations to Defeat WMD Armded Adversary • Characterization of WMD to Support Targeting/Defeat • New Payload Concepts for Defeat of WMD, Emphasizing Precision Delivery of Non-Nuclear Weapons and Limitation of Target-Induced Collateral Effects Strongly Related: • Adaptation of Systems to Meet WMD Missions
Inspection Support	Unique: • Existing/New Technology Applications, with Emphasis on BWC and CWC - On-Site Chemical Sampling/Analysis • Automated and Remoting Technologies • Integration of Inspection Support Databases with Other Counterproliferation Activities • Portions of the Nunn-Lugar Program Addressing Nonproliferation/Counterproliferation Strongly Related: • Portal/Perimeter Monitoring • Taggants • Open Skies Sensors • Inspector Training
Support to Export Control Programs	Unique: • Critical Node Analysis Tools to Support Targeting of Export Control Activities • Technical Support to Militarily Critical Technologies List (MCTL) • Portions of the Nunn-Lugar Program Addressing Nonproliferation/Counterproliferation Strongly Related: • Application of Technology For Border Control
Counterterrorism	Strongly Related: • DoD EOD Matters • Non-Lethal and Other Novel Weapons
Summary Emphasis on Military Operations and Counterproliferation; Significant Level of Technology Development	

Figure 7. Department of Energy

Functional Area	Nonproliferation/Counterproliferation Activities
Intelligence	Strongly Related: • Activities related almost exclusively to nuclear issues: - Foreign intelligence analytical support - Threat assessments - Counterintelligence - Collection requirements and other coordination
Battlefield Surveillance	• None
Passive Defense	Strongly Related: • Nonproliferation support activities conducted under the nuclear weapons RDT&E program - Technical assessments related to proliferant nuclear device design - Assessments of events or conditions of potential military significance
Active Defense	• None
Counterforce Capabilities	• None
Inspection Support	Strongly Related: • Nonproliferation-Related Analytical Support Program • Regional Nonproliferation Support Activities • International Safeguards Analytical and Technology Support • Safeguards and Security for US Domestic NPT Obligations • Contribution to U.S. Member State Support Program for the IAEA
Support to Export Control Programs	Strongly Related: • Technical and Policy Support to International Export Control Regimes,Primarily Related to Nuclear Tech.
Counterterrorism	Strongly Related: • Nuclear emergency search team activities, including the development, testing, and use of portable and fieldable nuclear radiation detectors and spectrometers, and special infrared equipment.
Technology Base	Strongly Related: • Remote (Space-Based) Sensor Systems Research and Development (R&D) • Regional (Seismic and Effluent) Monitoring Systems R&D • Advanced Systems R&D
Summary Programs Limited to Nuclear Activities; Significant Level of Technology Development	

Figure 8. Department of State

Functional Area	Nonproliferation/Counterproliferation Activities
Intelligence	Strongly Related: • Diplomatic reporting on WMD proliferation issues
Battlefield Surveillance	• None
Passive Defense	• None
Active Defense	• None
Counterforce Capabilities	• None
Inspection Support	Unique: • Support for inspections by international organizations such as the United Nations Special Commission on Iraq (UNSCOM) and the International Atomic Energy Agency (IAEA) in the form of equipment, both hardware and software, and technical assistance. • Safeguards Implementation Program • Special Inspection Mechanisms • Contribution to U.S. Member State Program via IAEA's Program of Technical Assistance to IAEA Safeguards (POTAS)
Support to Export Control Programs	Unique: • Development of international export control mechanisms • Tailor-made assistance programs to states in areas such as: - Briefing policy-makers on proliferation dangers and benefits of adherence to multilateral nonproliferation regimes - Sending State-led interagency teams to assess the effectiveness of current export controls and assistance needs - Providing training for licensing and enforcement personnel - Supplying administrative tools such as computers and software
Counterterrorism	Unique: • Development of a national NBC terrorism response capability - Plan support, train, and equip units to respond to terrorist incidents when directly affecting U.S. personnel, facilities, or national interests • R&D - IWG/CT Technical Support Working Group (TSWG) - Technology for Chemical/Biological Incident Response (CBIR) • Exercises - Test plans, policies and mechanisms
General Nonproliferation/Counterproliferation	Unique: • General policy formulation and implementation regarding arms control and nonproliferation initiatives • Administration Support for Science and Technology Centers • Nuclear Risk Reduction Center • Regional Nonproliferation Initiatives • Nonproliferation Outreach Programs • Weapons of Mass Destruction/Conventional Destruction Program • Weapons of Mass Destruction Materials Buyback Program
Summary Emphasis on policy formulation, diplomatic initiatives, export controls, and counterterrorism; technology development in CT and IAEA safeguards.	

Figure 9. Department of Treasury

Functional Area	Nonproliferation/Counterproliferation Activities
Intelligence	Unique: • Acquisition and exchange of both strategic and tactical intelligence on nonproliferation issues
Battlefield Surveillance	• None
None	• None
Active Defense	• None
Counterforce Capabilities	• None
Inspection Support	• None
Support to Export Control Programs	Unique: • Interdiction of illegal exports at the border • Investigation of illegal exports • International cooperation efforts, including foreign enforcement offices that have investigative oversight for countries around the world • Conduct of overseas investigations for all violations of U.S. export laws • Formal training in foreign countries
Counterterrorism	• None
Summary Heavy Emphasis on Export Controls; Little Technology Development	

Figure 10. Federal Bureau of Investigation

Functional Area	Nonproliferation/Counterproliferation Activities
Intelligence	Strongly Related: • Counterintelligence within the U.S. and investigation of espionage abroad
Battlefield Surveillance	• None
Passive Defense	• None
Active Defense	• None
Counterforce Capabilities	• None
Inspection Support	Strongly Related: • Treaty support in the United States
Support to Export Control Programs	Strongly Related: • Counterintelligence support against agents of foreign powers operating in the United States
Counterterrorism	Strongly Related: • Intelligence on terrorism within the United States and investigations of terrorist activity against U.S. persons • Hostage rescue team for counterterrorism
Summary Heavy Emphasis on Criminal Investigations; Technology Developments in Support of Such Investigations	

2.3 SUMMARY OF RESOURCES FOR NONPROLIFERATION AND COUNTERPROLIFERATION ACTIVITIES AND PROGRAMS

Figures 11 and 12 show planned US Government investment, first by functional area and then by WMD threat (nuclear, biological, chemical and ballistic missile). See Appendix C for more details as well as budget trends.

Figure 11. Planned FY95 NP/CP Investment by Functional Area

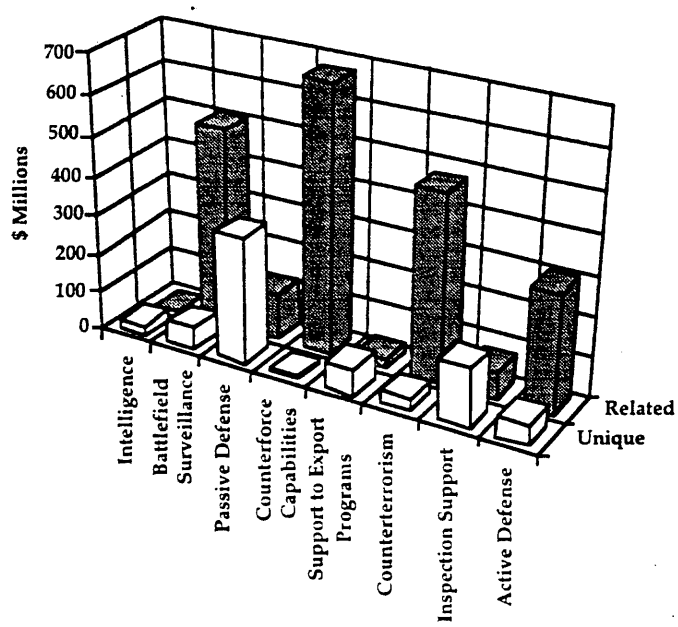
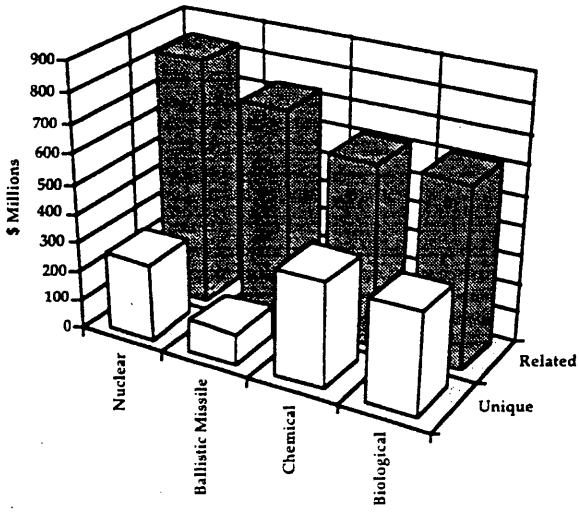


Figure 12. Planned FY95 Investment by Threat



3.0 NONPROLIFERATION AND COUNTERPROLIFERATION NEEDS AND CAPABILITY DEVELOPMENT OPPORTUNITIES

3.1 REVIEW COMMITTEE ASSESSMENT

The review committee identified priority areas for progress in non/counterproliferation capabilities by using a process of 1) defining technical and operational needs at an aggregated level; 2) identifying the highest priority shortfalls in capability; and 3) identifying priority areas for progress. The results of the review committee assessment are summarized below.

Current national US policy is being implemented through a variety of approaches. The technical and operational needs of this variety of approaches are highlighted below in Figure 13.

Figure 13. Technical and Operational Needs

- Reduce Incentives for States to Embark on a WMD Program
  - More Effective Regimes and Institutions
  - International Norms
  - Security Assistance
  - Ameliorate Regional Tensions
  - Passive Defense
  - Active Defense
  - Supporting Certain Regional WMD-Free Zones
  - Removal of Economic Incentives Behind WMD Proliferation
- Reduce Willingness and/or Ability of States, Organizations or Individuals to Assist Others to Engage in a WMD Program
  - Active Defense, Forward Presence of Military Forces, Military Exercises, and Military-to-Military Contacts
  - Enhanced Export Control Compliance
  - Increase Visibility to Practices Allowing Access to WMD Technologies/Materials
- Dissuade States From Embarking on WMD Programs
  - Harmonize and Improve Enforcement of Export Controls; Norm-Building; Incentives
  - Improved Collection and Analysis of Proliferation Intelligence
- Increase Warning Time Before Achievement of an Actual WMD Capability
  - Enhancement of Collection and Analysis of Intelligence
  - Expansion of Non-NTM Collection Capabilities
  - More Effective Bilateral and Multilateral Agreements Focused on Collection of Information on WMD Programs and Capabilities
  - Characterization of Intentions and Strategic Personalities of Countries of Concern
  - Improvement of International WMD Inspection Regimes
- Neutralize Military Advantages Gained by Deploying, Threatening or Using WMD
  - Ensuring that the US has the Ability to Destroy WMD with a High Degree of Assurance at Acceptable Costs
  - Maintaining the US Capability to Deter Credibly Any State That Would Threaten the Use WMD
  - Effective Military Power Projection with Minimum Vulnerability
  - Ability to Identify Origins of Attacking WMD
  - Viable Decision-Making and C3I After WMD Attack
  - Ensuring the Capability to Prevail Militarily
  - Enhanced Capability for Damage Limitation and Escalation Control
  - Providing the Capability for Rapid Deployment of Active and Passive Defenses.
- Persuade States That it is in Their Interest to Cap or Roll Back Existing WMD Programs and Capabilities
  - Fostering Regional Arms Control and Confidence Building
  - Promoting Adherence to Treaties/Agreements - Positive Inducement
- Maintain US Capability to Provide Crisis Management Assistance in Regions Where WMD are Deployed or May Become Available
  - Monitoring Assets with Flexible Focus
  - Capability to Identify, Track and Destroy Critical Systems (Production to Delivery)
  - Capability to Detect, Locate and Render Harmless WMD in US and Abroad
  - Capability to Develop Country-Specific Profiles

These demands have implications for each of the eight functional areas outlined in the legislation requiring this report. The Intelligence Community under NPC leadership has embarked on a comprehensive review of non/counterproliferation requirements. In addition, the Chairman of the Joint Chiefs of Staff has solicited inputs from the CINCs on the requirements of non/counterproliferation. These inputs will be used in defining the detailed investment strategy of the DoD to address the needs of non/counterproliferation.

The review committee identified a set of preliminary high priority capability shortfalls; however, the full process of defining operational requirements, evaluating current capabilities, identifying all important shortfalls, and preparing programs to address these shortfalls has yet to be completed. Shortfalls were identified with the assumption that ongoing USG nonproliferation programs would be fully funded. The review committee identified the following shortfalls within the eight functional areas.

Figure 14. Highest Priority Shortfalls in Operational Capability

- Intelligence
  - Reliable methodology for detecting WMD programs early in their development including motivations, plans, and intentions of policy makers
  - Effective methods to understand and counter diverse concealment, denial, and deception practices--particularly the identification and characterization of underground facilities and dual use facilities
  - Non-optimal exploitation of collected information because of lack of intelligence community connectivity and effective processing and analytical tools
  - Ability to locate and identify nuclear, chemical, and biological weapons activities
  - Identification and characterization of technology transfer networks supporting the development of WMD
  - Intelligence preparation of the battlefield
    - » Characterization of WMD forces and infrastructure
    - » Identification and targeting of WMD and their missile delivery systems
    - » Bomb damage assessment
    - » Fusion of WMD related sensor/signature data
  - Real-time intelligence to the war fighter including sensor-to-shooter linkage in operational command-control
- Battlefield Surveillance
  - Wide area and continuous coverage with flexible focus
  - Non/counterproliferation unique targeting support
  - Automation of target detection and sorting
  - Sensor-to-shooter linkage in operational command-control
  - Real Time NBC Agent Detection and Identification
  - Advanced battle damage assessment capability
  - Survivability of tactical information assets in WMD environment
- Passive Defense
  - Stand-off detection and discrimination of CW/BW agents and nuclear radiation
  - Passive defense capabilities enabling military operations to continue in contaminated conditions--actual or threatened (Low Cost, Lightweight)
    - » Individual/collective protection for personnel and equipment
    - » Vaccines and antibiotics for protection/mitigation of effects
    - » Advanced hazard dispersal and effects prediction capability
    - » System survivability to operate in and through NBC environments
  - Large-scale/rapid decontamination techniques
- Active defense against ballistic and cruise missile attack
  - Safe kill of WMD targets
  - Assured warhead lethality against such threats
  - Capability to counter likely ballistic missile countermeasures
  - Detection and intercept of stealthy/covert systems
  - Intercept capability in boost phase
  - Assured rapid access to regions in crisis or conflict
  - Protection of military and civilian targets
  - Wide area/regional defenses

Figure 14. Highest Priority Shortfalls in Operational Capability (Cont.)

- Counterforce Capabilities
  - Prompt Target Kill
    - » Real-time intelligence and targeting information for warfighters
    - » Pre-launch engagement of mobile missiles
  - Affordable Stand-Off Attack
  - Capability to provide air and sea lift under threat of WMD-bearing delivery systems
  - Successful Attack of Very Hard Underground Targets
    - » Fine-grained intelligence to support target identification and characterization
    - » Warhead lethality against such threats
    - » Weapon fuze capability
    - » Non-Lethal Disabling and Isolation Techniques
    - » Suppression of Enemy C3I
  - Limitation of Collateral Damage
    - » Hazardous material dispersal
    - » Safe chemical/biological agent defeat
  - Target Planning and Prediction Capability
    - » WMD proliferation path assessment
    - » Collateral effects prediction
    - » Weapon effects
    - » Target Characterization
    - » Real Time, Accurate Battle Damage Assessment
    - » Deployable C3I
  - Support of Special Operations Forces
    - » Man-portable kill/disabling capability
    - » WMD detection systems
- Inspection Support
  - Capability to monitor and detect suspect activities using cooperative and non-cooperative means
  - Safe destruction of treaty limited items
  - Facility inspection for material detection, analysis and transport/safeguard
  - Remote monitoring capability
- Support for Export Control Programs
  - Automated capability to identify proliferation paths and activities
  - Country specific data to include technical paths for WMD development and supply relationships
  - Capability to fuse multi-source data
  - Identification and tracking of critical materials and items
- Counterterrorism
  - Capability to find WMD
  - Capability to render WMD safe
  - Enhance assault and personnel protective equipment
  - Exploitation of foreign design and know-how
  - Enhance decontamination capabilities

There are a wide variety of technological opportunities available to the US Government to address these shortfalls. Figure 15 summarizes the more important of these opportunities. Capabilities exist in the DOE national laboratories, the DoD laboratories, industry and academia for bringing such technologies to bear on the identified shortfalls.

Figure 15. Technological Opportunities for Addressing Shortfalls

• Sensing/Platforms - HUMINT - SIGINT and information exploitation - LIDAR/Laser Radar - IR Imaging - E-O Imaging - Radiation Sensing - Environmental Monitoring Sensors (treaty verification) - Acoustic - Advanced SAR/Radar Imaging - Other Radars - Unattended Ground Sensors - Tags (Material and Item) - Multisensor Imaging - Remote Chemical and Biological Sensors - Advanced Sensor Packages (UAV, UGS) - Low Cost and Man-Portable Sensors - Microsensors - Non-destructive On-Site Analysis Sensors - Long Endurance UAVs • Signal and Information Processing - Deployable C3I Equipment - Real Time Data Fusion/Integration - ATR and Automated Handling of Massive Data Streams - Real Time, Accurate Battle Damage Assessment Algorithms - Moving Target Indicator - Automated Decision Analysis Tools - Heterogeneous Database Integration - Automated Critical Path/Node Analysis Tools - Advanced Mission Planning Tools - Geographic Information Systems and Advanced Mapping Tools - Nuclear safeguards information management system	• Weapons and Lethality - Advanced TMD Concepts - Boost Phase Intercept Concepts - Buried/Hard Target Kill Concepts - Advanced Kinetic Earth Penetrators - Hypersonic Weapons - Hit-to-kill lethality - Directed Energy Weapons - Non Lethal Disabling and Isolation Techniques - Render Safe Technologies - Chem/Bio Agent Neutralization - Neutralization Techniques for CW/BW Facilities with Minimum Collateral Damage - Suppression of Enemy C3I - Enhanced Penetration - Kill Mechanisms/Lethality (bulk and submunition) - Human vulnerability/degradation assessments - Engagement Modeling • NBC Protection and Robotics - BW Vaccines - Advanced Medical Treatment - CBW Protection Equipment (Low Cost, Lightweight) - Large-Scale Decontamination Techniques - Smart Nuclear Weapon Storage - Atmospheric Modeling - Robotics • Simulation, Operational Concept and Doctrine Development and System Evaluation - Distributed Interactive Simulation - Integrated Testbeds and Advanced Concept Technology Demonstrations

3.2 AREAS FOR PROGRESS IN NON/COUNTERPROLIFERATION

The review committee identified sixteen areas for progress. The committee judged that increased investment in fourteen of the sixteen areas would lead to the greatest progress in addressing the priority capability shortfalls. For each of these areas, the review committee determined very high potential impact, and an acceptable level of technical risk and cost over time. Two of the sixteen areas, intercept capability in the boost phase and prompt mobile target kill, will lead to great progress in addressing priority capability shortfalls and currently are adequately funded. They are included to reinforce their importance. The sixteen areas are briefly described in Figure 16. The estimates for needed increases in investment are "order of magnitude" estimates. By "Program Manager," the review committee means that agency having responsibility for oversight and coordination of all USG activities for a given area for progress. Figure 17 shows the time impact of such investments. These areas, along with those identified by the DoD and Intelligence Community investment planning processes now underway, will form the basis for future interagency program planning.

Figure 16. Areas for Progress in Non/Counterproliferation

NP/CP AREAS FOR PROGRESS	Estimated Current Annual Investment	Recommended Increases in Annual Investment (For FY96 and Later)	Recommended "Program Manager"
• Real time detection and characterization of BW/CW Agents including stand-off capability - Field deployable, multi-vector BW/CW detection - Miniaturized, BW/CW detector deployable on long endurance platforms capable of detecting variety of BW/CW agents out to ranges of >5 km in low concentrations - Airborne and groundbase detectors capable of detecting and characterizing BW/CW agents in warfighting release concentrations at ranges out to 5 km	Peace/Crisis: $100M Tactical: $10M	$75M (Sensor R&D) Justification: This is a tough problem where early detection could have a high payoff.	Intel Community DoD
• Underground structures detection and characterization - Data exploitation of all source information to identify tunnel/bunker construction - UGS capable of using variety of sensing methods to map and determine use of underground structures - WMD nodal analysis to support target planning	Detection: $15M Characterization: $10M	$75M (Regional WMD Team and Data Collection and Analysis) Justification: Increasing number of WMD facilities housed underground.	Intel Community DoD
• Hard underground target defeat including advanced non-nuclear weapons (lethal or non-lethal) capable of holding counterforce targets at risk with low collateral effects - Advanced conventional penetrating weapons with smart fuze - Alternate warheads for wide area damage functional kill - High velocity kinetic energy weapons for deeply buried facilities - Collateral effects prediction capability	$35M	$40M (Weapon/ Effects R&D) Justification: Emerging target set requires advanced conventional weapons with deep penetration capability.	DoD

Figure 16. Areas for Progress in Non/Counterproliferation (Cont.)

• Detection and tracking of shipments and control and accountability for stocks of WMD-related materials and personnel including worldwide WMD and dual-use item tracking - Common structure, controlled-sharable database usable by all nonproliferation regime states to record/track critical exports - IC-wide automated, all-source information exploitation system focused on key NP/CP countries of concern - Technical means - shared with non-allied states - for monitoring safety and security of stored or transportable nuclear materials	$87M	$25M (New Regimes; Automation Initiative). Justification: Some of the cost can be shared with allies and with non-defense technology now being developed for other purposes by USG and commercial sector.	DoC (Export Controls) Intel Community (Automation of "All-Source" NP/CP Data) DOE(Tech Devel)
• Capability to detect, locate and render harmless WMD in the US - Tool box of NBC detection and rendering harmless technologies capable of being deployed with trained team on short notice	$35M	$10M (Focus on BW Threat) Justification: The BW detection capabilities being developed under #1 above will support this activity.	DOE (Nuc) DoD (CW/BW)
• Enhance Collection and Analysis of Intelligence - All-source data exploitation technology - Remote, cued, long dwell time sensors	$ Classified	$25M (MASINT Sensor R&D; HUMINT in Key Regions) Justification: Data exploitation techniques is an integral aspect of several of these priority areas and represents a sharable cost.	Intel Community
• Support Chemical Weapons Convention and Biological Weapons Convention - Remote and point chemical detection capability - Support to bring US in compliance with CWC - Inspection and detection methods that would add meaningful transparency to BWC - Releasable intelligence and technical means to assist CWC and BWC inspections	$45M	$10M (Sensor Tech Devel and Industry Liaison) Justification: The BW detection capabilities being developed under #1 above will support this activity.	ACDA

Figure 16. Areas for Progress in Non/Counterproliferation (Cont.)

• Support Conclusion of a Verifiable Comprehensive Test Ban Treaty - Monitoring and Verification Technology - Stockpile Stewardship R&D	$50M	$10M (Sensor Tech Devel) Justification: Can exploit ongoing verification S&T.	ACDA/DOE
• Capability to detect, locate and disarm, with high assurance and in a timely fashion, outside United States WMD hidden by a hostile state or terrorist in a confined area - Focus of concern that NEST-like capability not fully in place for OCONUS - Advanced render safe capability - Specialized training for EOD/NEST personnel	$3M	$15M (Special Activities) Justification: Can make use of other DoD general purpose support facilities.	DoD
• Passive defense capabilities enabling military operations to continue in contaminated conditions-actual or threatened (low cost, lightweight) - Bio-textiles capable of providing cheap, adequate protection to troops and civilians against skin contact with agents. - CW/BW/RW decontamination equipment usable in urban environments - Chemical/biological agent detection and characterization	$5M	$15M (Protection and Decontamination R&D) Justification: Technology development activities will have to precede hardware acquisition.	DoD
• Rapid production of protective BW vaccines - Capability to identify and rapidly develop vaccine - Vaccine production capability once vaccine is developed	ID and Development $5M Production: $300M	$15M (Identification and Development R&D/Tools) Justification: Initial requirement is proof-of-concept and technology development work. Also considerable work in civil sector is applicable.	DoD

Figure 16. Areas for Progress in Non/Counterproliferation (Cont.)

• Detect and intercept low flying/stealthy cruise missiles	$60M	$50M (Development of Architecture and New Capabilities) Justification: The sensors being developed for the Boost Phase Intercept program have direct applicability to the detection phase of this program so there will be savings possible.	DoD
• Transparency and control of foreign fissile material	$12M	$15M (Transparency Activities) Justification: Near term objectives of increasing confidence of status of foreign fissile material and establishing accountability.	DOE
• Safe disposition for foreign missile- and WMD-related materials (except fissile material)	$1.5M	$20M Justification: Disposal/ destruction of missiles, CBW and related materials and non-fissile components of nuclear weapons or related materials	DOS
• Intercept capability in boost phase		Adequately funded.	DoD
• Prompt mobile target kill		Adequately funded.	DoD

Figure 17. Timing of Impact of Investments in Areas for Progress

- **Near Term Impact (96-97)**
  - Support CWC and BWC
  - Support conclusion of verifiable CTBT
  - Enhance HUMINT and MASINT collection and analysis
  - Shallow hard underground target defeat
  - Transparency and control of foreign fissile material
  - Safe disposition of foreign WMD-related materials (except fissile material)
- **Mid Term Impact (98-01)**
  - Remote detection and characterization of BW/CW Agents
  - Underground structures detection and characterization
  - Detection, tracking, control and accountability for WMD-related materials and personnel
  - Detect, locate and render harmless WMD in US
  - Passive defenses enabling continued operations
  - Rapid production of BW vaccines
  - Detection and intercept of stealthy cruise missiles
  - Mobile target kill
- **Far Term Impact (02-->)**
  - Capability to detect, locate and disarm WMD in the United States and abroad
  - Deep hard underground target defeat
  - Intercept in boost phase

The areas identified above require heightened attention if the United States is to achieve its security goals in the non/counterproliferation area. At the same time, the review committee is aware that prevailing budget constraints across all Federal Departments require that new activities only be undertaken if every effort is made to eliminate marginal or redundant activities.

The review committee believes that there may be some areas where activity is not optimally organized and where there may be some unnecessary redundancies. The proposed Technology Working Group and the Standing Committee on Nonproliferation and Export Controls (which are discussed later in Section 4) should have as one of their priorities continuing the careful examination of non/counterproliferation programs to locate and eliminate marginal or unnecessarily redundant activities. One area for examination should be the many efforts seeking to develop work stations designed to identify, track, and assess proliferation concerns. Such a continuing, careful examination will enhance US capabilities to prevent and defend against proliferation and it could free modest amounts of resources to help fund higher priority areas.

In addition, other efforts to protect against redundancies are already underway. For example, the Community Nonproliferation Committee (CNPC) is helping to coordinate community R&D on nonproliferation efforts through its recently chartered Research and Development Subcommittee (RDSC). This subcommittee facilitates information exchange among R&D managers, reviews applicable current and planned R&D activities both within and outside of the subcommittee membership, recommends initiation of R&D programs to acquire key nonproliferation capabilities, and identifies pertinent R&D activities that appear to be similar in nature. CNPC is a multi-agency/multi-department organization, with 15 different organizations, including the Departments of Defense, Energy, Commerce, Justice, ACDA, ARPA, CIA, NSA, Customs, DNA, FBI, Customs, and the Joint Chiefs of Staff. Another effort to reduce redundancy is the Memorandum of Agreement between the Air Force Phillips laboratory Fieldable Lidar Demonstration Program and DoE's Los Alamos National Laboratory Chemical Analysis by Laser Interrogation of Proliferation Effluents (CALIOPE) program.

The Committee proposes two other actions to help safeguard against future redundancies:

1. Employ a common technology taxonomy across the NP/CP community. This will help standardize terms of reference and facilitate coordination of programs to avoid duplication.

2. Use a taxonomy based upon fundamental science, technology and engineering disciplines, vice one based upon platforms, missions, or functionalities. An S&T-based taxonomy provides the clearest comparison between various programs, and will best aid identifying unwarranted duplication.

The review committee principals will continue to refine the "order of magnitude" estimates of investment increases for the areas for progress shown in Figure 16 to address them within budget planning ceilings of the agencies for FY96 and later years.

Section 4.0 of this report addresses steps that the Executive Branch is taking to improve coordination of NP/CP programs.

4.0 PRIORITIES AND ACTIONS

The proliferation of weapons of mass destruction and their delivery systems has become one of the most serious threats to world peace and to our national security. Attacking this proliferation is "one of our most urgent priorities." (President Bill Clinton in his U.N. speech in September 1993).

To reflect this urgent priority, the US Executive Branch needs to tackle further the problems of ensuring the development and deployment of highly effective technologies and capabilities for combating proliferation.

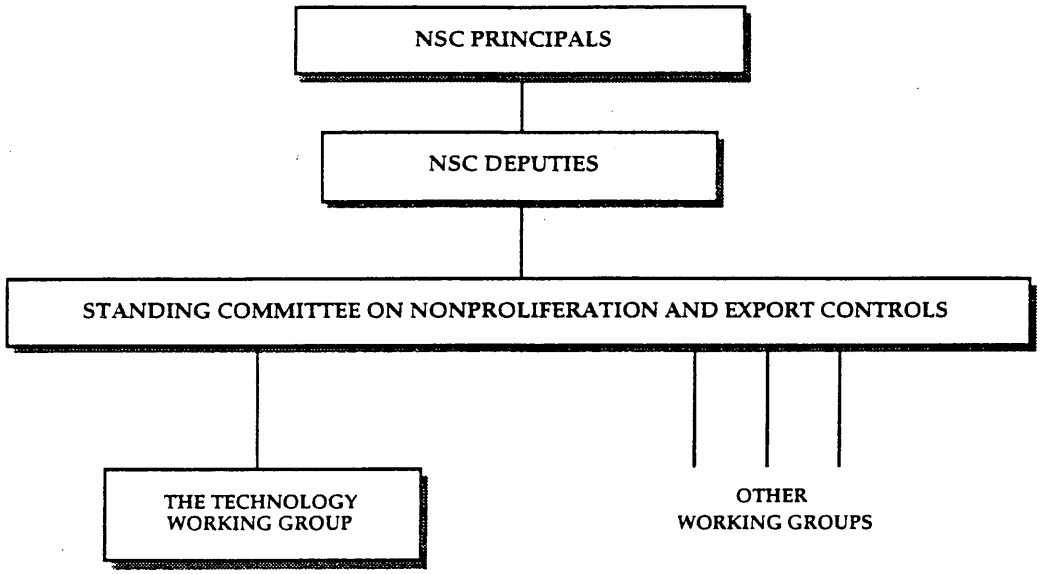
For example, the review committee has identified fourteen areas for progress where US technologies and capabilities can and should be improved on a priority basis (see Section 3.3 and Appendix D.) Moreover, there may well be redundancies where savings and efficiencies are achievable. And a continuing concern is to ensure that more of technology moves out of the laboratory to the field, where it can be used.

The work of the review committee indicates the need to continue an interagency review and coordinate technology programs in the several Executive Branch agencies that contribute to nonproliferation and counterproliferation technology. Significant steps have been taken by various departments and agencies to organize better their nonproliferation and counterproliferation efforts. These steps include support of interagency activities, such as this review committee and the R&D Subcommittee of the Community's Nonproliferation Committee.

But, the work of the review committee indicates that more needs to be done: a common program planning system should be in place that would permit tracking progress and resource allocation among the various agency efforts; a better system is needed for identifying gaps and overlaps in the effort; and a mechanism is required for technology transition from the laboratory to the field.

The review committee has recommended to the NSC the creation of a Nonproliferation and Counterproliferation Technology Working Group ("The Technology Working Group") within the National Security Council structure. This Technology Working Group would be charged with reviewing all the technology efforts underway in the various agencies that pertain to nonproliferation or counterproliferation. The Technology Working Group would also have authority to set priorities for non/counterproliferation technology efforts in the various agencies and to make specific resource allocation recommendations to the participating agencies, the NSC, the OSTP and the OMB. Moreover, the Technology Working Group would have representation from and a strong connection to the National Science and Technology Council. The Technology Working Group would be comprised of representatives with management, resource allocation, and program planning authority. The existing Research and Development Subcommittee of the Community Non-Proliferation Committee provides a good basis for building the Technology Working Group.

Technology development should not take place in a policy vacuum. Accordingly, the Technology Working Group would be integrated with the other working groups addressing important proliferation issues. Overall policy guidance would come from a new NSC-chaired Standing Committee of the IWG on Nonproliferation and Export Controls. This Standing Committee would have broad policy oversight and coordination responsibilities and bring together senior managers from the various agencies responsible for proliferation issues to assure communication and integrated management attention across all nonproliferation and counterproliferation efforts and working groups. A conceptual organization diagram is:



The review committee believes that the new organizational infrastructure would speed the selection of technological options to deal with the shortfalls identified in this report. Some funding of these options can be obtained by eliminating unnecessary redundancies within existing nonproliferation programs. Remaining funding will require changes to current agency budget plans for FY96 and later years. The new Technology Working Group can assist in formulating options that minimize overlap among agencies and that best achieve a coordinated effort among agencies, recognizing agency missions and budget ceilings.

Other significant steps are currently being taken by individual departments and agencies to strengthen their non/counterproliferation efforts. For example, the Department of Defense has a significant ongoing investment strategy process and the Chairman of the Joint Chiefs is reviewing the Service functions and combatant command missions.

The new consensus on nonproliferation policy that President Clinton called for last September requires, among other things, the creative use of technology and the reallocation of government resources. It is not easy to change the direction of the ship of state--especially when its course for over 45 years was primarily aimed at preparing for threats that have receded, while the problems of proliferation have grown and become more urgent. The actions of this review committee are designed to help steer the new course.

APPENDIX A.

USC Section Requiring Report

National Defense Authorization Act

for Fiscal Year 1994

SEC. 1605. JOINT COMMITTEE FOR REVIEW OF PROLIFERATION PROGRAMS OF THE UNITED STATES

(a) ESTABLISHMENT:—(1) There is hereby established a Non-Proliferation Program Review Committee composed of the following members:

(A) The Secretary of Defense.

(B) The Secretary of State.

(C) The Secretary of Energy.

(D) The Director of Central Intelligence.

(E) The Director of the United States Arms Control and Disarmament Agency.

(F) The Chairman of the Joint Chiefs of Staff.

(2) The Secretary of Defense shall chair the committee.

(3) A member of the committee may designate a representative to perform routinely the duties of the member. A representative shall be in a position of Deputy Assistant Secretary or a position equivalent to or above the level of Deputy Assistant Secretary. A representative of the Chairman of the Joint Chiefs of Staff shall be a person in a grade equivalent to that of Deputy Assistant Secretary of Defense.

(4) The Secretary of Defense may delegate to the Under Secretary of Defense for Acquisition and Technology the performance of the duties of the Chairman of the committee.

(5) The members of the committee shall first meet not later than 30 days after the date of the enactment of this Act. Upon designation of working level officials and representatives, the members of the committee shall jointly notify the appropriate committees of Congress that the committee has been constituted. The notification shall identify the representatives designated pursuant to paragraph (3) and the working level officials of the committee.

(b) PURPOSES OF THE COMMITTEE.—The purposes of the committee are as follows:

(1) To optimize funding for, and ensure the development and deployment of—

(A) highly effective technologies and capabilities for the detection, monitoring, collection, processing, analysis, and dissemination of information in support of United States nonproliferation policy; and

(B) disabling technologies in support of such policy.

(2) To identify and eliminate undesirable redundancies or uncoordinated efforts in the development and deployment of such technologies and capabilities.

(c) DUTIES.—The committee shall—

(1) identify and review existing and proposed capabilities (including counterproliferation capabilities) and technologies for support of United States nonproliferation policy with regard to—

(A) intelligence;

(B) battlefield surveillance;

(C) passive defenses;

(D) active defenses;

(E) counterforce capabilities;

(F) inspection support; and

(G) support of export control programs;

(2) as part of the review pursuant to paragraph (1), review all directed energy and laser programs for detecting, characterizing, or interdicting weapons of mass destruction, their delivery platforms, or other orbiting platforms with a view to the elimination of redundancy and the optimization of funding for the systems not eliminated;

(3) review the programs (including the crisis management program) developed by the Department of State to counter terrorism involving weapons of mass destruction and their delivery systems;

(4) prescribe requirements and priorities for the development and deployment of highly effective capabilities and technologies;

(5) identify deficiencies in existing capabilities and technologies;

(6) formulate near-term, mid-term, and long-term programmatic options for meeting requirements established by the committee and eliminating deficiencies identified by the committee; and

(7) in carrying out the other duties of the committee, ensure that all types of counterproliferation actions are considered.

(d) ACCESS TO INFORMATION.—The committee shall have access to information on all programs, projects, and activities of the Department of Defense, the Department of State, the Department of Energy, the intelligence community, and the Arms Control and Disarmament Agency that are pertinent to the purposes and duties of the committee.

(e) BUDGET RECOMMENDATIONS.—The committee may submit to the officials referred to in subsection (a) any recommendation regarding existing or planned budgets as the committee considers appropriate to encourage funding for capabilities and technologies at the level necessary to support United States nonproliferation policy.

(f) TERMINATION OF COMMITTEE.—The committee shall cease to exist six months after the date on which the report of the Secretary of Defense under section 1605 is submitted to Congress.

SEC. 1606. REPORT ON NONPROLIFERATION AND COUNTERPROLIFERATION ACTIVITIES AND PROGRAMS.

(a) REPORT REQUIRED.—Not later than May 1, 1994, the Secretary of Defense shall submit to Congress a report on the findings of the committee on nonproliferation activities established by section 1604.

(b) CONTENT OF REPORT.—The report shall include the following matters:

(1) A complete list, by program of the existing, planned, and proposed capabilities and technologies reviewed by the committee, including all directed energy and laser programs reviewed pursuant to section 1604(c)(2).

(2) A complete description of the requirements and priorities established by the committee.

(3) A comprehensive discussion of the near-term, mid-term, and long-term programmatic options formulated by the committee for meeting requirements prescribed by the committee and eliminating deficiencies identified by the committee, including the annual funding requirements and completion dates established for each such option.

(4) An explanation of the recommendations made pursuant to section 1604(e) and a full discussion of the actions taken on such recommendations, including the actions taken to implement the recommendations.

(5) A discussion of the existing and planned capabilities of the Department of Defense—

(A) to detect and monitor clandestine programs for the acquisition or production of weapons of mass destruction;

(B) to respond to terrorism or accidents involving such weapons and thefts of materials related to any weapon of mass destruction; and

(C) to assist in the interdiction and destruction of weapons of mass destruction, related weapons materials, and advanced conventional weapons.

(6) A description of—

(A) the extent to which the Secretary of Defense has incorporated nonproliferation and counterproliferation missions into the overall missions of the unified combatant commands; and

(B) how the special operations command established pursuant to section 167(a) of title 10, United States Code, might support the commanders of the other unified combatant commands and the commanders of the specified combatant commands in the performance of such overall missions.

(c) FORMS OF REPORT.—The report shall be submitted in both unclassified and classified forms, as appropriate.

SEC. 1607. DEFINITIONS.

For purposes of this subtitle:

(1) The term "appropriate congressional committees" means—

(A) the Committee on Armed Services, the Committee on Appropriations, the Committee on Foreign Relations, and the Select Committee on Intelligence of the Senate; and

(B) the Committee on Armed Services, the Committee on Appropriations, the Committee on Foreign Affairs, and the Permanent Select Committee on Intelligence of the House of Representatives.

(2) The term "intelligence community" has the meaning given such term in section 3 of the National Security Act of 1947 (50 U.S.C. 401a).

APPENDIX B.

Study Participants

Study Participants

Principals

Dr. John M. Deutch - Deputy Secretary of Defense - Chairman, NPRC
Dr. Gordon Adams - Office of Management and Budget
Dr. Ashton B. Carter - Department of Defense
Dr. Barry Carter, Department of Commerce
Mr. Robert L. Gallucci - Assistant Secretary for Political-Military Affairs, Department of State
Mr. John Holum - US Arms Control and Disarmament Agency
Dr. John G. Keliher - Director, Office of Nonproliferation and National Security - Department of Energy
Mr. Al Lieberman - Acting Assistant Director, US Arms Control and Disarmament Agency
Major General David McIlvoy, USAF - Deputy Director for International Negotiations, JCS, J-5
Dr. Joseph Nye - Chairman, National Intelligence Council
Dr. Gordon Oehler - Director, Nonproliferation Center
Mr. Daniel Poneman - National Security Council
Dr. Harold P. Smith - Assistant to the Secretary of Defense for Atomic Energy
Ms. Jane Wales - Office of Science and Technology Policy

NPRC Working Level Officials

Mr. Jerald Beiter - Department of Commerce
CDR W. Christman - Joint Chiefs of Staff
Mr. R. Stephen Day - US Arms Control and Disarmament Agency
Mr. Joseph DeThomas - Department of State
Ms. Shelley Deutch - Department of Commerce
Mr. Steve Dotson - Office of Management and Budget
Dr. Peter Feaver - National Security Council
LTC Chip Frasier - Department of Defense
Dr. James Fuller - Department of Energy
Mr. John Hartford - Nonproliferation Center
Mr. Brent Hartley - Department of State
Mr. Lonnie Keene, Office of Science and Technology Policy
Mr. Max Koontz - Department of Energy
LTC Dave Maki - US Special Operations Command
Mr. Cliff McFarland - Department of Defense
Mr. Carter Morris - Nonproliferation Center
Mr. James Nix - Office of Management and Budget
Mr. F. Ben Northrop - Nonproliferation Center
Mr. Vayl Oxford - Department of Defense
Mr. Dean Rust - Arms Control and Disarmament Agency
Dr. William Shuler - Department of Defense
Col. Jay Stobbs - Department of Defense

APPENDIX C.

Summary of Agency NP/CP Budget Plans

Planned Nonproliferation/Counterproliferation Funding by Functional Area (FY 95 Budget Authority)[1]

Agency	FUNCTIONS							
	Intelligence	Battlefield Surveillance	Passive Defense	Active Defense	Counterforce Capabilities	Inspection Support	Support to Export Programs	Counterterrorism
Department of Commerce *	–	–	–	–	–	–	$21.2	–
Department of Defense *	$24.1	$56.1	$322.4	$50.1	$9.4	$49.3	–	$10.7
Department of Defense **	$207.5	$507.0	$118.8	$300.0	$672.0	$17.3	$2.1	$55.1
Department of Energy **/2	$24.2	–	$6.6	–	–	$42.4	$17.4	$35.3
Department of State /3	–	–	–	–	–	$28.3	$0.9 /4	$1.8
Department of Treasury	–	–	–	–	–	–	$41.4	–
FBI **/5	–	–	–	–	–	–	–	–
ACDA *	$1.2	–	–	–	–	$6.0	$2.4	–
CIA ***								

1 * Unique to Non/counterproliferation; **Strongly Related to Non/counterproliferation; ***See Classified Annex
2 Strongly related technology base efforts are at $120 M for FY95.
3 Other related DOS efforts are at $16.4M.
4 This is an estimate based on FY94 projections for the Nonproliferation and Disarmament Fund (NDF). DOS has requested for FY95 $10 million as a part of the NDF, that may be used, among other things, to support export control assistance and enforcement efforts. The amount that would be applied to export controls has not been determined at this time. Also, this chart does not reflect the FY95 DOS request for salaries and other administrative expenses funds to support nonproliferation activities, including export controls.
5 Classified.

FY95 Nonproliferation/Counterproliferation by Threat

Agency	Nuclear		Ballistic Missile		Chemical		Biological	
	Unique	Strongly Related	Unique	Strongly Related	Unique	Strongly Related	Unique	Strongly Related
Department of Commerce	$5.3	–	$5.3	–	$8.5	–	$2.1	–
Department of Defense	$146.1	$486.3	$81.4	–	$337.3	$516.9	$317.0	$516.9
Department of Energy	–	$245.9	–	–	–	–	–	–
Department of State	$28.9	$4.1	–	$4.1	$0.6	$4.1	$0.6	$4.1
Department of Treasury	$10.4	–	$10.4	–	$10.4	–	$10.4	–
FBI	–	$95.3	–	$95.3	–	$95.3	–	$95.3
ACDA	$4.6	–	$1.2	–	$1.0	–	$2.8	–
CIA	–	–	–	–	–	–	–	–

APPENDIX D.

Discussion of Special Topics

Appendix D
ASSESSMENT OF OTHER NON/COUNTERPROLIFERATION AREAS

D.1 Counterterrorism

The Department of State's role in responding to the threat of terrorist use of Weapons of Mass Destruction (WMD) derives primarily from the lead and coordinating function assigned to the Office of the Coordinator for Counterterrorism. In that capacity, State helps coordinate the US government's interagency efforts to be better prepared to respond to a WMD terrorist event outside the United States.

Many of our activities in this area involve a number of US agencies that also support the Federal Bureau of Investigation (FBI). The FBI is charged with leading and coordinating the US response to domestic terrorist incidents, including those involving WMD. As a result, there is a great deal of coordination and interplay among the concerned US agencies, and especially between the co-lead agencies.

The Department's lead and coordinating role in foreign WMD terrorist response is managed through the activities of three interagency groups under the Interagency Working Group on Counterterrorism (IWG/CT), chaired by the Coordinator. The three interagency groups are:

- the Nuclear, Biological, Chemical Working Group
- the Technical Support Working Group
- the Exercises Working Group

Research and Development. The IWG/CT Technical Support Working Group (TSWG) plans for and executes the National Counterterrorism Research and Development Program. That program seeks to conduct rapid prototyping research and development focused on critical multi-agency and future threat counter/anti-terrorism requirements. Funds for TSWG projects are appropriated in the budgets of the Departments of Defense and State. As co-chair with the Department of Energy, the DoD (OASD-SO/LIC) arranges for program execution and administrative support through the Office of Special Technology, Naval Research Detachment, Ft. Washington, Maryland. The DOE co-chair (Office of Nonproliferation and National Security - OTA) is responsible for coordinating the existing infrastructure within the DOE National Laboratory system that is responsible for developing technologies to counter terrorism and weapons of mass destruction. Approximately 30 US agencies are represented on the TSWG and its various functional subgroups.

Within the TSWG, identifying technology, requirements and projects for responding to WMD terrorism is the primary concern of the Weapons of Mass Destruction Countermeasures Subgroup (WMDCS), which is co-chaired by the US Army Edgewood Research, Development and Engineering Center and the Department of Energy. The WMDCS Subgroup focuses on upgrading US capabilities:

- to detect and identify WMD agents and materials;
- to neutralize their effects;
- and to assist investigative efforts where such materials are suspected.

Since the TSWG was created in late 1986, nearly 30% of the funds appropriated by Congress for the National CT Research and Development Program have been allocated for R&D on WMD terrorism related matters. A brief outline of projects undertaken which specifically relate to enhancing the US capability to respond to WMD terrorism from FY 1987 to date is set forth below.

Chemical/Biological Terrorism Response Projects

A. Completed/Transitioned

Expedient Hood: Low-cost pocket-size hood to provide personnel protection in emergency situations against chemical contaminants. (In use by the US Secret Service; full production planned).

Mobile CB Laboratory: Chemical/biological field laboratory (Transportable Emergency Response Monitoring Module) and Support Module for use in counterterrorism applications. (Prototype operationally maintained by the Environmental Protection Agency).

Food And Medicine Monitor: System for the rapid detection of toxic substances in food and medicines. (Prototype operationally maintained by the FDA).

Vehicle Protection: Engineering modification; to special vehicles to protect occupants from the threat of outside chemical/biological agents. (Operationally in use by the US Secret Service).

CB Mitigation System: System employing aqueous foam to mitigate the dispersal of an explosively-driven chemical or biological terrorist device. (In use by US Army Technical Escort/emergency response teams).

Building Air Monitor/Zeeman Interferometry: Real-Time, non-specific screening of incoming building air for toxic agents. (Lab prototype completed).

Combination CB Detector: Continuous monitoring water and air for chemical (nerve) and biological agents. (Lab prototype completed).

Remote Agent Detector (Biological): Remote detection of hazardous biological clouds at stand-off ranges of 1 to 5 km. (Prototype completed).

Remote Detection Instrument (Chemical): Stand-along system to detect chemical agents from 1-km standoff range. (Discontinued project).

Water System Monitor: Unmanned system to detect contaminants in drinking water supplies. (Lab prototype completed).

Adsorbent Tube Material For Chemical Agent Sampling: Chemical adsorbent material to enhance collection of volatile chemical agents to allow transport to a lab for analysis. (Prototype provided to US Army Technical Escort Unit for testing).

CB In-Canister Detector (Non-Intrusive): System to detect, non-invasively, the presence or absence of chemical or biological agents in sealed containers. (In use by US Army Technical Escort Unit).

Rapid Response Ct Filed Chemical Analysis Capability: Integration of state-of-the art laboratory chemical agent analysis systems for filed deployment to support CT investigations. (Completed system is maintained and operated by FBI).

Miniature Chemical Vapor Detector: Small, rugged, low-power, RF-linked microsensor system capable of detecting toxic chemical vapors at low concentrations to provide safe margin for personnel safety. (Individual Units in use by emergency response teams; FY 93 funds will upgrade and integrate the system).

B. Active/New Start Projects:

Pocket Size CB Detector: Miniature hand-held Ion Mobility Spectrometer to detect and identify chemical vapors emitted by a terrorist device.

CB Aerosol Mitigation System: System to mitigate the effects of chemical or biological aerosol materials resulting from a detonated terrorist device by employing an actively scavenging particulate cloud.

Chemical/Biological Response System: Joint project (with the U.K. and Canada) to integrate work on containment aqueous foams and vented suppressive shielding into a single system for use by emergency response teams.

Portable Glow Discharge Mass Spectrometer: Develop a system capable of atmospheric monitoring of chemical vapor hazards utilizing an ionizing (e.g.. electron separation) mass-spec analysis.

CB Detection System/Dry Immunoassay: Develop a hand-held detector for detection of biological toxins, viruses, and pathogenic bacteria.

C. Nuclear/Radiological CT Response Projects

Decontamination Station (Nuclear): Self-contained portable facility for filed, radioactive "scrub-down: and decontamination." (Now in use by an emergency response team).

Stand-Off Nuclear Detection System: Remotely and covertly determine the presence of radioactive materials through the detection of radiation signatures. (Lab prototype completed; FY 93 funds to develop an RF-linked monitoring system).

Other International Initiatives. In concert with the governments of the United Kingdom and Canada, the US has undertaken a trilateral program to exchange information and to work jointly in the following areas to enhance our mutual capabilities in the filed of CB counterterrorism: research and development of equipment; incident management and investigative activities; consequence management procedures and activities; training and exercising of response forces; and intelligence assessment, modeling, and support activities in the filed of CB terrorism. These efforts are underway and appear very promising.

FY 95 and Beyond. In general, the R&D strategy for countering the threat of terrorists employing WMD is to provide a comprehensive approach for identifying and applying technology to the detection, identification, classification, neutralization, and mitigation of effects from known or suspected WMD devices which might be utilized by terrorists.

In the area of responding to CB terrorism, we are seeking to employ technologies to create man-portable and deployable systems that can non-intrusively detect and identify chemical or biological agents, and can warn and respond rapidly if these are employed in terrorist attacks. We are also seeking effective techniques and systems to suppress, mitigate or contain CB hazards which could derive from the use of improvised explosive devices. The probability that terrorists would employ these devices in an urban setting also requires us to delve further into blast shielding technologies with emphasis on rapidly deployable shields and filters. Systems employed must be specifically designed to provide blast and large particle aerosol impact mitigating effects, and to provide secondary containment of hazardous aerosols and vapors. Post-incident mitigation of chemical or biological hazards requires the identification and utilization of technologies similar to smoke particle deposition through specific aerosol adsorption/scavenging techniques.

The member agencies of the TSWG appreciate that funding for R&D to support nonproliferation and related requirements (especially for nuclear/radiological matters) is centered in other programs administered by specific agencies (e.g. DoD and DOE). Wherever possible, the counterterrorism

community seeks to make its requirements known so that equipment developed through other programs (e.g., the nonproliferation program) can, if possible, support counterterrorism requirements as well. We will continue to supplement these efforts through the National Counterterrorism R&D program where we have unique counterterrorism requirements not otherwise addressed or where a unique technical capability or opportunity exists to add to the body of knowledge or equipment needed to support counterterrorism and nonproliferation. In the area of responding to nuclear or radiological terrorism, we are seeking to identify and employ technologies which will enhance our capability to locate suspect nuclear and radiological materials and associated improvised explosive devises. Technologies which will enhance our capability to disassemble, render safe, deny use of, safely destroy or transport such devices are sought as well. Identification of technologies to assist in post incident mitigation of radiological hazards is another critical requirement.

D.2 Special Operations

The Department of Defense is now defining the overarching counterproliferation policy within DOD. Upon approval of that policy, the Chairman of the Joint Chiefs of Staff will define the counterproliferation mission area and, with the CINCs (including USCINCSOC) and the Services, will develop an assessment of Service functions and combatant command missions to support the Defense Counterproliferation Initiative. This definitional effort is scheduled to be completed following the formal issuance of the DOD counterproliferation policy statement. Until this assessment has been completed a description of the role of Special Operations Forces in counterproliferation is premature.

D.3 Directed Energy and Laser Technology Development

Because they are able to deliver lethal fluence at the speed of light with high precision, directed energy (DE) concepts were studied extensively during the 1992-1993 Boost Phase Intercept Study (BPIS). Three laser concepts designed to perform target negation during the boost or ascent phase of a missile's flight, when the targets are both easier to find (large plume signature) and more vulnerable (low kill flux and stressed missile body due to acceleration), were featured. The concepts were the space-based laser (SBL), the airborne laser (ABL), and an unmanned airborne vehicle (UAV) borne laser system called Defender. Obviously a key test of utility was the ability of the weapon system to address the targets in the boost phase. Particle beam (PB) weapons, especially the neutral particle beam (NPB), were not favored because their utility is limited to engaging long range missiles above the atmosphere, which rapidly extinguishes the beam below 120 km. Ground based lasers (GBL) were not preferred due to the small defended area, weather sensitivity, and target hardness. The same attributes that favored DE weapons for BPI extends to their potential use for counterproliferation.

The favored concepts from BPIS-SBL, ABL, and Defender-share many of the same technologies but with differing degrees of stress. For instance all three concepts use high power phase compensating mirrors to correct wave front error within the weapon system and along the propagation path to the target. The ABL stresses this technology the greatest due to its atmospheric propagation requirement. SBL has enhanced requirements for large projecting optics (necessary for its long range capability). Defender stresses power supply technology necessary to run its diode pumped, solid state lasers.

Each concept also carries with it non technical limitations and issues. Deployment requirements for Defender call for stationing it over enemy territory-a very provocative move. Furthermore, the presence of unmanned, semiautonomous weapons in air space shared by aircraft pilots should be of concern to the Air Force. The lethal range limitations of ABL against short-range missiles limits its use to small and moderate theaters. Both Defender and ABL can be adversely affected by weather conditions. The main detractor to the use of SBLs is the need to modify or abrogate the ABM Treaty.

The current programs developing these concepts are discussed in the following paragraphs:

Space-Based Laser Program: The BMDO space-based laser program includes two aspects: further development of chemical laser and a balloon-borne experiment. The goal of the chemical laser development efforts is to pursue those laser technologies with the greatest potential for making substantial

improvements in cost, weight, brightness and/or simplicity of operation. Developments are under way in uncooled optics, SBS phase compensation, autonomous alignment technology and HF overtone. The experimental program (ATP/FC) will provide an integrated, 1/4 scale system for deployment aboard a balloon. A full-up passive tracking demonstration will occur in FY97 and active tracking demonstrations in FY98 and FY99. The demonstration program will emphasize enhanced fine tracking techniques, fire control algorithm development and demonstration of autonomous operation against non-cooperative targets. A full spaceflight configuration will then be pursued under the Star LITE program.

Airborne Laser Demonstrator Program: The objective of the airborne laser demonstrator program is to demonstrate the potential of an airborne laser to destroy theater ballistic missiles during boost phase at long range. The program has two phases: the concept design phase (1994-1997) and the demonstration phase (1997-2000). Two competing chemical laser approaches are being pursued under phase 1. The Air Force program includes atmospheric characterization for long path lengths at high altitudes, atmospheric compensation and tracking (exploiting the rich base of research performed under previous BMDO and Navy efforts), laser device development and packaging for high altitude aircraft, and assessment of vulnerability criteria.

Ground-Based Laser Technology: The objective of ground-based laser (GBL) technology development is to obtain the required information to support DOD system acquisition decisions for GBL systems in a satellite negation application. The technology efforts include the development, scaling, and demonstration of (1) chemical oxygen-iodine laser (COIL) device technology; (2) high energy laser optical component technology; (3) adaptive optics and artificial beacon technologies to compensate for the degrading effects of turbulence in the atmosphere; (4) target acquisition, tracking, and beam pointing technologies, for accurate laser propagation to a desired aimpoint; and (5) the definition of GBL satellite-negation system concepts and effectiveness, through the assessment and validation of the vulnerability of target satellites to laser engagements, and the development and refinement of system-negation application. Much of this activity is synergistic with technology development efforts supporting the Airborne Laser concepts, discussed in the previous paragraph.

Ground-Based High Resolution Optical Imaging: Technology development for ground-based optical imaging involves the development and demonstration of techniques for (1) high resolution passive imaging; (2) high resolution active imaging; and (3) LADAR discrimination and imaging. Passive imaging approaches are more near-term, but are limited in application to low-Earth orbit, sun-illuminated satellites. Active imaging techniques require the illumination of the satellite to be imaged, but offers the potential for a 24-hour imaging capability and scalability out to geosynchronous altitudes. LADAR discrimination and imaging is another active concept which employs different phenomenology and image reconstruction techniques, potentially providing additional information about the target object. Laboratory field demonstrations with a new 3.5-meter telescope and supporting facilities (located at the Phillips Laboratory, Kirtland AFB) will establish the feasibility and performance of these techniques. Technology transition to an operational high resolution imaging capability is facilitated by an on-going AF program for the development and activation of a 3.67-meter telescope at the Air Force Maui Optical Station, Hawaii.

Laser Detection and Characterization of CW/BW Agents: The Army CW/BW programs include a development of lasers for detection and characterization of CW and BW agents, as described below:

Corps/Theater Level Bio-Detection: This effort will product three prototype LIDAR-IR detectors in the next two years that will provide long range (40-60 km) standoff detection of potential biochemical clouds. Further targeting discrimination will be performed by other biodetectors.

Intermediate Range Biodetector: This detector will be used to discriminate organic clouds from non-organic clouds at intermediate distances (less than 40-60 km). The detector will be based upon UV interrogation of the target cloud and measurement of its spectral response. Technology feasibility is expected to be known by 1998/99.

Point Detection: The use of Biologic Integrated Detection Systems (BIDS) provides an array of options for point detection:

- Particle size analysis at intake units
- Flocitometer to strain molecules for positive/negative biodetection
- Biolumometer for positive/negative biodetection

Amino Assay Systems: Assay systems to provide positive/negative biodetection with discrimination of up to four different agents (potentially 12-20).

LADAR Remote Sensing: The LADAR discrimination and imaging program discussed in the previous paragraph is also being augmented (through a joint AF-DIA program) to demonstrate the potential and performance for long range remote sensing applications. Initial testing of this capability will be ground-based, but the ultimate application of interest is aboard an aircraft. Such a mobile platform, coupled with the expected long-range capability for remote sensing, potentially supports remote optical detection and characterization of chemical effluents indicative of proliferation activities under a wide range of scenarios.

Chemical Analysis by Laser Interrogation of Proliferation Effluents (CALIOPE) Program: The emphasis of the CALIOPE program is on demonstrating the capability of laser systems to identify and quantify effluents indicative of nuclear proliferation. The CALIOPE program will develop and demonstrate laser-based systems for remote optical detection and characterization of chemical effluents from proliferation activities, beginning with laboratory and field evaluations, then progressing, where feasible, to other proof-of-concept demonstrations. Currently the focus is on developing technology and advancing the state-of-the-art. Field tests with effluent releases will be performed to validate the technology. As techniques are shown to be effective, proof-of-concept demonstrations will be performed to move them closer to consideration for operational systems. Inputs from end users will be incorporated into the program to ensure that the final system meets their needs. Dual-use and spin-off technologies may be utilized for environmental monitoring, drug detection and military applications. Information generated within the program will be available to other Federal agencies through yearly program reviews, technical laboratory reports, and open literature publications.

The approach taken under this program is as follows: signature effluent identification and spectral characterization, laser modulation transmitter and detector/receiver development, component development (frequency agile lasers, ruggedized detectors, and new non-linear materials), ground and elevated platform field experiments, airborne and satellite demonstrations, and several supporting projects (e.g., remote sensor test range). This multi-laboratory effort is pursuing a range of approaches: gas-phase lasers, UV fluorescence (DIAL), solid state lasers, resonance RAMAN, and FM-DIAL.

APPENDIX E.

Acronyms

Appendix E
ACRONYMS

ABL - Airborne Laser
ACDA - Arms Control and Disarmament Agency
AG - Australia Group
ASD (ISP) - Assistant Secretary of Defense (International Security Policy)
ATR - Automatic Target Recognition
BMDO - Ballistic Missile Defense Organization
BPIS - Boost Phase Intercept Study
BPIS-SBL - Boost Phase Intercept Study - Space Based Laser
BW/CW - Biological Warfare/Chemical Warfare
BWC - Biological Weapons Convention
BXA - Bureau of Export Administration
C3I - Command, Control, Communications, Intelligence
CALIOPE - Chemical Analysis by Laser Interrogation of Proliferation Effluents
CB - Chemical/Biological
CBIR - Chemical/Biological Incidence Response
CINC - Commanders in Chief
CNPC - Community Nonproliferation Committee
CNS - Committee on National Security
CTBT - Comprehensive Test Ban Treaty
CTR - Cooperative Threat Reduction Program
CWC - Chemical Warfare Convention
CWC PrepCom - Chemical Weapons Convention Preparatory Commission
DE - Directed Energy
DIA - Defense Intelligence Agency
DOC - Department of Commerce
DOD - Department of Defense
DOE - Department of Energy
DTAG - Defense Trade Advisory Group
DTSA - Defense Technology Security Administration
EA - Export Administration
EE - Export Enforcement
EOD -Explosive Ordnance Disposal
FBI - Federal Bureau of Investigation
FSU - Former Soviet Union
GBL - Ground Based Laser
HF - High Frequency
IAEA - International Atomic Energy Agency
INA - International Nuclear Material Tracking and Analysis
INF - Intermediate-range Nuclear Forces
ISTC - International Science and Technology Center
ITAR - International Traffic in Arms Regulations
IVI - ACDA Bureau of Intelligence, Verification and Information Support
IWG - Interagency Working Groups
IWG/CT - Interagency Working Group/Counterterrorism
JCS - Joint Chiefs of Staff
JDISS - Joint Deployable Intelligence Support System
JWICS - Joint Worldwide Intelligence Support System
LADAR - Laser Radar
LIDAR - Light Detection and Ranging
MASINT - Measurement and Signals Intelligence
MC&A - Material Control and Accounting
MCTL - Military Critical Technologies List
MTCR - Missile Technology Control Regime
NBC - Nuclear, Biological, Chemical
NBL - New Brunswick Laboratory
NDAA 94 - National Defense Authorization Act 1994
NEST - Nuclear Emergency Search Team
NIS - Newly Independent States
NMMSS - Nuclear Materials Management and Safeguards Systems
NP/CP - Nonproliferation/Counterproliferation
NPB - Neutron Particle Beam
NPC - Nonproliferation Center
NPT - Treaty on the Non-Proliferation of Nuclear Weapons
NSC - National Security Council
NSC/DC - National Security Council/Deperties Committee
NSC/PC - National Security Council/Principals Committee
NSG - Nuclear Suppliers Group
NSTC - National Science and Technology Council
OCONUS - Outside the Continental United States
OMB - Office of Management and Budget
OSTP - Office of Science and Technology Policy
PB - Particle Beam
PDD - Presidential Decision Directive
POTAS - Program of Technical Assistance to IAEA Safeguards
PRD - Presidential Review Document
RDSC - Research and Development Subcommittee
RF - Radio frequency
SAR - Synthetic Aperture Radar
SEA - ACDA Bureau of Strategic and Eurasian Affairs
SIGINT - Signal Intelligence
SSD - Safety, Security and Dismantlement
ST - Strategic Transition Division, ACDA
START - Strategic Arms Reductions Talks
THAAD - Theater High Altitude Air Defense
TMD - Theater Missile Defense

TSWG - Technology Support Working Group
U.K - United Kingdom
UAV - Unmanned Air Vehicle
UGS - Unmanned Ground System
UNSCOM - United Nations Special Commission on Iraq
USAF - United States Air Force
USC - United States Code
USCINCSOC - US Commanders in Chief, Special Operations Command
USML - US Munitions List
UV - Ultra-Violet
WMD - Weapons of Mass Destruction
WMDCS - Weapons of Mass Destruction Countermeasures Subgroup
ZC - Zangger Committee