Architecture, Construction & Design

NIJ Enhances Weapons Technology

by David G. Boyd

According to the Bureau of Justice Statistics, national investment in law enforcement and the criminal justice system has grown at nearly twice the rate of all other federal spending since 1988. National Institute of Justice figures indicate that this country spends $50 billion each year on private security agencies and greater amounts on protection for businesses and homes.

Unfortunately, despite the tremendous amount of attention and money being devoted to the crime problem, little has been done to modernize the crime-fighting technology and techniques used by our nation's law enforcement and corrections agencies. State and local police forces, who handle more than 95 percent of policing, are still equipped much as Wyatt Earp was in the 1800s and have the same limited options when confronting a suspect: hoping for cooperation or resorting to force.

From 1985 to 1990, crime increased more than 30 percent and the number of offenders incarcerated increased by 60 percent. But investment in law enforcement research and development declined by almost 20 percent. NIJ, the principal research arm of the Department of Justice, saw its budget decline by more than 21 percent, so that less than seven cents of every $100 of federal research and development money now goes toward seeking solutions to the nation's crime problem.

The Attorney General's Conference on Less Than Lethal Weapons in 1986 acknowledged the need for innovation in law enforcement technology. A report generated from that conference states:

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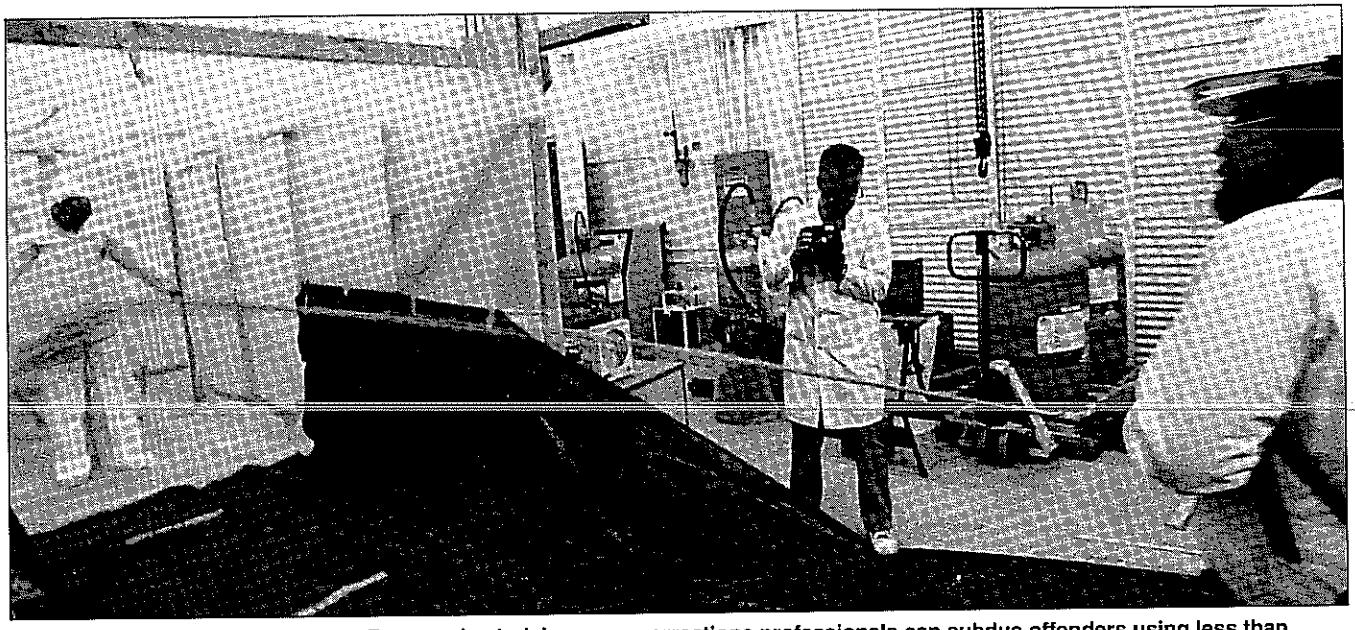

Courtesy Sandia National Laboratories

The NIJ's Technology Assessment Program is studying ways corrections professionals can subdue offenders using less than lethal technology. One such method is the projection of a non-toxic sticky foam that prohibits movement.

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Law enforcement officials have long recognized that a wide and dangerous gap exists in the range of tools that are available to them. The most common law enforcement tools, the nightstick and the gun, may be either too weak or too strong a response to many police situations. In violent confrontations, officers may be obliged to choose an unnecessarily strong response for lack of an effective alternative weapon. The use of force, or deadly force, by law enforcement officers currently presents two serious problems for society. First, the use of deadly force frequently offends some of our highest national ideals—the preservation of life, and the right of a suspect to due process. Second, a growing number of communities are suffering financial hardship as a result of civil liability suits alleging the use of excessive force by law enforcement officers. These problems demand that we persevere in the development of less than lethal weapons, that is, weapons which are designed to provide effective enforcement while at the same time minimizing the risk of life.

Seeking New Technology

Until recently, NIJ's primary mission was to fund development of new technology in a few key areas. That mission has been expanded to include examining existing technology, especially in the defense and intelligence fields, and encouraging the transfer of this technology into law enforcement.

In September 1992, NIJ created a Science and Technology office to fulfill this function. By early 1993, the office had begun an initiative known as the Technology Assessment Program, which involved a series of grants, cooperative agreements and interagency agreements with state and local law enforcement agencies, corrections departments and others to research the needs of the field. In February 1993, NIJ, ACA and the National Sheriff's Association assembled a team of jail and prison personnel and visited several national laboratories to review NIJ technology projects.

Because funding for law enforcement technology development is severely limited, NIJ has looked to research and development efforts by industry and other federal agencies. For instance, NIJ went to Department of Energy laboratories, which develop technology for intelligence gathering as well as safeguarding nuclear materials, for ideas on technology that could be used in law enforcement and corrections. NIJ also has been identifying military and intelligence technologies that could be candidates for dual use under the federal Defense Reinvestment Initiative.

Leading that effort is a panel established under an NIJ grant consisting of high-level former and present senior military and corrections personnel. One of the panel's first recommendations was that the attorney general request assistance from the Department of Defense and the intelligence community. Responding to that recommendation, the attorney general wrote to the secretary of defense and the director of central intelligence asking for assistance in identifying defense technology developments that might be "strong candidates for dual-use applications by both the military and law enforcement." Among the technology listed by the attorney general were the following:

- miniaturized video and sound communications systems currently being developed for use by combat medical personnel;

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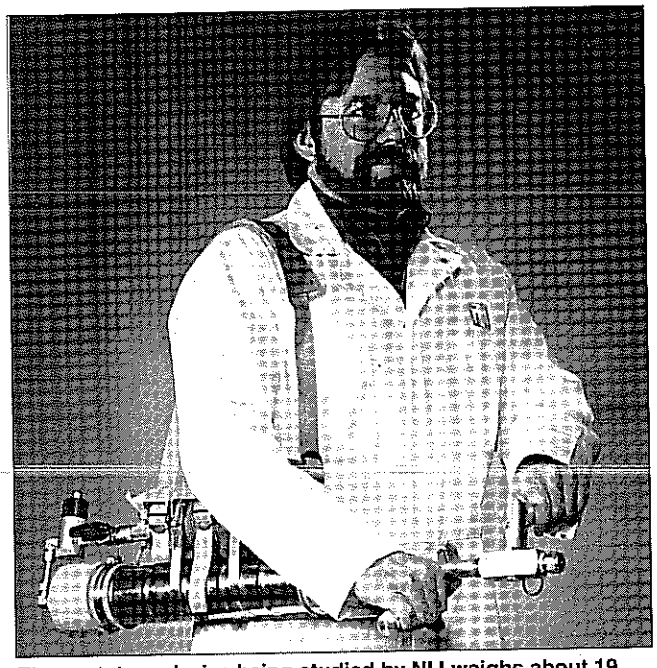
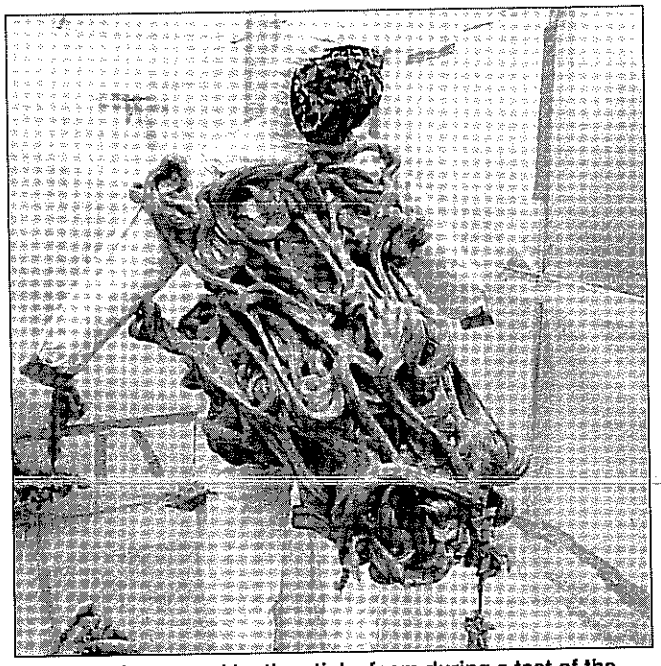


The prototype device being studied by NIJ weighs about 19 pounds and can be carried by a shoulder strap.



Photos courtesy Sandia National Laboratories

A dummy is covered by the sticky foam during a test of the technology.

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- a wrist watch or similar device capable of providing locations and limited medical information on police officers wearing the device, which would be identical or similar to the system currently being developed for military use;
- robotic surveillance technology, which might include units small enough to transit under closed doorways and be positioned at designated points in rooms or buildings; and
- simulation applications that would allow sophisticated simulation technology to be applied to law enforcement training, planning and analysis.

Since then, NIJ and the Advanced Research Projects Agency (ARPA), the federal agency charged with researching and testing such technological developments, have met to develop a memorandum of understanding to formalize the relationship. At the same time, ARPA has begun integrating a list of law enforcement priorities developed by the Technology Assessment Program Advisory Council (TAPAC), which is a group made up of federal, state and local law enforcement and corrections officials from the United States and Canada. TAPAC ensures that the technology efforts of NIJ and ARPA are grounded in the real world of police work.

Less than Lethal Weapons

Although less than a year old, the Technology Assessment Program has already generated interest among defense and intelligence agencies and industries in law enforcement research and development. For example, a defense research agency, the intelligence community and other federal agencies have designated offices to serve as liaisons with NIJ to help identify intelligence projects with law enforcement applications. The Army and Navy also have initiated discussions to include NIJ in project development. In addition, the program has produced:

- a prototype device that can precisely project a nontoxic sticky foam from a distance of more than 30 feet so that a subject cannot attack, flee or even move;
- a prototype airbag to restrain uncooperative suspects in the back seats of police cars and for possible use in forcing uncooperative inmates out of cells while reducing injuries to corrections personnel;
- a bread-board velocity-adjusting weapon that will allow rubber bullets or other safe projectiles to be fired without causing injury at any distance; and
- an aqueous foam generator that can flood a commons area with suds in a matter of seconds, making it impossible for those in the foam to see or hear.

Other Initiatives

Additional initiatives undertaken by the NIJ in this area include an interagency panel and an information gathering function.

Interagency panel. Probably the most important development has been the inclusion in the 1994 federal budget authorization of legislative language that directs the secretary of defense to form an interagency working group that consists of NIJ, the Federal Bureau of Investigation, the Centers for Disease Control, the National Institutes of Health, the National Academy of Science and the National Governors Association.

This group is charged with developing an inventory of resources, conducting an analysis of issues with criminal justice and health implications, and recommending funding and legislative remedies. The secretary of defense is to report within six months to the House and Senate Armed Services Committees on the working group's findings. This provides, for the first time, a formal law enforcement voice in at least a part of the federal research and development apparatus.

Information gathering. One of the greatest problems facing criminal justice practitioners is the difficulty of obtaining reliable technology information. Accordingly, NIJ has expanded the responsibilities of the Technology Assessment Program Information Center by making it part of NIJ's Technology Center. The Technology Center will consolidate information and provide it to law enforcement through the following methods:

1. The center will consolidate technical information so agencies can get answers with a single telephone call. It will answer questions directly and maintain lists of key sources and points of contact for further information.

2. The center will maintain consumer information about law enforcement equipment. Because testing of all law enforcement equipment is far too expensive to be practical, the center will maintain lists of equipment purchased by agencies throughout the United States. Agencies calling about specific products will be referred to departments with actual experience with the product. There is no current source of such information for law enforcement.

3. The center will increase the usefulness of very high-cost, low-use equipment. Extraordinarily capable high-technology equipment with potential applications in law enforcement exists in a number of places, but access to the equipment or even knowledge of its existence is rare. Where feasible, the center can help coordinate the use of some of that equipment and greatly enhance its value.

With reductions in defense spending and a greatly enhanced focus by both the DOD and the intelligence community on transferring technology for use in tackling pressing national social needs, a window of opportunity exists to boost law enforcement from the 19th into the 21st century. More funding for existing operations would be a positive step, but equally important is the development of new technologies that provide law enforcement and corrections officers with tools that allow them to meet the complex challenges of their daily work in a safe and effective manner.

REFERENCE

Report on the attorney general's conference on less than lethal weapons. March 1987. National Institute of Justice.

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