

## A. DEFENSE TECHNOLOGY TRANSFER MANAGEMENT AND OVERSIGHT

The Defense Department operates a decentralized technology transfer program. The Military Departments are recognized as separate agencies for program implementation. The objective is to transfer technology between the public and private sectors. The information below is intended to look at the ongoing activities helping us achieve this objective.

Communication is necessary within and between Defense Department technology transfer activities as well as with potential and existing partners in the private sector. The Defense Technology Transfer Working Group (DTTWG) is a key element in communication within the DoD. Other tools being used to enhance communication and understanding of technology transfer are the Federal Laboratory Consortium for Technology Transfer (FLC), DoD Workshops such as the Technology Transfer Integrated Planning Team (TTIPT), the Defense Technology Transfer Information System (DTTIS), websites such as TechTRANSIT, policy such as the new DoD Directive and Instruction on Technology Transfer, and other meetings and activities. The results of a study on the value of CRADAs to DoD was published in April 1999. To further the awareness and use of technology transfer mechanisms, information on mechanisms and policy was submitted for incorporation into the Defense Acquisition Deskbook.

### DoD Technology Transfer Policy

The DoD Directive 5535.3, "DoD Domestic Technology Transfer Program," was signed on May 21, 1999. This Directive institutionalizes policy on domestic technology transfer and stresses the importance of technology transfer as a key activity within DoD. The Directive's accompanying Instruction 5535.8, "DoD Domestic Technology Transfer Program," was also issued in May 1999 and identifies specific procedures for technology transfer implementation. These two documents ensure technology transfer activities are integral elements of DoD's pursuit of its national security mission and have a high priority role in our programs.

### Defense Technology Transfer Working Group (DTTWG)

The DTTWG was established in 1994 and is comprised of representatives from each of the Military Departments and most of the Defense Agencies. This group meets monthly to review technology transfer issues requiring either consistent policy or approach from a joint DoD perspective. The issues for FY 99 included:

- implementation of the new Directive and Instruction on the DoD Domestic Technology Transfer Program
- review and comment on the Department of Commerce's Biennial Report to Congress on Technology Transfer
- management of unplanned funding for DoD technology transfer activities (MSU TechLink and Commercialization of Technology to Lower Defense Costs)
- policy for donation of research equipment under 15 USC 3710(i), 15 USC 3710a(b), and 10 USC 2194
- patent rights under CRADAs when in-house contractor participates as the "government" contribution
- use of Partnership Intermediaries to assist in transferring technology
- Intellectual Property Management Information System (IPMIS) developed by the Navy and modified for the Air Force with potential use by the Army. (Further information on the IPMIS can be found in Appendix C)

## Technology Transfer Mechanisms

The DoD is using a variety of technology transfer mechanisms to enable spin-off, spin-on, and dual use of technologies. These mechanisms include Cooperative Research and Development Agreements (CRADAs), Patent License Agreements (PLAs), Educational Partnership Agreements (EPAs), and programs discussed in other sections of this report (SBIR, DU S&T, COSSI, ManTech). We had 1638 active CRADAs as of October 14, 1999, providing the ability to work with the private sector in a manner that is unique to this mechanism. We appreciate Congress' intent to transfer technology to the private sector when it passed legislation enabling us to work in a collaborative manner with industry via CRADAs. As elaborated later in this section, CRADAs have proven beneficial to both the DoD as well as private industry.

PLAs enable DoD to license technology when that is the best way to get technology used by the private sector. As of October 1, 1999, we had 260 active licenses generating \$1.5M in royalty income and allowing DoD-developed technologies to be used by the private sector. DoD paid about \$1.5M to the Patent and Trademark Office for fees associated with obtaining and maintaining patents.

Within DoD, the three Services have been emphasizing the use of Educational Partnership Agreements (EPA). DoD has a significant number of formal EPAs with universities and community colleges as well as local public school districts (i.e., the Air Force has over 100 EPAs). The EPA, as defined under 10 U.S.C. 2194 for DoD, is a formal agreement/mechanism between a laboratory and an educational institution to transfer and/or enhance technology applications; provide technical assistance; exchange personnel; and loan/donate educationally useful laboratory equipment for all levels of education (pre-kindergarten and up).

## DoD Technology Transfer Integrated Planning Team (TTIPT) Workshop

The DoD TTIPT Workshop was held for the fourth time in November 1999 and hosted by the Army. 100 technology transfer professionals gathered to discuss joint projects, best practices, lessons learned, and to hear about technology transfer successes. Each Service provided an update on its technology transfer program implementation, 4 of the Partnership Intermediaries provided information on how they are helping to transfer technology in their local areas, and information on other DoD programs with potential leverage for technology transfer were highlighted. A training session on developing business plans for transferring technology at the local laboratories was provided. Success stories highlighting how the successes were achieved were provided for: Semiconductors, National Automotive Center, Chemical Feedstock Technologies, Manufacturing Technology Curriculum Enhancement, and Smart Antennas. Additionally, roundtable discussions were held on international CRADAs and issues, best practices in marketing patents/technology, and royalty rate estimation.

## Federal Laboratory Consortium for Technology Transfer (FLC)



The Military Departments and Defense Agencies have been participating in the Federal Laboratory Consortium for Technology Transfer (FLC) through financial support (see Table 1) and participation in meetings by their technology transfer focal points, serving as committee chairs, and actively supporting interagency laboratory projects. The FLC provides an opportunity to share information with other Federal agency technology transfer professionals and learn about methods employed in other agencies that could help DoD. The FLC also provides a forum for joint work efforts and consolidation of activities. The FY 99 FLC National Meeting, held in the spring, provided an opportunity for DoD to hold its fifth joint

session bringing the Military Departments and Defense Agency representatives together for an information sharing session.

**FY 99 DoD Support to FLC**

Navy	\$ 252,360.00
Army	\$ 164,888.00
Air Force	\$ 109,624.00
BMDO	\$ 27,976.00
DoD HQ	\$ 39,928.00
DARPA	\$ 24,288.00
Joint Chiefs	\$ 5,560.00
Defense Special Weapons Agency	\$ 5,320.00
Defense Information Systems	\$ 4,304.00
US Special Operations	\$ 3,688.00
Defense Logistics Agency	\$ 2,608.00
Operations Test & Evaluation	\$ 1,592.00
<b>Total</b>	<b>\$ 642,136.00</b>

Source: National Institute of Standards and Technology

**FLC Award Winners**

The FLC Annual Awards for Excellence in Technology Transfer recognize laboratory employees who have done outstanding work in the process of transferring lab-developed technology. Nominations are made by the laboratory representatives and are judged by a panel of experts in the field of technology transfer. The 1999 Department of Defense winners are:

- Jack Briggs, Michelle Richardson, and Dr. Andre Senecal of the U.S. Army Soldier and Biological Chemical Command (SBCCOM), Natick Soldier Center (NSC), for the development of military rations that look freshly prepared yet can be kept at room temperature for up to three years;
- Dr. Mark Spano and Dr. Visarath In of the Naval Surface Warfare Center, Carderock Division, for the application of chaos control techniques to human biological systems—cardiac fibrillation and epileptiform behavior in the brain;
- Chris Bozada, Charles Cerny, Greg DeSalvo, Ross Dettmer, Jack Ebel, Tom Jenkins, Jim Gillespie, Kenichi Nakano, 1Lt. Carl Pettiford, Tony Quach, Jim Sewell, G. David Via and 1Lt. Ryan Welch of the U.S. Air Force Research Laboratory (AFRL), for the transfer of AFRL's patented thermally-shunted heterojunction bipolar transistor technology (TSHBT). The TSHBT is an electronic device that has state-of-the-art performance for microwave power amplification. It allows large power devices to be made smaller with less heat dissipation, saving space and energy;
- Dr Ranganathan Shashidar of the Naval Research Laboratory (NRL), for the development of novel liquid crystal displays (LCDs) and design of plastic substrates for LCDs that offer numerous commercial applications of the technologies which include flat panel displays of all kinds;
- Joseph Gottschlich of the U.S. Air Force Research Laboratory, Propulsion Directorate, for the transfer of a performance-enhancing refrigerant additive (QwikBoost) to commercial products which will reduce heating and cooling costs.

More detailed summaries of these technology transfer awards can be found in Appendix C.

### DoD Representatives to the FLC

DoD representatives serve in both elected and nonelected positions with the FLC. These leadership functions facilitate sharing of information with other Federal departments and agencies and contribute to specific technology transfer activities. The following DoD personnel hold positions in the FLC:

FLC Position	Name/Organization
FLC Vice Chair Chair, Planning and Policy Committee	David Appler, DTIC
Chair, Awards Committee	Sue Ibrahim, Army Yuma Proving Ground
Co-Chair, Legal Issues Committee	David Spevack, Office of Naval Research
Chair, Education Committee	Linda Jenkins, Naval Research Laboratory, Stennis Space Center
Chair, Southeast Region	Ed Linsenmeyer, Naval Surface Warfare Center, Coastal Systems Station
Chair, Program Committee	Norma Cammarrata, Army Research Laboratory
Chair, Training Committee Co-Chair, Mid-Atlantic Region	John Griffin, Army Topographic Engineering Center
Chair, Information Systems Committee	Michael Rausa, Army Research Laboratory (Aberdeen)
Co-Chair, Mid-Atlantic Region	Richard Dimmick, Army Research Laboratory (Aberdeen)
Chair, Far West Region	Michael Sullivan, Naval Air Warfare Center, Weapons Division, Point Mugu

In addition to the above positions, Mr. John Todaro, Director, Office of Technology Transition, Office of the Deputy Under Secretary of Defense for Science and Technology and Mr. David Rossi, Department Head, Industrial Programs, Office of Naval Research are currently serving on the National Advisor's Board to the FLC.

### Web Sites



New information of interest to the technology transfer community is continuously posted on DoD's TechTRANSIT web site. The TechTRANSIT web site is the gateway to DoD technologies promoting partnering opportunities between the private sector and Defense laboratories. Features available on TechTRANSIT include the ability to access patented DoD technologies available for licensing, a DoD laboratory web site search capability, and information on nontraditional acquisition mechanisms available for use in partnering with DoD. Features of the Month include reports such as "Foreign Participation in Cooperative Research and Development Agreements (CRADAs)" and "DoD Cooperative R&D Agreements: Value Added to the Mission". Updated information is also available on how to use and submit applications to the Laboratory Reimbursement Fund; a fund that provides critical funding to DoD laboratories to further develop environmentally sound technologies for commercialization. The site address is [www.dtic.mil/techtransit](http://www.dtic.mil/techtransit).

## Defense Technology Transfer Information System (DTTIS)

DTIC maintains the DTTIS in cooperation with the Military and Defense agencies. As of December 31, 1999, the DTTIS contained project information on 3,265 DoD Technology Transfer Activities, including 1,671 active CRADAs and 174 active PLAs. Approximately 100 Technology Transfer professionals are registered to use the DTTIS secure World Wide Web site to view and analyze T2 data. 1999 input into the DTTIS included 476 new records and 1578 modifications.

## Commercialization of Technologies to Lower Defense Costs Initiative

The Congress provided funding in the Army's Environmental Quality Technology budget line for this program in FY 98, FY 99, and FY 00. The objective of this program is to lower U.S. Defense procurement costs by promoting the commercialization of Federal laboratory technologies which can assist in resolving environmental quality concerns. A portion of this funding has been reserved for the Laboratory Reimbursement Fund (LRF) to support transfer of environmental technologies into production for use by both the military and commercial sectors. Several DoD laboratories have begun working with private sector partners to ensure their technologies can be commercialized. Thus far, \$1M has been made available through the LRF with about half going to DoD activities.

## Interagency Working Group on Technology Transfer (IAWG/TT)

The three Military Services and DoD participate with the other Federal Agencies on the IAWG/TT chaired by the Department of Commerce. This working group has looked at technology transfer implementation in the various departments, how it varies based on Agency mission, and what we can learn from each other to improve our programs. It has also reviewed international partners in CRADAs, when they should be allowed, and how to assess potential concerns arising in these instances. The Department of Commerce will be issuing its Biennial report on Technology Transfer in early spring of 2000 and will highlight other efforts of the IAWG/TT.

## Partnership Intermediaries

Partnership Intermediaries (PIs) can be a contract or a Memorandum of Understanding with agencies of state or local governments or other entities chartered and/or funded by state or local government. Entities serve as intermediaries in performing services for the laboratory that increase the likelihood of success in conduct of cooperative or joint activities for the laboratory with small business firms. PIs provide the ability to leverage local educational resources, as well as state and local governments which appropriate more money than the Federal government in terms of technology based economic development. PIs are agencies for state or local government or a nonprofit entity assisting small businesses, thus enhancing the small business ability to participate in government projects with technology transfer. Five PIs are highlighted below.

### *The Federal Technology Center (<http://www.theFTC.com>)*



The Federal Technology Center (FTC), North Highlands, California is the Partnership Intermediary for the Defense Microelectronics Activity (DMEA), a Department of Defense applied engineering organization in Sacramento, CA. The FTC assists DMEA in the development of technology related partnerships and small business programs.

As an example, CRADAs were signed with Sanders, a Lockheed Martin Company of Nashua, New Hampshire and with Austin Semiconductor, Incorporated (ASI) of Austin,

Texas. The Lockheed Martin agreement focuses on microelectronics and microelectronics-based systems design, development and fabrication of devices and systems for solutions to diminishing manufacturing sources and material shortages. The agreement provides the Lockheed Martin Corporation access to the vast knowledge base and tools that DMEA uses in dealing with the obsolescence issues facing the Department of Defense. The ASI agreement focuses on gamma irradiation testing of electro-optic/fiber-optic systems and electronic device manufacture, test, and failure analysis. Both of these agreements are intended to support the DoD's initiatives furthering the use of commercial-off-the-shelf components in fielded military systems and solving problems with diminishing manufacturing sources. Results of these partnerships will enhance timely application of commercial microelectronic technologies into military systems at reduced cost and risk. In addition, other CRADAs are in development.

The FTC is also assisting DMEA to establish educational partnership agreements with local colleges and universities that have electronic engineering programs. The agreements are designed to enhance the college or university electronic engineering programs while providing recruiting opportunities for DMEA.

The FTC assists DMEA's small business program by providing training and hands-on assistance to small businesses interested in contracting or partnering with DMEA. Small business support includes DoD Central Contractor Registration, DMEA vendor registration, General Service Administration multiple award schedules, and other contracting assistance as required. Over 30 small businesses have been trained or assisted over the past year.

#### **MSU TechLink (<http://techlink.msu.montana.edu/>)**



The TechLink Center at Montana State University and Edwards Air Force Base have signed a two-year Memorandum of Understanding to implement a new technology transfer and commercialization program.

This new program, called TechLink, will focus on assisting all DoD laboratories in their technology transfer efforts in the Northwest United States. TechLink will bridge the gap between the needs of regional businesses and industries and the technology-related resources of Federal laboratories. Benefits to DoD laboratories include increases in the numbers of CRADAs and licenses representing technology transfer taking place. TechLink efforts are aimed at important regional industries, including agriculture, forest and wood products, and mining, as well as the emerging high tech sectors of environmental technologies, electronics, information technology, photonics, and biomedical technologies. TechLink's efforts will also support DoD's Dual Use and SBIR objectives.

TechLink has already developed a successful track record for linking regional businesses and industries with the technology and know-how available from NASA. Now, with DoD as a client, TechLink has the opportunity to develop mutually beneficial relationships between DoD laboratories and companies in the Northwest.

### *New Mexico Tech*

The Air Force and the State of New Mexico has had a formal partnership agreement in technology transfer for over sixteen years. Initially the agreement was through the New Mexico State Economic Development Department, however, over the last four years it has been through New Mexico Tech, the State's official partnership intermediary with the Air Force. To date, the New Mexico Tech has supported the development of over: 140 CRADAs, 60 EPAs, 90 SBIR technical and business support activities (projected new revenues of over \$150M), and 20 technical assistance agreements and interactions with states/labs relative to partnership intermediary development.

In addition, the Carnegie Commission has sited New Mexico Tech as a national model for technology transfer partnerships. The Air Force's highest award for technology transfer was given to AFRL's Phillips Research Site for their state and/or local government community/education outreach (over 120 schools statewide) which is coordinated by the New Mexico Tech.

### *New York State Technology Enterprise Corporation (NYSTEC) (<http://www.nystec.com>)*



Founded in 1995, the New York State Technology Enterprise Corporation (NYSTEC) is a not-for-profit technology engineering and commercialization company co-located with the Air Force Research Laboratory's Information Directorate (AFRL/IF) at the Rome Research Site in Rome, NY. The company's mission is to

accelerate deployment of advanced information technologies to government and industry. NYSTEC develops and evaluates technologies in a diversified set of markets, including communications, computer networks, criminal justice, environment, transportation and manufacturing. The company adapts AFRL technology, taps into AFRL expertise, and develops new high-tech solutions to benefit government and industry.

NYSTEC and AFRL/IF cooperatively develop and transfer technology through the use of Partnership Intermediary Agreements (PIAs) and CRADAs. Through the PIA, NYSTEC engineers work side by side with AFRL/IF engineers to leverage technology research and development investments, and transfer mature technologies to create innovative solutions for non-defense client needs for the betterment of small businesses. Through CRADAs, NYSTEC and AFRL/IF conduct joint research on projects of mutual benefit to the Government and NYSTEC and in turn to NYSTEC's sponsor, New York State.

NYSTEC and AFRL/IF have a number of CRADAs for the development of technologies that will benefit New York State, and potentially the nation as a whole. Among them are: 1) the development of the specifications and implementation plan for a Statewide Police Communications System using software programmable radio technology developed by AFRL; 2) the development of a New York State Advanced Telecommunications (NYSAT) system to be used by New York State agencies, departments and citizenry which uses AFRL/IF technologies in satellite communications (SATCOM), fiber-optic ground-based communications, wireless communications, etc.; 3) the adaptation of an AFRL/IF technology for use by New York State in detecting medicare fraud, waste, and abuse; 4) development of the computer security policies and procedures for a New York State Intranet (NYT); and 5) determination of state-of-the-art of technologies supporting a potential Case Management Information System for New York State Agencies (useful also for AF Judge Advocates Offices). The results of each of these CRADAs will greatly benefit New York State by improving State agency operations efficiency, decreasing infrastructure cost to the State, improving State interagency communications and cooperation, and making state government more accessible to the citizens of New York State. In addition,

each of these developments have potential to being incorporated into AF programs/offices to increase the security, efficiency, and communications of AF operations.

### **Wright Technology Network (<http://www.wtn.org>)**



Wright Technology Network (WTN) is the Technology Transfer Intermediary for the five Wright Research Site (WRS) Directorates of the Air Force Research Laboratory (AFRL) at Wright-Patterson Air Force Base (WPAFB). WTN is a not-for-profit corporation. The State of Ohio provides principal funding, with additional funding provided by the WRS, NASA, DOE, EPA, and other agencies. WTN facilitates

CRADAs, Technical Assistance Tasks, and Commercialization of Air Force technologies.

At year's end, WTN had 26 active CRADAs to its credit and an additional seven that were completed during 1999. In addition, eight new potential CRADAs were in the process of being formalized. Furthermore, 34 Technical Assistance Tasks were active and 40 had been completed during 1999. During 1999, four major funded commercialization efforts for Air Force technologies were underway; three initial market assessments were accomplished; six issued patents were reviewed; and 27 new invention disclosures were reviewed.

WTN also provides assistance to the WPAFB Education Outreach (EO) Office to community K-12 schools. One of the many projects in the EO office is the "Tech-Trek" Mobile Research Laboratory that is equipped with a scanning electron microscope to bring science to the K-12 classrooms. WTN is an active participant in the DoD High Performance Computing Modernization Program (HPCMP) at the Aeronautical Systems Center's Major Shared Resource Center (MSRC), WPAFB.

## **Special Studies**

### ***Defense Acquisition Deskbook***

In FY 99 a collection of information on technology transfer was submitted for incorporation into the Defense Acquisition Deskbook. The Defense Acquisition Deskbook is an electronic knowledge presentation system providing the most current acquisition policy and guidance for all DoD Services and Agencies. Information submitted to the Deskbook includes: the new DoD Directive and Instruction on domestic technology transfer, technology transfer laws, description of available technology transfer mechanisms, model CRADAs, and success stories. This information should be available on the Deskbook in March 2000.

### ***DoD Cooperative R&D Agreements: Value Added to the Mission***

A study was commissioned in FY 98 to evaluate a sampling of DoD CRADAs to assess the benefits that the DoD is reaping from participating in these agreements. Many interesting findings were deduced from the information gathered from the interviews with the federal and non-federal CRADA partners on their particular collaborations. The following findings were recurring themes described by participants in the collaborations.

- CRADAs are seen by many DoD laboratories as mission extenders
- CRADAs can provide a means for industry to talk openly with Government
- CRADAs can advance research to points that would otherwise have taken longer to achieve independently

- CRADAs can provide access to Government/Military facilities that are not otherwise commercially available
- CRADAs can result in new, improved, or more cost effective products/processes
- CRADAs can eliminate interpersonal barriers that can arise in a contractual relationship
- CRADAs are successful when objectives are clearly laid out
- CRADAs can advance research for both partners sometimes leading to new programs/contracts
- CRADAs that result in follow-on CRADAs between organizations is an indicator of progress

In supporting the belief that successful CRADAs should lead to commercial products, many of the CRADAs that were selected for evaluation in this study resulted in products or product improvements. Some of the products are either still in development or pending commercialization, however, they are at stages where they are considered to be viable products. In some cases, the use of DoD facilities or test sites provided a means for products to be further refined as a result of the data gathered by the industry partner.

In reviewing the sample of CRADAs selected, it is apparent that these collaborations do not take a simple linear route to commercialization and may only serve as one step in a series of steps along the route. Each partnership is unique in its process to meet its objectives. Some CRADA partnerships are a continuation of an earlier contractual partnership for the purposes of bringing a technology into the commercial sector. Some CRADAs lead to a patentable product or process bringing dollars back to the laboratory. Some CRADAs leverage R&D dollars and make small advances in a specific technological area which over time (and maybe many CRADAs later), may lead to a product or process that the DoD can access.

This evaluation also showed that by pooling resources through the use of a CRADA, DoD as well as the industry partner can stretch their limited R&D dollars resulting in larger research efforts than either party could fund independently. The work-in-kind contributed by both the Federal and non-Federal partners was estimated for 28 out of the 30 CRADAs evaluated in this study (assumed 1 man-year equal to \$100K). The work-in-kind contributed by the Federal participants was estimated to be \$4,758,850.00 with that of the non-Federal participants estimated to be \$5,836,312.00. In extrapolating the figures for work-in-kind contributions for these 28 CRADAs, one can estimate the contributions for the 2456 CRADAs (cumulative since CRADAs were authorized). In doing so, the estimate for work-in-kind for the Federal partners is \$417,419,128.00 and that for the industry partners is \$511,927,938.00.

The amount of "cash-in" that the DoD laboratories are receiving from CRADAs is significant and has been increasing over time. These actual dollars that are coming into the laboratories cover such costs as overhead, materials, third party contracts, and travel expenses. For FY 98, the total cash-in for DoD CRADAs was \$31,046,098.00. Collectively, the resources being committed to CRADAs by both industry and the DoD is comparable to other industry/government collaborative programs. In fact, in FY 98 income resulting from DoD patent licensing amounted to \$1,559,387.00. The figures for both work-in-kind and cash-in illustrate the importance industry is associating with the CRADA mechanism as well as the significant contribution partnering is making to the DoD mission. In times of constrained R&D budgets, whether it be a small business, a large business or a DoD laboratory, the public and the private sector can benefit from leveraging expertise that lies outside of their own labs in areas of mutual interest. It is evident from this study, that the

CRADA mechanism is the mechanism of choice for accomplishing these partnerships. Drawing upon external expertise can provide the means to overcome obstacles that arise along the path to new discoveries or even determine that the path being pursued is leading to a dead-end and another needs to be followed. New knowledge can lead to advancing the research to the next level in the development cycle or can spawn new ideas leading to new R&D programs altogether.

## Service/Agency Highlights

The decentralized approach to managing the technology transfer program in DoD enables each activity to accomplish what best meets their mission requirements. Some highlights of these activities, which are also providing value to the commercial sector, are broken out by Military Department and Agency in Appendix C.

## Future Goals

The three Service laboratories have set a number of goals for FY 00. These goals include: 1) continue to conduct training in technology transfer for the Office of Research and Technology Applications (ORTAs), legal staff, S&Es and R&D managers with an emphasis on intellectual property; 2) expand marketing efforts to include enhancing individual laboratory web sites and creating brochures featuring technology licensing opportunities, unique facilities that are available for use by the commercial sector as well as in-house technical expertise; 3) expand current efforts to identify technologies with the greatest potential for commercialization thereby enhancing patent licensing activity; and 4) enhancing collaborations with external partners through partnership intermediaries, alliances, and various state and local agencies.