Report on the Third
International Law Enforcement Forum

MINIMAL FORCE OPTIONS

and Less-Lethal Technologies

3–5 February 2004

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Report Editor

Lieutenant Colonel Ed Hughes, U.S. Army-Retired

Acknowledgement

The delegates of the 2004 International Law Enforcement Forum wish to thank Brian Coleman OBE, Director of the Home Office Police Scientific Development Branch (PSDB), and all of his staff particularly, Graham Smith and Christine Hussain, for the use of their facilities and all of the coordination and support provided culminating in a very useful and productive workshop and conference. We would also like to extend our gratitude to Robin Masefield, Colin Ashe and the entire Northern Ireland Office (NIO) Patten Action Team for their support in making this conference possible and the activities of Day Three.

The Third International Law Enforcement Forum on Minimal Force Options was hosted by the Home Office Police Scientific Development Branch and held at its facilities in Langhurst, Sussex, on February 3 & 4. Delegates also participated in a follow-on conference with human rights groups, non-governmental organizations, and other interest groups. The theme of the follow-on conference was Article 2 of the United Nations Basic Principles on the Use of Force and Firearms which places obligations on governments and law enforcement agencies to research and develop less-lethal options. This event, enabling constructive exchange and consultation, was organized by the Northern Ireland Office at the Royal Society of the Arts in London on February 5, 2004 and included an international delegation of speakers.

The need exists for effective and safe policing techniques that can deal with belligerent crowds and individuals who are a threat to public order and may exploit innocent bystanders for concealment or hold them hostage. In fact, with a growing peacekeeping role around the world, it could be argued that this same need exists for our deployed military forces, often working with police officers deployed internationally in such roles. Our aim is to provide a sound, scientific basis for understanding the options, technologies, and tactics being contemplated. In this regard, we endeavor to develop accepted standards for developing and testing such technologies, and for the training of personnel in associated employment methods. It is our view that the pursuit of minimal force options, the policy and legal aspects of developing and employing such technology, and the surrounding debates, should be conducted on the basis of existing facts from scientific literature and the wisdom gained from collective professional experience.

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The content of this report is not intended to represent any policy and/or official position of The Pennsylvania State University, the governments of the delegates in attendance, or any of their affiliated agencies.

Although the conclusions and recommendations are based upon a general consensus of the participants, they do not necessarily reflect the views of all of the participants and/or the agencies they represent.

Comments pertaining to this report are invited and should be forwarded to the Director, Institute for Non-Lethal Defense Technologies, Applied Research Laboratory, The Pennsylvania State University, P.O. Box 30, State College, PA 16804-0030 or email: inldt@psu.edu.

April 2004

Preface

The first two meetings of the International Law Enforcement Forum (ILEF) on Minimal Force Options held at The Pennsylvania State University in April 2001 and October 2002 were extremely successful in focusing on less-lethal and minimal force concepts, technologies, and deployment at the expert practitioner level. The Police Scientific Development Branch of the United Kingdom's Home Office generously hosted this year's International Forum which focused on moving forward with the development of accepted international standards for development, testing, and training.

Participation in the forums has been by invitation and has assembled internationally recognized subject matter experts from law enforcement together with technical and medical experts and those with specific interest in policy development from the United Kingdom, Canada, and the United States. This year's forum included law enforcement representatives from the Republic of Ireland, Norway, Sweden, Finland, and New Zealand. Additionally, the Forum participated in a conference on day three, which sought to engage with human rights and other non-governmental organizations on the use of force in situations involving violent individuals, crowd disorder, and issues with human rights principles and accountability.

This year's forum included law enforcement representatives from the Republic of Ireland, Norway, Sweden, Finland, and New Zealand.

The 2004 International Law Enforcement Forum was hosted by Police Scientific Development Branch (PSDB) of the Home Office and opened by its Director, Brian Coleman OBE. The Forum was co-chaired by Assistant Chief Constable Ian Arundale, Association of Chief Police Officers, and Colonel (USMC Retired) Andrew Mazzara of The Pennsylvania State University's Applied Research Laboratory.

This report is a summary of the Forum discussions and the associated conclusions derived by the sessions. The forum makes recommendations for further work, specifically in relation to database development, information sharing, international development of Operational Requirements, optimization of tactics, terminology clarification, injury modeling and the development of standards.

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Executive Summary

The ability of police officers to manage conflict, whether dealing with violent individuals or crowds, continues to be an essential aspect of maintaining public safety and good order .The approaches taken and the manner in which forcible interventions take place can either assist in resolving conflict with support of the international and often local communities or it can appear oppressive disproportionate and result in the eroding public support for the forces of law and order . In the developing regions of the world, peace and stability are often placed at risk because the competencies, knowledge, skills, systems and equipment required are not available to those charged with maintaining order.

Police Perspective – photograph of suspect in a demonstration throwing a CS canister back at police.

Minimal force options and less lethal technologies expand the number of choices available to law enforcement agencies confronting situations in which the use of deadly force would be considered to escalate the situation. This third ILEF has demonstrated the extent to which the law enforcement agencies from the countries represented are all adopting broadly similar approaches in the weapons and technologies they are using or trialing. There are however differences to the approaches to testing, evaluation and system selection. This is one of the areas that ILEF intends to address.

The 2004 Forum addressed many issues related to less-lethal concepts, technologies, and deployment. The delegates explored less-lethal weapons (LLW) database development and resource sharing; effectiveness and injury potential; tactics and use; and common standards for development, testing, training, and operational use. There are many similarities to law enforcement agencies from the countries represented. All are adopting broadly similar approaches in the weapons and technologies they are using or trialing. Many of these agencies were equipping –

- Routine operational patrol officers with:
  - Modern extendable straight or side handled batons;
  - Incapacitant sprays (CS or OC); and
  - TASER® Devices (patrol and specialist officers).
- Specialist tactical units (Firearms and Public Order) with:
  - Kinetic energy projectiles (12 gauge, 37 mm and/or 40 mm);
  - Weapon launched discriminating chemical filled projectiles (OC/CS);
  - Distraction Flash-bang grenades;
  - Chemical (CS/OC) devices for use in hostage/barricade suspect situations;
  - Chemical tear smoke CS/OC- weapon launched/ hand thrown and canister;
  - Water cannon; and
  - Police dogs.

Another similarity is the extent to which agency training packages require officers to train, qualify, and regularly re-qualify. The extent to which accreditation was also being extended to those charged with commanding critical incidents was also addressed. There were some differences noted in the approach to technical research, medical evaluation, weapon selection, testing, and post use evaluation, but all countries shared a common concern for understanding the impact of using these technologies. These points of commonality and difference are explained within the substance of the report together with recommendations as to a more corporate approach.

The presentations and the Syndicate Sessions are detailed in the following text. The major recommendations are:

There is a need to create a mechanism to communicate the agreed international Operational Requirements being developed by EORG to bodies such as the International Chiefs of Police and particularly with manufacturers.

1. **Development of Agreed Operational Requirements.** The work on developing Operational Requirements for less-lethal weapons, and consensus across the international law enforcement community, is considered a high priority. The work initiated by the Electronic Operational Requirements Group (EORG) following ILEF 2002 should continue. The group should also address issues associated with measurements of effectiveness.

2. **Articulate Operational Requirements to Manufacturers.** There is a need to create a mechanism to communicate the agreed international Operational Requirements being developed by EORG to bodies such as the International Chiefs of Police and particularly with manufacturers. One option was for ILEF to harness the support of the International Association of Chiefs of Police. It would then be able to articulate and communicate the 'model' international law enforcement operational requirements to manufacturers and suppliers and for law enforcement to begin to drive technology development in this field.

3. **Terminology Standardization.** That the EORG develop standard definitions for life threatening, serious injury, and other less-lethal medical terminology.

4. **ILEF Standard**s. That the EORG (Electronic Operational Requirements Group) develop a comprehensive set of standards for review by all ILEF members, then, publish these documents for external/peer review by practitioners, industry, and professional organizations. These standards should consider including levels of incapacitation in some form and establishing or defining levels of effectiveness, recognizing that human variability will always be a challenge.

5. **Identify Desired Effects and Outcomes.** There is a need to formulate an operational statement of desired effects/outcomes of less-lethal weapons. There should be as much clarity as possible as to what a particular device does, or does not do. There is a need to appreciate that there are different interpretations influenced often by departmental doctrine and historical issues. This is work that could be developed by EORG.

6. **Describe and Provide Measures of Effectiveness.** There is a need to link descriptions of effectiveness with measures of effectiveness. The group was made aware of work commenced in the UK under the auspices of the Patten/ACPO Steering Group to identify effectiveness criteria for less-lethal devices. A summary of the emerging approach is provided in the Steering Groups Phase 4 Report (see http://www.nio.gov.uk/pdf/batonrep4.pdf, page 18). The integration of these descriptions with the type of measures described by Syndicate 2 (Determining Effectiveness and Injury Potential) could enable effectiveness criteria to be better articulated and measured.

It is important for the professional user community to endeavor to ensure that colleagues are aware of ongoing and future conflict management tests and experimentation.

7. **Incorporate Psychological Criteria into Operational Requirements.** There is a need to identify and understand the psychological elements of aggressive behavior in conflict situations and ensure that the development of less-lethal weapons includes design factors intended to operate on both the physical and psychological level. It was evident that the use of the aiming laser on the TASER® was in itself resolving many situations without resort to discharge of the weapon. Similarly, it was evident that the often intended deterrent effect of a show of force capability could either diffuse or incite a crowd. There is a need to gain a clearer understanding of how different options are likely to be interpreted by groups.

8. **Sharing of Information & Data Exchange.** There is a need to encourage the sharing of information between military and law enforcement agencies and across international boundaries. The database should leverage the abundance of open source data that is available on the internet. Through the professional organizations, ILEF should strive to identify and solicit support from key representatives in each country to advocate the Forum, and its data sharing initiatives, within that country. Release and open exchange of related medical, operational, and test data would facilitate understanding of these concepts and technologies and perhaps permit the development of systems that will ultimately provide law enforcement with better options without placing officers, subjects, and the public at risk of death or serious injury. The database, in conjunction with the existing website (and its discussion board and project tools), could become a virtual form of ILEF workshop to further develop our role, maintain our work, and sustain important relationships. It was also recognized that there is a need for marketing in some fashion in order to fund aspects of the forum. This might also be considered an aspect of strategic planning and accomplished within the framework of the ILEF website as a project.

9. **Notification of Program Testing and Sharing Information on Operational Trials.** It is important for the professional user community to endeavor to ensure that colleagues are aware of ongoing and future conflict management tests and experimentation. This will reduce the duplicative efforts and perhaps encourage a wider acceptance of developed solutions through open and ongoing peer review. There should be a mechanism to notify other departments and jurisdictions of structured force-wide or national operational trails. It would be useful if there was a wider source of information for such trails. One suggestion was that these could be stored on the International database being discussed by Syndicate 1 (Developing and Populating Less-Lethal Weapons Database).

Each aspect of conflict management – be it pre-event planning, negotiation, less-lethal technologies, or lethal force – should be viewed as a component that must consider the potential contribution of the other components to best address a particular situation.

10. **Medical Data Access.** Conduct an investigation into, and seek support for, appropriate methods to obtain accurate and comprehensive medical data related to less-lethal effects and injuries. Consider an approach that might include a "firewall" that provides researchers only anonymous identifiers. There is some precedent for this in the area of corrections (prisons).

11. **Literature Review**. That members of ILEF (perhaps as a continued EORG task) conduct a literature review to compile a comprehensive international terminology list, identify new terms (e.g., pain compliance), and address/resolve discrepancies with regard to definitions so that a common vernacular for discussing less-lethal systems could be progressed. Consideration should be given to collaborative arrangements with other research programs or seeking out opportunities for international funding to advance this work.

12. **Develop/Adapt Injury Model.** Conduct a thorough literature review to identify potential models and their characteristics which make them appropriate for less-lethal injuries. Select a number of these and validate them with actual injury data. Over time, these models could be modified to better suit less-lethal systems.

13. **Conflict Management.** The concept of conflict management as being advanced within the UK is indicative of the importance of this topic. It should be used to complement the work being developed by ILEF, and law enforcement agencies internationally, in respect of less-lethal options and technologies. Conflict Management should be viewed holistically rather than in a manner that isolates segments independently for examination or application. This includes developing a greater understanding of what causes individuals or crowds to react in particular ways. There is a need for a greater understanding of the parameters and range options – from brawls outside a pub through to full public disorder situation as well as encounters with emotionally disturbed individuals to determined armed criminals or terrorists groups. Each aspect of conflict management – be it pre-event planning, negotiation, less-lethal technologies, or lethal force – should be viewed as a component that must consider the potential contribution of the other components to best address a particular situation. Desired outcome should be determined then appropriate conflict management options should be selected to reach the desired end state. These decisions should consider the human rights of all those who will be affected by the police action. Sometimes less-lethal technologies are just one contribution and not an entire effect for resolution itself.

14. **Develop and promote ILEF.** The Forum requires some strategic planning and funding arrangements to ensure that it continues to provide a mechanism not only for sharing information but promoting concepts, requirements and best practice in relation to less-lethal options to the international law enforcement community. One of the first steps in this process is the development of a collective vision for the Forum, crafting a concise mission statement, and outlining clear and obtainable objectives. This might be accomplished within the framework of the protected side of the ILEF website as a project.

REFERENCED AND RELATED LINKS:

Minimal Force Options:
ILEF 2002 Report
http://www.nldt.org/publications.php

International Law Enforcement eForum
http://ilef.nldt.org/login/Login.svlt

Northern Ireland Office Web Site
http://www.nio.gov.uk

Steering Group: Phase 4 Report
http://www.nio.gov.uk/pdf/batonrep4.pdf

Applied Research Laboratory
The Pennsylvania State University
http://www.arl.psu.edu

Institute for Non-Lethal Defense Technologies
http://www.nldt.org

Police Scientific Development Branch
Less-Lethal Review
http://www.homeoffice.gov.uk/docs/lesslethal.pdf

Introduction

Background

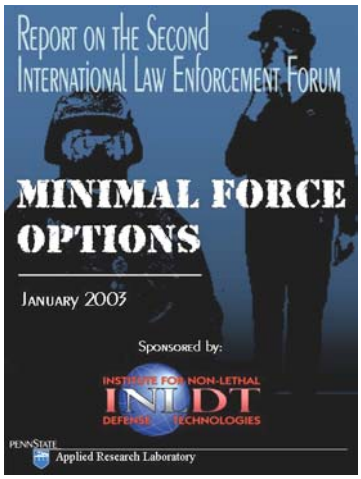
Global population growth and migration have resulted in increased urbanization, not only in the west, but also in many undeveloped and developing societies. Urbanization in many crisis-prone regions of the world creates the potential for varying degrees of social unrest. This unrest often results in large, vulnerable groups of civilians caught up in confrontations involving lawful authority and lawbreakers. When police encounter unduly aggressive individuals, the use of deadly force is considered the last resort. This often places both innocent bystanders and law enforcement officers at risk. Minimal force options provide law enforcement officers flexibility by allowing them to apply appropriate force in such a manner as to provide protection of the public and safely effect compliance whether dealing with individuals or managing crowds. They bring into balance the sometimes competing requirements of public order, public protection, and police safety.

[Minimal Force Options]… bring into balance the conflicting requirements of public order, public protection, and police safety.

Penn State's Applied Research Laboratory (ARL) has been helping U.S. law enforcement and military agencies develop an information base on which to make decisions about minimal force options for conflict resolution since 1997. In January 2001, Penn State's **Institute for Non-Lethal Defense Technologies (INLDT)** published its Human Effects Advisory Panel (HEAP) report on Crowd Behavior, Crowd Control, and the Use of Non-Lethal Weapons. This report summarized the myths and facts of crowd behavior and outlined a decision-making guideline for crowd control that emphasizes prevention rather than confrontation. The report also reviewed education and training guidelines for crowd control. The Institute (INLDT) published its widely distributed report *The Attribute-Based Evaluation (ABE) of Less-Than-Lethal, Extended-Range, Impact Munitions* in February 2001. This report was a collaborative effort with the **Los Angeles County Sheriff's Department (LASD)** to characterize blunt impact munitions with regard to accuracy and imparted momentum. The report has since served as an independent preliminary evaluation allowing law enforcement officials to make more informed decisions about appropriate less-lethal munitions.

In 1999, Penn State and the LASD hosted the United Kingdom's **International Commission on Policing in Northern Ireland** in Los Angeles. The Commission was chaired by Mr. Chris Patten. The Commission reviewed the less-lethal programs and activities of LASD and Penn State, including the opportunity to fire a variety of less-lethal weapons. The implementation of the Patten recommendations in Northern Ireland, together with the desire by Government and the police services across the United Kingdom to research less-lethal weapons as part of a co-ordinated and structured approach to the management of conflict has been central to the development of the **International Law Enforcement Forum (ILEF)** on Minimal Force Options.

The first meeting conducted at the Pennsylvania State University in April of 2001 served to define principles for use of minimal force options and to capture operational needs.



Report of the 2002 International law Enforcement Forum conducted in October 2003 at Penn State

The second ILEF meeting, conducted in October 2002, identified a number of issues that required some action. The more urgent of these included the development of a less-lethal weapon/technology database, the development of an injury database, the characterization of operational needs, and the development of standards for development, testing, and training. Shortly after this second meeting of ILEF, the Steering Group led by the Northern Ireland Office, in consultation with the Association of Chief Police Officers, issued its Phase 3 Report (December 2002) on Patten Commission Recommendations 69 and 70, relating to public order equipment. This report included a summary of the ILEF meeting and its recommendations. The Phase 4 Report (published January 2004) likewise referenced ILEF and its ongoing work to develop international standards for testing and training.

There has been a growing level of violence associated with the anti-globalization protests and the war on terrorism. These, coupled with the growth of military involvement in multinational peacekeeping missions worldwide, provide a more immediate sense of urgency for identifying broadly accepted (international) approaches for minimal force options.

Proceedings

The 2004 International Law Enforcement Forum on Minimal Force Options brought together senior and internationally recognized law enforcement representatives from the United Kingdom (UK), the United States (US), Canada, the Republic of Ireland, New Zealand, Finland, Sweden, and Norway. The participants included policy-makers, researchers, and medical experts versed in various aspects of less-lethal technologies, their applications and their effects. The delegates examined gaps in capabilities and medical assessments, information sharing, and the development of common standards for less-lethal weapons development, testing, training, and use. The specific objectives of the 2004 Forum were to:

[The world situation today] provide[s] a more immediate sense of urgency for identifying broadly accepted (international) approaches for minimal force options.

- Continue international dialogue on public order and public safety;
- Validate previous work by the Forum and its Electronic Operational Requirements Group (EORG) on operational needs;
- Examine the developing Less-Lethal Database and provide feedback for further development, population, and distribution;
- Recommend ways to further the understanding of human effects and injury potential;
- Examine international tactics and accompanying training in use;
- Recommend ways to further the understanding of conflict management, minimal force options, and less-lethal weapons through common vernacular, international standards, and test protocols.

Workshop Presentations

The workshop was conducted at the Police Scientific Development Branch of the Home Office at their Langhurst Facility on 3 and 4 February 2004. The workshop began with introductory remarks and a keynote address from Paul Acres QPM, Chair of Association of Chief Police Officers' Conflict Management Portfolio. The group was then updated on less-lethal weapon initiatives by all of the delegate countries. The keynote address and these presentations appear in their entirety in Section 2 of this report.

Keynote Address. The keynote address by Chief Constable Paul Acres discussed the ACPO Conflict Management Portfolio involvement in less-lethal work in the United Kingdom (complete remarks are found at Section 2).

He emphasized that the growing range of sophisticated weaponry of the criminal element mandates that we have the ability to respond to effectively remove that threat. In doing so, we must ensure the safety of our public and staff and reassure all that our use of force is proportionate. He emphasized that in resolving conflict at any level our aim is always to do so safely and without any use of force, but if necessary, then only the minimum amount of force required.

For each of the technologies used in the United Kingdom, the Association of Chief Police Officers has issued comprehensive guidance on use.

Mr. Acres also discussed the involvement of the ACPO in the development of less-lethal options for the police. The ACPO provided the basis for the prioritization and evaluations carried out by PSDB and DSTL where medical implications of the use of the more promising options are established. This approach has now been formalized in the Home Office Code of Practice on the Use of Firearms and less-lethal weapons, the first of its kind in the United Kingdom. For each of the technologies used in the UK, the ACPO has issued comprehensive guidance on use. The medical evaluation and statements that are made and laid before Parliament on these technologies have been, in part, based on the guidance issued as to how these technologies will be used.

Mr. Acres pointed out that significant improvements in accuracy and consistency of the L21A1 Baton Round System made it appropriate for use as a less-lethal option. After a long period of training, it is now in service with all forces in England and Wales and is being introduced as a less-lethal option to all forces in Scotland. The UK has also introduced the TASER® in a limited field trial.

The workshop was conducted at the Police Scientific Development Branch of the Home Office at their Langhurst Facility.

United Kingdom. There was a series of presentations from the delegates of the United Kingdom. Robin Masefield CBE, Head of the Northern Ireland Office's Patten Action Team, provided an update on the work of the UK Steering Group led by the Northern Ireland Office in consultation with the Association of Chief Police Officers, England, Wales, Northern Ireland and Scotland (complete remarks are found at Section 2). The Steering Group is reviewing alternative approaches to the management of conflict. The work undertaken by the Steering Group includes a less-lethal research and development programme, which is one of the most comprehensive ever undertaken in policing. International input was an important element in the

PSDB report on TASER® Devices.

The [Police Scientific Development Branch] found that TASERs® have a number of characteristics that may make them suitable for UK police... The TASER® will be made available to all forces for use where there is a firearms authority.

RCV9000 Federal Police Livery selected and procured by the Northern Ireland Office

program. Detailed updates were provided in the Group's published reports. The fourth report covered ongoing research into an attenuating energy projectile (AEP) and a discriminating irritant projectile (DIP), both of which held considerable promise.

The Police Scientific Development Branch had prioritized its research and testing efforts into three categories. Category "A" devices are those which may be subject to immediate more in-depth research such as: kinetic energy rounds, chemical delivery devices, distraction devices, water cannon, and electrical devices. Category "B" devices are those warranting further research over a more extended time such as: tranquillisers and malodorants. Category "C" devices are those which presently do not require further research, such as stun grenades, smoke, acoustic devices, electromagnetic waves, nets and wire entanglement systems, glue, foam and grease.

The PSDB evaluated the TASER® devices. They found that TASERs® have a number of characteristics that may make them suitable for UK police. They found that for acceptable accuracy the range is really only 15ft (4.6m), not 21ft (6.4m). They also concluded that the weapon is not 100% reliant. However, it is often effective without the need to even fire the weapon (use of laser sight; sparking demonstration).

Delegates of the UK also presented information on the operational uses of both the TASER® and the L21A1 Baton Round. Although baton rounds had been used in Northern Ireland for many years prior to the introduction of the L21A1, the Home Office and Secretary of State for Northern Ireland authorized operational use of the L21A1 beginning 1 June 2001. The ACPO produced guidance for its use. While continuing to be used in Northern Ireland in public order scenarios, the first use in Great Britain was in North Wales on 27 February 2002. At the time of the conference the L21A1 had been used at 17 policing operations in Great Britain, most recently in Nottinghamshire on 5 January 2004

The TASER® had been used at 47 policing operations since the start of the trial. It was first used in North Wales on 21 April 2003 and first fired in North Wales on 14 June 2003. There is an ongoing extended trial in five forces where officers are facing violence or threats of violence of such severity that their use of force is necessary to protect themselves or the public.

The Police Services Northern Ireland reported on the procurement of the water cannon. Cooperation between police in Northern Ireland and the Belgium Gendarmerie (now the federal police) led to an agreement whereby the police in Northern Ireland borrowed two "Mol MSB18" water cannons each summer from 1999 to 2003. The Water cannon was one of five technologies identified as holding some promise and requiring further research with regard to Patten recommendations 69 and 70. After significant research, testing, and operational deployments, and with the loan arrangement becoming less and less certain, the decision was made to procure based on a competitive process. The RCV9000 was selected and the first two delivered in September 2003. They expect operational readiness in March 2004.

United States. There were a number of presentations from the United States delegates. With regard to impact projectiles, the multiple-projectile rounds (rubber balls, foam/rubber/wooden batons) are not viewed well because the point of aim does not always equal the point of impact. Single, well-aimed projectiles save lives. The M26/X26 TASERs are in use across the United States and are generally viewed as excellent systems by those officers that have used them. But, as is generally recognized throughout the international law enforcement community, less less-lethal weapons cannot stop everyone. There are individuals who, whether psychotic or drug-induced, will continue to resist. In any case, proven tools that are properly used will save lives. Those tools must be pushed out of the laboratory and in to the hands of trained police officers, however, to be of any use.

Public perception and acceptance of less-lethal weapons will continue to have impact on their use in the United States. As stated by Commander Sid Heal, "Nothing is so insignificant that it can't be blown out of proportion by the media and influence public perception." There are devices with nomenclature that arouse an emotional response and therefore public perception and acceptance.

Graham Smith providing the ILEF delegates an update of PSDB activities.

Some of the challenges faced by the law enforcement community in the United States include quality control of less-lethal devices and munitions, obsolescence, and statistically supporting the use of less-lethal. There are currently no standards against which these devices (in all categories) can be compared. The "state of the art" for these devices, as in other sectors, continues to move ahead and evolve. Success in the development of these devices will challenge our existing use-of-force standards, both the type and amount of force. Additionally, to the degree that they are effective and accepted by the public, there will be a corresponding demand for these devices to be accessible to the public. Every device currently available to law enforcement is limited with shortcomings such as range, effectiveness, need for decontamination, cross-contamination, or single subject discrimination. These shortcomings can be mitigated by using one device to complement another. Additionally, learning from the experiences of other officers on the employment of these devices will diminish these shortcomings.

There are currently no standards against which these[less-lethal] devices (in all categories) can be compared.

Penn State continues to conduct its Human Effects Advisory Panels (HEAPs) which examine different aspects of less-lethal weapons and their interaction with the human body. Since the last ILEF meeting, they have assessed advanced kinetic models (selected thoracic models, head injury models, and head injury criteria), pulsed energy projectile (PEP), experiment exit criteria, incorporating crowd behavior/dynamics into the Inter-service Non-lethal Individual Weapons Instructor Course (INIWIC), the Interim Total Body(ITBM) Road Map, and an assessment of the SAS-035 non-lethal weapon (NLW) Effectiveness Framework. They are currently conducting HEAPs for the characterization of NLWs, the Area Denial System (ADS), and a Riot Control Agent Comparison Study. Future work includes an assessment of selected animal models, a variety of non-lethal weapons education initiatives, a tactical acoustic reconnaissance projectile, and an in-depth examination of the Sturdivan Deterrence Model.

An operational case study of the Washington, D.C. Metropolitan Police Department was presented as model for strategic reform of use-of-force accountability. The impetus for this effort was that the Metro Police led all other police forces in the United States in incidents where officers used lethal force. The new police chief (Chief Charles Ramsey), an outsider with a reputation for innovation, drove the efforts. The approach addressed four areas: an invitation for external scrutiny, a revision of departmental policies, a redesign of training, and a reengineering of how investigations are conducted. This strategic approach, coupled with an extraordinary effort to reconnect with the community, resulted in a 72 percent reduction in use-of-force incidents in the D.C. Metropolitan Police Department.

Canada. Presently, the Royal Canadian Mounted Police (RCMP) has several items in the less-lethal inventory. Some of these items are available to all members of the force, while others are restricted to special units such as tactical troops (public order units) or emergency response teams (ERTs) that are responsible for special weapons and tactics. Some items may not be available in a given detachment (police station). Geographical location, identified need, and other variables determine who presently has access to each system.

Many detachments of the RCMP use the "spike belt" as a means to stop speeding vehicles by flattening tires.

Regular uniformed members of the RCMP have available the collapsible ASP baton and oleoresin capsicum (OC) spray. If trained, officers can also employ the M26 TASER, 12 gauge shotgun sock round (drag stabilized round), based on availability at their detachment. Many detachments use the "spike belt" as a means to stop speeding vehicles by flattening tires.

Tactical troops, or public order units, have available tear gas (deployed in several types of different rounds either hand thrown or launched) and OC spray (larger canisters than the personal issue MK3). They also employ the 12 gauge shotgun sock round (drag stabilized round), wooden batons (24" & 36"), and the TASER® in "touch" mode. Emergency response teams (ERTs) have all of these available, but can also use the TASER® in either mode.

The RCMP is presently acquiring two vehicles for further testing and conversion to Water Projection Systems (WPS) commonly referred to as "water cannon" for public disorder events. Initial inquiries and testing will also be conducted for an additional impact round (likely 37mm) to complement the 12 gauge drag-stabilized round presently in use. This is initially intended to be considered at for tactical troop (public order) and ERT use, not general duty.

...the Royal Canadian Mounted Police (RCMP) has several items in the less-lethal inventory...Geographical location, identified need, and other variables determine who presently has access to each system.

Republic of Ireland. Following the fatal shooting of an armed person with a mental illness in April 2000, by the Garda Emergency Response Unit (ERU), the Commissioner established a Working Group to make recommendations on the use of Less Lethal Weapons in similar situations. The terms of reference were set out as follows:

- Examine current practices and procedures for such situations.
- Examine procedures currently in place in other Jurisdictions.
- Gather all information available regarding 'non lethal' methods currently available and evaluate same with regard to use by An Garda Síochána.

- Make recommendations, including all implications for An Garda Síochána (costs, training etc.), as to whether such 'non-lethal' methods should be made available for use by members of An Garda Síochána. Such recommendations should include weaponry to be used; command structure/management of such incidents; hostage negotiations techniques and instructions regarding media attendance at such incidents.
- Legislative changes, which may be necessary following from your recommendations.
- Any other appropriate recommendations following your examination of current and future procedures.

The group attended international conferences on the subject of less-lethal weapons and visited police agencies in Europe and the U.S. during their research. In conjunction with this, live-fire demonstrations were conducted plus a review of additional test material prior to a final decision on recommendations. Essential requirements for the choice of devices were set to incorporate: universal application; discriminating; environmentally benign; portable; reusable; reversible; and instantaneous effect.

In November 2001 the Working Party submitted its report to the Commissioner who approved the recommendations included. The devices recommended were the Bean-Bag shotgun round (kinetic energy round); the Ferret OC shotgun cartridge (delivering pepper spray); and the Aerosol Projector (delivering pepper spray).

Crest of the Republic of Ireland's An Garda Síochána (Civic Guard).

An Implementation Team was established with terms of reference to:

- Draw up guidelines for the introduction of Less Lethal Weapons into An Garda Síochána
- Develop a suitable training program.
- Develop operational guidelines to include deployment and command and control structures.
- Recommend amendments to the Garda Code.
- Identify suitable equipment.

In July 2002 the Implementation Team report was submitted and in November 2002 the Minister for Justice Equality and Law Reform approved the acquisition of the three devices. The original 'square bean-bag' was replaced by the drag-stabilized version and the Defense Technology Mark 21 projector was selected as the OC delivery system. A tendering process commenced and in December 2003 the final purchase orders were authorized.

[In the Republic of Ireland] the original 'square bean-bag' was replaced by the drag-stabilized version and the Defense Technology Mark 21 projector was selected as the OC delivery system.

Two members of the ERU traveled to the Los Angeles Sheriffs Department in December 2003 and received instructor grade training in three devices. Currently, a training syllabus is being developed and it is envisaged that training for ERU will commence by April 2004. Deployment of the devices is restricted to ERU personnel to incidents where firearms may be deployed.

Other training has been identified and will be delivered at the Garda College to Scene Commanders, First Responders and Crisis Negotiators.

There is currently a public enquiry taking place into the fatal shooting which occurred in April 2000. The less lethal programme and the issues surrounding crisis response continue to be relevant.

New Zealand. In 2002, the New Zealand Police (NZP) commenced a project to review its use of LLW. This project, dubbed "Project Lincoln," was completed in late 2003 and made a number of recommendations regarding LLW and their use.

A number of recommendations were made in this area including a modified adoption of the British system of training and issuing of lethal weapons to selected groups.

The Project determined that of the over 40 types of LLW considered, five were considered worthy of further evaluation. These were the 12-gauge sock round, the single baton round, an encapsulated round system, OC pepper spray, and the TASER®. The NZP Executives are currently considering these recommendations.

The Project also reviewed the NZP current use of OC spray. Oleoresin Capsicum pepper spray for all front line officers was introduced in 1998 and was a mandatory accoutrement. The spray selected was the DefTec Mark III. Project Lincoln undertook an analysis of 4,190 reports of OC spray use over a period of 34 months. In summary, the analysis showed that since the introduction of OC spray, assaults on police officers had declined by 2.1 percent. Officers suffered very little injury when using OC spray to resolve a violent confrontational situation. Suspects suffered very little injury when OC spray was used. Officers tended to also use another means of constraint, however this was usually confined to a manual hold or handcuffs. In 30% of cases, however, officers used either a restraint hold or a baton in conjunction with OC spray. While New Zealand has a high rate of asthmatics only 1.5% of subjects were recorded as such. The salbutamol inhaler provided in all front line patrol vehicles was only used in 16 cases. Overall, OC spray was considered by officers to be effective in 89% of cases. The initiating offense was usually violence-related including assault on police, officers used OC spray most between 0001 and 0400 hours on Saturdays and Sundays, the subjects were predominately male persons aged between 31 and 40.

Shotgun “sock” round

The project also considered the operational and tactical use of LLW and the relationship between LLW and lethal force. A number of recommendations were made in this area including a modified adoption of the British system of training and issuing of lethal weapons to selected groups.


Shotgun “bean-bag” round

Finland. The Finnish Police are currently equipped with ASP expandable baton and Bodyguard OC-spray made by Guardian Products. There is an active research and evaluation program in place. They have recently completed an evaluation of the Primetake 12-gauge IMP Long Range CS ammunition, Defense Technology Corporation of America (12GA #23, #23P, #T23 and #T23P). Accuracy and velocity distribution was at -20, +20 and +40 C. There was penetration of triple glazed window at 25deg angle and penetration of heavy door construction at 30deg angle.

The Defense Technology Corporation of America's 12-gauge #23DS kinetic rounds are also being evaluated for accuracy and velocity distribution at currently being evaluated at the following temperature ranges-20, +20 and +40 C.

Evaluation will also take place in respect of the box magazine 12-gauge pump-action shotguns Valtro PM5 and Baikal 133K. The Finnish researchers consider the 12-gauge shotgun a good general purpose weapon. The assortment of ammunitions available, especially the various less-lethal cartridges, make it a very versatile tactical weapon. The intent of the evaluation is to assess whether this shotgun construction reduces the risk of accidents and provides for a safer weapon design for the use and exchange of various types of ammunition than the conventional tubular magazine shotgun. They have also commenced a TASER® evaluation.

Norway. It was reported that the Norwegian Police currently have two approved products for use. The first is 0.4 litre canister Chlorobenzylmalono-nitrile (CS) gas at a solution of one to two percent (1%–2%). This has been issued in all police districts. Additionally, all police districts have been authorized the 37/38mm and 12/70 calibre CS cartridges for use with the Multi-Purpose Riot Gun (MPRG 83). They also are authorized the 37/38mm long range CS cartridge for riot control. The ARWEN weapon platform has been authorized for use only by special units. There was no use of CS reported in 2003.

Oleoresin-Capsicum Pepper Spray manufactured by Fox Labs International is standard issue in many law enforcement agencies.

The Norwegian Police began an Oleoresin-capsicum (OC) pepper spray evaluation project in May 2003. This project will last two years and will result in the evaluation of the Def-Tech and Cap-Stun 50 – 55ml canister OC spray that has been issued in all police districts. For the eight months of the project in 2003, there were 28 reported cases of use of OC pepper spray. In 26 cases, the OC was effective. In two cases, the OC had no effect.

Sweden. Every piece of equipment which is to deliver force against a human being has to be reviewed by a Government Delegation for Human Rights Supervision on Weapon Projects at the Defence Ministry. This requirement is set out in legislation and caries the weight of law in Sweden. The requirement applies to both police and military equipment and that used by all governmental organizations. The following is a summary of recent development in respect of firearms and less lethal technologies

Oleorsin-Capsicum (OC)-spray has been successfully tested in an operational test during 2003. Out of 243 expositions, police officers have in 17 cases avoided the use of lethal force (i.e., their service pistol). In two cases, suicide candidates have been rescued due to the use of OC. The OC is to be issued to all police officers beginning this year.

There has been, and will continue to be, work in Sweden regarding the implementation of less-lethal weapons (LLW)

Operational test on impact ammunition will be taking place during 2004. This will involve the testing of 12 gauge and 40mm projectiles. Preparations are also being made for operational test of the TASER® during 2004. At the moment, the equipment is being reviewed by the Delegation. Following review by the Delegation the service ammunition used in conventional firearms was changed from full metal jacket to hollow point. (9 mm 124 grain Speer Gold Dot).

Demonstration of the L21A1 Baton Round

After the delegates completed their updates, the Sussex Police conducted a demonstration of the L21A1 Baton Round. The demonstration included a live fire against a paper target to demonstrate the round's inherent accuracy at 30 meters and a situational scenario whereby a suspect believed to be armed and intoxicated was subdued and apprehended. A brief question and answer period followed the demonstration.

FRAME 1 – Suspect identified and challenged. Lethal force over-watch provided.

FRAME 2 – L21A1 Baton Round fired, causing suspect to collapse.

FRAME 3 – Officers identify weapon carried by suspect.

FRAME 4 – Suspect Apprehended

Officers discuss the L21A1 baton Round and how it is deployed with specially trained teams also authorized to use lethal force.

L21A1 Baton Round

Accuracy demonstrated at 30 meters with the aim point being the belt buckle region.

Workshop Syndicate Sessions - Major Issues, Discussions, and Recommendations

After completing a less-lethal weapon (LLW) overview and briefings on the first day, the group participated in four breakout sessions (second day). These sessions addressed developing and populating the less-lethal weapons database; determining effectiveness and injury potential; optimizing tactics, training and use; and specifying definitions, standards, and testing.

This [Less-Lethal Weapons] database was created by the Police Scientific Development Branch (Home Office) as response to one of the recommendations of the International Law Enforcement

Developing and Populating the Less-Lethal Weapons Database. This session addressed the development, publication, and maintenance of the International Less-Lethal Weapons Database. This database was created by the Police Scientific Development Branch (Home Office) as response to one of the recommendations of the International Law Enforcement Forum in 2002. There was general consensus among the group that the effort thus far was laudable. There was also much discussion regarding who would see the collected data. Security issues notwithstanding, there was consensus within the group that the database should be published on the internet. It was generally agreed that the database should strive to conduct updates quarterly, but certainly annually. The group concluded that a number of access levels would probably be most appropriate for the database. In order to encourage use of the site, and more importantly encourage data submission, it was also generally agreed that all law enforcement officers/agencies should have free access to the site.

Determining Effectiveness and Injury Potential. This Session addressed less-lethal weapon effectiveness and related injury potential. A lack of human testing and a corresponding reliance on animal and cadaver data makes it difficult to measure injury potential and effectiveness. Some predictions are reliant upon police assessments of injury and injury potential rather than definitive medical data. A goal might be to develop an objective scale of injury. This type of technology independent scale could conceivably serve as both a situational weapon selection tool and as injury design parameters for less-lethal weapons. The group acknowledged that effectiveness was dependent upon a number of contextual variables beyond the capabilities of a particular technology. It was generally agreed that evaluating short-term effects is fairly straightforward (yet requires extensive testing). Determining long-term effects is a much more difficult proposition, however. The group consensus was that it is unreasonable to test every particular technology for every possible long-term effect. What is reasonable is to identify those primary long-term effects of concern and conduct the appropriate research in an effort to discount them with some level of certainty. Although a particular less-lethal technology might have some undesirable effect or potential for serious injury, there are often numerous means to mitigate the severest of these injuries. Acceptability of a particular technology is a complex concept tied to both effects and injury potential (or the perception thereof). It is also a matter of perspective. What might seem reasonable to a law enforcement officer in a given situation might not seem reasonable to the public, the community, or society.

What is reasonable is to identify those primary long-term effects of concern and conduct the appropriate research in an effort to discount them with some level of certainty.

Optimizing Tactics, Training and Use. The purpose of this Session was to address whether Law enforcement internationally were optimizing tactics, training and use of Less Lethal Options. The group had a view that less lethal development was often being driven by manufacturers rather than the users. Increasingly there was recognition that only a small percentage of these devices could be described as being consistent, accurate, effective and acceptable less lethal weapons. The group was of the view that there needed to be a way to capture internationally information as to what worked and what did not work within an authoritative, independent, and easily accessed database such as that being developed by PSDB.

X26 TASER® manufactured by TASER® International.

The group corroborated the well-travelled idea that the "ideal" less-lethal technology was that exemplified by the 'Star Trek Phaser.' The nearest that law enforcement has is the latest generation of TASER® technology. Notwithstanding this, the use of less lethal devices was undoubtedly saving lives in jurisdictions where police officers were equipped with a range of accessible less-lethal options. It is therefore important that individual police departments have a clearly articulated doctrine on less-lethal options as well as a doctrine about the management of situations where force may require to be used and that both situational and generic applications for the use of less lethal options had been worked through.

Historic and cultural issues were factors that have often inhibited full use of currently available options (police dogs and water cannon in the US, use of CS smoke in Northern Ireland). This has changed in a number of situations through positive engagement with the community and public education programs, especially with regard to the TASER®.

There is a need for strategic and tactical training for many Operational Commanders and they need to be exposed to the wider issues to preclude unrealistic expectations and critical misunderstandings of LLW capabilities.

Policy writers and tacticians should be cautious not to preclude a technology from a given situation where it could be used to protect or save lives. There are often possibilities for crossover into situations beyond those for which they had been introduced. It was agreed that there is a need to incorporate LLW into operational contingency plans and standard operational procedures. There was some concern expressed about vertical or linear use of force continuums that placed weapons or tactics on a hierarchy of options. The preferred model was much more situational which permitted the appropriate option to be selected at the appropriate time.

Policy writers and tacticians should be cautious not to preclude a technology from a given situation where it could be used to protect or save

Specifying Definitions, Standards, & Testing. The purpose of this Session was to address definitions, standards, and testing. The desire was to develop a way forward in clarifying terminology and developing standards for less-lethal technologies specifically and minimal force option in general. Much of the discussion centered on the appropriate metrics to characterize a "scale for incapacitation." The utility of such a scale is in providing officers some means of understanding what they should expect from a particular device. Time intervals and "levels" were discussed as possible approaches. The group agreed that it should charge the EORG (Electronic Operational Requirements

Group) with drafting and vetting levels of incapacitation in some form. There should be a concerted effort put forward to conducting a literature review to identify a comprehensive international terminology list, identifying new terms (e.g., pain compliance) and address/resolve discrepancies with regard to definitions so that we might press forward with a common vernacular when discussion less-lethal systems. The group also debated the issue of the appropriateness and methodology of establishing international standards for less-lethal development and testing. There was consensus that accuracy and other measurable characteristics of weapons might have established standards and these must be reasonable. However, developing standards for effectiveness may be illusive, due to the variability of the human anatomy, its condition, and the context of operational use. There was general agreement that gaining the political, if not monetary, support of law enforcement professional organizations would be crucial to pursuing acceptance and implementation of developed standards by governments.

Less-Lethal Consultative Forum delegates at the Royal Society of the Arts.

Less-Lethal Consultative Forum

This year ILEF delegates had the opportunity of attending and participating in a consultative forum with a wide range of individuals and groups who had both interest in, and concerns regarding the testing, development and use of less lethal weapons by police and approaches to the management of conflict. The event hosted by ILEF and organized by the Northern Ireland Office was held at the Royal Society of Arts conference house in London, on 5 February 2004 and followed on directly from the main two day ILEF event held on the 3rd and 4th February. The theme of the consultative forum was Article 2 of the United Nations Basic Principles on the use of Force and Firearms which states that:

> *Governments and law enforcement agencies should develop a range of means as broad as possible and equip law enforcement officials with various types of weapons and ammunition that would allow for a differentiated use of force and firearms (http://www.unhchr.ch/html/menu3/b/h_comp43.htm).*

The ILEF delegates were joined by other representatives from police departments, research and evaluation organizations and police oversight bodies, academic, political research groups, government departments and Non Governmental Organizations (NGOs). In total there were over 100 delegates including speakers. The conference organizers were very deliberate in seeking such a diverse group of delegates. This brought with it a wealth of experience and a wide variety of different views on the issue of less lethal technologies and police responses to potentially violent situations.

Colin Burrows, Ivan Wilson (Chair of Day 3), Professor Ivan Topping (University of Ulster), and Sir Alistair Graham (chair of the Police Complaints

The program for the day included presentations from keynote speakers followed by delegates' questions and responses.

Topics covered by the presentations included:

- Human Rights, Police Ethics and Use of Force – Chief Constable Peter Neyroud;
- Developments in Conflict Management in the U.K. – Chief Constable Paul Acres;
- Accountability Issues – Mrs. Nuala O'Loan, Police Ombudsman for Northern Ireland;
- A United States perspective – Mr. Michael Berkow Deputy Chief of Police Los Angeles Police Department;
- A Northern Ireland perspective – Mr. Denis Bradley, Vice Chairman of the Northern Ireland Policing Board.

It is hoped that as a result of this consultation, future debate will be better informed and will reflect a willingness to seek engagement between all interested parties.

In addition to formal presentations and question times, delegates also met in syndicate sessions to discuss in greater detail three topics related to the differentiated use of force and firearms by police officers. The syndicate sessions commenced with short presentations by representatives from NGO invitees; they covered the following issues which were then discussed in more detail within the workshop groups:

- The police approach to violent individuals endangering themselves or others.
- The police approach to serious crowd disorder involving individuals engaged in potentially life-threatening action.
- Issues associated with the use of force and international Human Rights principles.

Denis Bradley, Vice Chairman,
Northern Ireland Policing Board

Following the workshop sessions, the facilitator from each group, provided a summary report to all delegates and there was further opportunity for more question and discussion.

The Northern Ireland Office will provide a comprehensive report of all the proceedings which includes a reproduction of the presentations and addresses that were given to this conference. It also notes the responses to the speakers and reports on the discussions that took place within the workshops. A full copy of the report will be found at http://www.nio.gov.uk.

This consultative event was important in promoting engagement, between practitioners, interest groups and other non-government actors. It undoubtedly provided an opportunity for a greater appreciation of the issues and concerns surrounding use of less lethal technologies.

It is hoped that as a result of this consultation, future debate will be better informed and will reflect a willingness to seek engagement between all interested parties.

Summary and Conclusions

The 2004 Forum addressed many issues related to less-lethal concepts, technologies, and deployment. The delegates explored less-lethal weapons (LLW) database development and resource sharing; effectiveness and injury potential; tactics and use; and common standards for development, testing, training, and operational use. The presentations and the Syndicate Sessions are detailed in the following text. The major recommendations are:

1. **Development of Agreed Operational Requirements.** The work on developing Operational Requirements for less-lethal weapons, and consensus across the international law enforcement community, is considered a high priority. The work initiated by the Electronic Operational Requirements Group (EORG) following ILEF 2002 should continue. The group should also address issues associated with measurements of effectiveness.

2. **Articulate Operational Requirements to Manufacturers.** There is a need to create a mechanism to communicate the agreed international Operational Requirements being developed by EORG to bodies such as the International Chiefs of Police and particularly with manufacturers. One option was for ILEF to harness the support of the International Association of Chiefs of Police. It would then be able to articulate and communicate the 'model' international law enforcement operational requirements to manufacturers and suppliers and for law enforcement to begin to drive technology development in this field.

3. **Terminology Standardization.** That the EORG develop standard definitions for life threatening, serious injury, and other less-lethal medical terminology.

4. **ILEF Standard**s. That the EORG (Electronic Operational Requirements Group) develop a comprehensive set of standards for review by all ILEF members, then, publish these documents for external/peer review by practitioners, industry, and professional organizations. These standards should consider including levels of incapacitation in some form and establishing or defining levels of effectiveness, recognizing that human variability will always be a challenge.

5. **Identify Desired Effects and Outcomes.** There is a need to formulate an operational statement of desired effects/outcomes of less-lethal weapons. There should be as much clarity as possible as to what a particular device does, or does not do. There is a need to appreciate that there are different interpretations influenced often by departmental doctrine and historical issues. This is work that could be developed by EORG.

There should be a mechanism to notify other departments and jurisdictions of structured force wide or national operational trials.

6. **Describe and Provide Measures of Effectiveness.** There is a need to link descriptions of effectiveness with measures of effectiveness. The group was made aware of work commenced in the UK under the auspices of the Patten/ACPO Steering Group to identify effectiveness criteria for less-lethal devices. A summary of the emerging approach is provided in the Steering Groups Phase 4 Report (see *http://www.nio.gov.uk/pdf/batonrep4.pdf, page 18*). The integration of these descriptions with the type of measures described by Syndicate 2 (Determining Effectiveness and Injury Potential) could enable effectiveness criteria to be better articulated and measured.

There is a need to formulate an operational statement of desired effects/outcomes of less-lethal weapons

7. **Incorporate Psychological Criteria into Operational Requirements.** There is a need to identify and understand the psychological elements of aggressive behavior in conflict situations and ensure that the development of less-lethal weapons includes design factors intended to operate on both the physical and psychological level. It was evident that the use of the aiming laser on the TASER® was in itself resolving many situations without resort to discharge of the weapon. Similarly, it was evident that the often intended deterrent effect of a show of force capability could either diffuse or incite a crowd. There is a need to gain a clearer understanding of how different options are likely to be interpreted by groups.

8. **Sharing of Information & Data Exchange.** There is a need to encourage the sharing of information between military and law enforcement agencies and across international boundaries. The database should leverage the abundance of open source data that is available on the internet. Through the professional organizations, ILEF should strive to identify and solicit support from key representatives in each country to advocate the Forum, and its data sharing initiatives, within that country. Release and open exchange of related medical, operational, and test data would facilitate understanding of these concepts and technologies and perhaps permit the development of systems that will ultimately provide law enforcement with better options without placing officers, subjects, and the public at risk of death or serious injury. The database, in conjunction with the existing website (and its discussion board and project tools), could become a virtual form of ILEF workshop to further develop our role, maintain our work, and sustain important relationships. It was also recognized that there is a need for marketing in some fashion in order to fund aspects of the forum. This might also be considered an aspect of strategic planning and accomplished within the framework of the ILEF website as a project.

9. **Notification of Program Testing and Sharing Information on Operational Trials.** It is important for the professional user community to endeavor to ensure that colleagues are aware of ongoing and future conflict management tests and experimentation. This will reduce the duplicative efforts and perhaps encourage a wider acceptance of developed solutions through open and ongoing peer review. There should be a mechanism to notify other departments and jurisdictions of structured force-wide or national operational trails. It would be useful if there was a wider source of information for such trails. One suggestion was that these could be stored on the International database being discussed by Syndicate 1 (Developing and Populating Less-Lethal Weapons Database).

10. **Medical Data Access.** Conduct an investigation into, and seek support for, appropriate methods to obtain accurate and comprehensive medical data related to less-lethal effects and injuries. Consider an approach that might include a "firewall" that provides researchers only anonymous identifiers. There is some precedent for this in the area of corrections (prisons).

11. **Literature Review**. That members of ILEF (perhaps as a continued EORG task) conduct a literature review to compile a comprehensive international terminology list, identify new terms (e.g., pain compliance), and address/resolve discrepancies with regard to definitions so that a common vernacular for discussing less-lethal systems could be progressed. Consideration should be given to collaborative arrangements with other research programs or seeking out opportunities for international funding to advance this work.

12. **Develop/Adapt Injury Model.** Conduct a thorough literature review to identify potential models and their characteristics which make them appropriate for less-lethal injuries. Select a number of these and validate them with actual injury data. Over time, these models could be modified to better suit less-lethal systems.

13. **Conflict Management.** The concept of conflict management as being advanced within the UK is indicative of the importance of this topic. It should be used to complement the work being developed by ILEF, and law enforcement agencies internationally, in respect of less-lethal options and technologies. Conflict Management should be viewed holistically rather than in a manner that isolates segments independently for examination or application. This includes developing a greater understanding of what causes individuals or crowds to react in particular ways. There is a need for a greater understanding of the parameters and range options – from brawls outside a pub through to full public disorder situation as well as encounters with emotionally disturbed individuals to determined armed criminals or terrorists groups. Each aspect of conflict management – be it pre-event planning, negotiation, less-lethal technologies, or lethal force – should be viewed as a component that must consider the potential contribution of the other components to best address a particular situation. Desired outcome should be determined then appropriate conflict management options should be selected to reach the desired end state. These decisions should consider the human rights of all those who will be affected by the police action. Sometimes less-lethal technologies are just one contribution and not an entire effect for resolution itself.

14. **Develop and promote ILEF.** The Forum requires some strategic planning and funding arrangements to ensure that it continues to provide a mechanism not only for sharing information but promoting concepts, requirements and best practice in relation to less-lethal options to the international law enforcement community. One of the first steps in this process is the development of a collective vision for the Forum, crafting a concise mission statement, and outlining clear and obtainable objectives. This might be accomplished within the framework of the protected side of the ILEF website as a project.

Each aspect of conflict management …should be viewed as a component that must consider the potential contribution of the other components to best address a particular situation. We have to state our desired outcome, and then determine the conflict management tools to reach end state.

SECTION 1:

Workshop and Conference Discussions

SYNDICATE SESSION 1:

Developing and Populating the Less-Lethal Weapons Database

CHAIR: Matthew Symons

The purpose of this Session, led by Mr. Matthew Symons of the Police Scientific Development Branch (PSDB) - Home Office, was to address questions regarding the development, publication, and maintenance of the International Less-Lethal Weapons Database.

Obtaining information related to less-lethal weapons is challenging. There is not a single source where this data has been adequately correlated. Nor has the international law enforcement community had a reputable, independent, and structured source of information from which to draw. There is therefore no single comprehensive reference point to assist in researching whether there is a technology for use in a given situation, what research has been undertaken, what agencies have operational experience of equipment or to examine the associated injury data.

Security issues notwithstanding, there was consensus within the group that the database should be published on the internet with

The International Less-Lethal Weapons Database created by the Police Scientific Development Branch (Home Office) has the potential to provide such a structure. This database was created in response to one of the recommendations of the International Law Enforcement Forum in 2002. There was general consensus among the group that the effort thus far was laudable. There was also much discussion regarding who would and should see the collected data.

Inspector Chris Caughell (Edmonton, Canada), Matthew Symons (PSDB), and David Wilkinson (PSDB).

Discussion in open forum clarified that all of the information currently contained within the database could already be sourced by searching through web-based or openly published material. In particular, statements made by police organizations after the use of less-lethal weapons were drawn entirely from the official press releases of the police department concerned.

It is important for the credibility of the database that original source material be used whenever possible. At a minimum, the material should be traceable to a credible source.

Database Publication

Security issues notwithstanding, there was consensus within the group that the database should be prepared on the internet with appropriate access control. Publishing in another format, such as a compact disk (CD), would reduce the value of the database as it would become dated nearly immediately after publication.

A web-based version [of the database] would reduce costs, allow for more regular updates, provide access to a broader range of law enforcement professionals, and facilitate the data acquisition process through electronic submissions.

A web-based version would reduce costs (printing and mailing of CDs), allow for more regular updates (reducing obsolescence), provide access to a broader range of law enforcement professionals, and facilitate the data acquisition process through electronic submissions. This format would also allow the Forum and the database itself to be advertised.

There was some concern expressed about computer literacy and the need to ensure the graphical user interface (GUI) is intuitive. The "face" of the database should not intimidate those with minimal computer and internet skills. Online help tools, graphics, and large understandable print would also be recommended.

Automated data entry tools might allow data to be submitted by an authorized contributor or organization. There would be some controls required in order to prevent database corruption, but this is feasible.

Database Access

The debate surrounding access to the database centered on existing and future requirements (letter and spirit) of the Freedom of Information Acts (FOIA) of the US and UK on the one hand, and rightfully maintaining security for public safety and criminal countermeasure reasons, on the other.

A publicly accessible database could reduce the number and frequency of FOIA requests to individual jurisdictions. Concern was expressed that such accessibility had the potential to enable those with hostile intent to learn enough about less-lethal technologies and police methods to develop countermeasures significant enough to put public safety at risk.

The group generally agreed, however, that if a completely restricted database were published, it would eventually become known in the public domain and there would then be great pressure to release all information.

The group concluded that the best approach for submitting information to the database would be for contributors to only submit information that they are happy to be released into the public domain. Other more sensitive information might then be obtained by site visitors through contact details and information links to the owner of the information. This approach leaves, then, only one version of the database.

In order to encourage use of the site, and more importantly encourage data submission, it was generally agreed by the group that all government-sanctioned law enforcement officers/agencies should have free access to the site, as could those who have a registered interest subject to some form of agreed official endorsement. In this light, an online registration form that can be verified by the administrator would be useful. This may require designating referees for agencies (e.g., large police forces, governmental bodies, etc.) to verify identities. Non-governmental organizations (NGOs) and other users might possibly pay for access, which could defer the maintenance costs incurred by PSDB or whoever is designated to maintain the site.

Sharing Information

The group expressed concerns about convincing military and law enforcement agencies to release data to the site. Certainly in North America there may be some difficulties with access to existing databases. Perhaps part of the answer lies in ensuring that the database includes the abundance of verified and impartial open source data that is available on the internet. This would provide a wealth of information for the casual researcher and public "watchdogs." Additionally, data for which governments would like a level of control maintained could be forwarded to, or accessed by, individuals only after a request has been made, and some level of verification of identity/background conducted. This is obviously wrought with its own challenges.

A number of members recommended a standardized deployment template.

Another approach would be to merely provide a summary of the research or assessment conducted with contact information for the responsible agency. This would allow legitimate requests to be made to the owner of the data while managing out the risks associated with entirely open access.

The group anticipated that the police approach to information sharing is likely to be less restrictive that that of the military. In part, this was due to the fact that the police tended to make very little use of highly classified technologies, but there was a different cultural approach adopted by the Police service. In this regard, it is important to expand the reach of ILEF more broadly into the professional law enforcement and military, perhaps through professional organizations, and gain support from key individuals as advocates for data sharing on less-lethal weapon deployments.

Scope of Information and Database Administration

The discussion here centered on the ability to achieve a balance between the number of data elements needed to make the database useful (increasing complexity) and making data entry simple enough to preclude "scaring off" potential sources of deployment data. Generally, there seemed to be agreement that separate fields were necessary in order to allow searching and statistical analysis of data.

A number of members recommended a standardized deployment template. It was suggested that, as much as feasible, the fields should use "tick boxes" or "drop-downs" for data entry simplicity. Additionally, it was suggested that the data entry page be kept to a single page (or screen). The proposed fields included:

- Sex of Subject (M, FM)
- Age of Subject (#)
- Injury to subject (none, minor, moderate, significant)
- Subject under the influence (None, drugs, alcohol)
- Subject mental health problems (rational, slightly irrational, emotionally disturbed, unresponsive)
- Subject armed (none, blade, firearm, other)
- Any other force used
- Place/Location
- Scene (inside, outside)
- Weather conditions
- Distance from officer to subject
- Time to take effect
- Date of deployment
- Time of day
- Contact Offence
- Data on officer
- Injury to officer (none, minor, moderate, significant)

The group felt that it was best for a single administrator to oversea the database, this would ensure that the data within the database and the overall design stayed constant. The development of the database thus far has been backed and funded by the Home Office and ACPO. The group was happy for the Home Office and ACPO to continue developing the database. When the subject of manufacturers having access and possibly providing financial support was raised, the group consensus was that this would jeopardize the independence of the database and its perceived legitimacy. Charging companies for access to data could provide funding, but would again require that all data be unrestricted.

Recommendations

- ***Database Publication.*** Development of the International Less-Lethal Weapons Database should be continued with the aim of producing an unrestricted web-based version of the current database containing verified and impartial open source information relating to less-lethal weapons.

International Law Enforcement Forum (ILEF) website discussion board.

- ***Sharing of Information.*** There is a need to do more to encourage the sharing of information across military and law enforcement boundaries and across international lines. The database should leverage the abundance of open source data that is available on the internet, if it can be shown to be from a credible source. Also, the professional organizations should strive to identify and solicit support from key representatives in each country to advocate ILEF, and its data sharing initiatives, within that country.

- ***Virtual ILEF.*** The existing ILEF website (and its discussion board and project tools already online), could become a virtual form of ILEF to further develop our role, maintain our work, and sustain the important relationships that we have established. The database could be accessed or linked from this site.

SYNDICATE SESSION 2:

Determining Effectiveness and Injury Potential

CHAIR: Dr. John M. Kenny (Commander, USN-Ret)

The purpose of this Session, led by Dr. John Kenny of the Applied Research Laboratory at Penn State, was to address questions regarding less-lethal weapon effectiveness and any related injury potential.

Inspector Jimmy O'Brien makes a point during the Syndicate 2 Session.

This session began with Dr. Kenny focusing the group first on determining what we currently know about injuries and effectiveness, then on what is important for the future and why.

Injuries

One of the main questions here was: "Is there an accurate list of injuries?" What the group decided was – sort of. Due to the lack of human testing and the corresponding reliance on animal and cadaver data, it is difficult to make clear scientific statements. There are exceptions. There are a few systems – including the Area Denial System (ADS) developed in the United States – which have actually undergone significant human testing.

Beyond these few, however, much work conducted to date has perhaps been overly reliant upon police assessments of injury and injury potential rather than definitive medical data. A suggestion was made regarding a standard framework for medical practitioners to use in their own research that might be useful. In this regard, there is the Abbreviated Injury Scale (AIS) which has been applied as a start point. In any case, the first step is to conduct a thorough literature review to identify potential models and their characteristics, which make them appropriate for less-lethal injuries. Then a number of these must be selected and validated with actual injury data. The model(s) might then be modified to better suit less-lethal systems.

...much work conducted to date has perhaps been overly reliant upon police assessments of injury and injury potential rather than definitive medical data.

Anecdotal data can also be difficult to obtain. The context of the LLW deployment is one variable that impacts on the level of detail of any available data. For example, incidents involving individuals with arrests would have detailed information available either through permission of the subject to view medical records or through officer observation. On the other hand, deployments in a crowd control situation may have an intended effect of dispersing subjects, therefore no arrest or detailed observation of effects and certainly no ability to view records of medical services rendered.

There was also much discussion regarding characterization and modelling of injuries. The group agreed that there needs to be a thorough literature review to identify any models and frameworks that we might apply and to develop a more comprehensive list of clear and accurate definitions that we can use across a range of jurisdictions. It also agreed that there is an "acceptable level of injury," but the definition is still illusive, since there are a host of political, community, economic and social issues influencing this definition. A goal might be, therefore, to develop an objective scale of injury, which might look like that at Figure 2-1. This type of technology independent scale could conceivably serve as both a situational weapon selection tool and as injury design parameters for less-lethal weapons.

The group agreed that there needs to be a thorough literature review to identify any models and frameworks that we might apply and to develop a more comprehensive list of clear and accurate definitions that we can use across a range of jurisdictions.

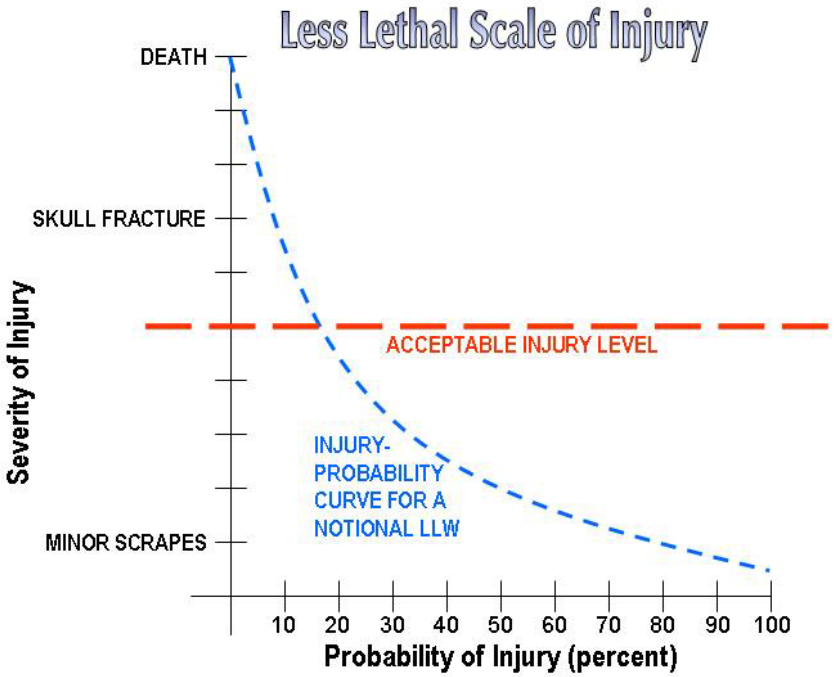


Figure 2-1. Example of what a less-lethal weapon injury scale might look like. The area above the broken red line displays all unacceptable injury types. The area below the broken red line encompass all of the acceptable injuries without considering probability. The curve represents a notional less-lethal weapon's injury types and associated probabilities of occurrence.

Effects and Effectiveness

Related very closely with injury potential are effects and effectiveness. The group acknowledged that effectiveness was dependent upon a number of contextual variables beyond the capabilities of a particular technology – and beyond the scope of what the group hoped to accomplish during the session. The comment was made that we haven't really come very far regarding less-lethals when we are still using "cave-man" technology (blunt impact).

There was much discussion, however, concerning short and long term effects of less-lethal weapons (both physiological and psychological). It was generally agreed that evaluating short term effects is fairly straight forward (yet still requiring extensive testing). Identification of all potential injuries, including those unexpected, and determining a probable frequency of those injuries is important in characterizing the effects of the particular technology. Additionally, there is an implied obligation to conduct additional toxicity research and testing when dealing with technologies such as CS and other chemical-based riot control agents.

Identification of all potential injuries, including those unexpected, and determining a probable frequency of those injuries is important in characterizing the effects of the particular technology.

Determining long term effects is a much more difficult proposition. The group consensus was that it is unreasonable to test every particular technology for every possible long term effect. What is reasonable is to identify those primary long term effects of concern and conduct the appropriate research in an effort to discount them with some level of certainty.

Finally, it is important to underscore that although a particular less-lethal technology might have some undesirable effect or potential for serious injury, there are often numerous means to mitigate the severest of these injuries. Weapon accuracy can mitigate potentially serious injury by increasing the probability that an impact can be directed to a less vulnerable part of the anatomy. This was seen in the UK development of the L21A1 Baton Round. Not only was the accuracy improved dramatically from its predecessor, but appropriate tactics for employment were designed for the system and officers trained exhaustively to the established standard to reduce the potential for serious injury.

Acceptability of a particular technology is a complex concept tied to both effects and injury potential (or the perception thereof). It is also a matter of perspective. What might seem reasonable to a law enforcement officer in a given situation might not seem reasonable to the public, the community, or society. On the other hand, it might also be perfectly reasonable from a legal perspective. Often we are culturally predisposed against the use of certain technologies due to historic "bad experiences," which might render a particular technology unacceptable for a given context.

Recommendations

- ***Data Exchange.*** Related to the continuance of ILEF, and the maintenance of less-lethal databases in general, is breaching the logjams that exist in data exchange. Release and open exchange of related medical, operational, and test data would facilitate understanding of these concepts and technologies and perhaps permit the development of systems that will ultimately provide law enforcement with better options without placing officers, subjects, and the public at risk of death or serious injury.

- ***Notification of Program Testing.*** That members of ILEF, as a community of professionals, endeavour to ensure that colleagues are aware of ongoing and future test and experimentation plans in the realm of conflict management. This will allow a reduction in the duplicative efforts and perhaps a wider acceptance of developed solutions through open and ongoing peer review.

- ***Terminology Standardization.*** That ILEF's Electronic Operational Requirements Group (EORG) develop a standard definition for life threatening, serious injury, and other less-lethal medical terminology.

- ***Medical Data Access.*** That ILEF conduct an investigation into, and seek support for, appropriate methods to obtain accurate and comprehensive medical data related to less-lethal effects and injuries. Consider an approach that might include a "firewall" that provides researcher only anonymous identifiers. There is some precedent for this in the area of corrections.

- ***Develop/Adapt Injury Model.*** That ILEF conduct a thorough literature review to identify potential models and their characteristics which make them appropriate for less-lethal injuries. Select a number of these and validate them with actual injury data. As we proceed, we may then find we can modify the model(s) to better suit less-lethal systems.

SYNDICATE SESSION 3:

Optimizing Tactics, Training and Use

CHAIR: Assistant Chief Constable Ian Arundale

The purpose of this Session, led by Ian Arundale, Assistant Chief Constable, ACPO Police Use of Firearms Secretariat was to address whether law enforcement internationally were optimizing tactics, training and use of less-lethal options. The group used a series of sub-questions to develop the issue under review.

Commander Sid Heal of the LASD responds to a discussion point on tactics and use.

Is Law Enforcement Making the Best Use of Currently Available Options?

In addressing this issue it was first acknowledged that there was a responsibility to protect life and that there was a paradox in that sometimes it became necessary to use lethal force in order to protect life. It was considered that the ideal LLW would be one that enables the user to also deal with a lethal threat. However, technologies were not sufficiently mature or predictably consistent, to allow them to be deployed in many situations without overwatch by officers armed with conventional bullet firing weapons.

... development of less-lethal technologies was often being driven by manufacturers as opposed

In considering whether law enforcement was optimizing tactics and equipment, there was a view that development of less-lethal technologies was often being driven by manufacturers as opposed to users. This had resulted in a situation where in the United States there was often an abundance of implied 'solutions looking for users' (i.e., law enforcement would become aware of new products then the practitioners would determine the scenario in which they would be used).

While a similar approach was recognized elsewhere, the policing arrangements and smaller number of policing departments enabled a more corporate and structured approach to research, development, and introduction of evaluated less-lethal weapons. It was also recognized that there is an extensive range of less-lethal devices being used across the US and elsewhere and that users are gradually becoming aware of what does and does not work effectively. Increasingly, there was recognition that only a small percentage of these devices could be described as being consistent, accurate, effective and acceptable less-lethal weapons.

...there were 81 kinetic energy devices being used by various police departments, there were only four that could be considered as meeting standards of accuracy, consistency, and acceptably.

In the open forum feedback session, several US delegates highlighted that while there were 81 kinetic energy devices being used by various police departments, there were only four that could be considered to be accurate, consistent, and acceptable.

The group was of the view that there needs to be a way to capture, internationally, information on what worked and what did not work in a particular incident within an authoritative, independent, and easily accessed database. They considered the work on international databases being discussed in syndicate 1 to be of high importance.

The work started by the Electronic Operational Requirements Group (EORG) following last year's ILEF has the potential to provide an internationally endorsed Operational Requirement that would help inform users and manufacturers as to what was actually required by law enforcement. It would be essential to find a way of having endorsement given to the findings of the group. One option was for ILEF to harness the support of the International Association of Chiefs of Police (IACP). It should then be able to articulate and communicate the international law enforcement operational requirements to manufacturers and suppliers and for law enforcement to begin to drive technology development in this field. In addition, Associations of Chief Police Officers, most of whom are affiliated with IACP could be in a position to ensure that localized operational requirements are developed within the generic framework.

...the 'virtual bench mark' [for the less-lethal weapon] had been introduced into the public psyche by a futuristic televisions series in the 1960's- The Star Trek "Phaser"...

There was recognition that the impetus provided by the UK Steering Group set up to take forward Patten Recommendations 69[1] and 70[2] had resulted in the publication of a broad yet definitive operational requirement endorsed by the UK's Association of Chief Police Officers (ACPO) and a coordinated less-lethal research and development program. It was noted that this approach, which included scientific and medical assessment of less-lethal weapons and the publication of operational guidance on use, had been endorsed by the UK Government and reflected in the recently published Code of Practice by the UK Home Office. This Code sat above the *Manual of Guidances* issued by ACPO and had the potential to promote "corporacy" with respect to the pursuit of LLW in the UK.

The imaginary Star Trek Type II Phaser can be set for stun, heat, disrupt, and other settings.

The Ideal Less-Lethal Technology

While military and law enforcement had struggled to articulate the ideal less-lethal candidate, the standard which has become the 'virtual bench mark' had been introduced into the public psyche by a futuristic television series in the 1960s – The Star Trek "phaser" is seen as being the ideal. However, the group considered that if the "phaser" was ever available for introduction it would require very tight guidelines to prevent misuse. It was also acknowledged that if the police service had such an effective less-lethal weapon, the incidence of use would increase significantly.

[1] Patten Report Recommendation 69 stated that " An immediate and substantial investment should be made in a research programme to find an acceptable, effective and less potentially lethal alternative to the plastic baton round (PBR)."

[2] Patten Report Recommendation 70 stated that "The police should be equipped with a broader range of public order equipment than the RUC currently possesses, so that a commander has a number of options at his/her disposal which might reduce reliance on, or defer resort to, the PBR."

Although such a device does not exist, the nearest that law enforcement has is the latest generation of TASER® technology. There was a view that electricity is a technology to be pursued but that its effect need to be better articulated to the public. Ideally, electrical incapacitation technologies would be able to operate without the need for connecting wires – the electricity could be transferred without barb penetration of the skin. If this was an ideal less-lethal concept it would be important for law enforcement to find a mechanism for communicating this effectively with technology developers and to assist in developing the concept. It is also essential that the police service is not seen in any way to stifle innovation and that there was clear communication with manufacturers.

Operational Doctrine

There was concern expressed that in some jurisdictions officers found themselves having to use particular less-lethal weapons in situations for which they had not been purchased. Often weapons designed for use against an individual subject were being used in an indiscriminate manner to disperse a rioting mob. While it was agreed that less-lethal weapons should not generally be categorized for use only in particular situations, there was a requirement for well founded guidance and policy documents to inform the command and control mechanisms of the capabilities and drawbacks of particular weapons.

...the use of less-lethal devices is undoubtedly saving lives in jurisdictions where police officers are equipped with a range of accessible less-lethal options.

It is therefore important that individual police departments have a clearly articulated doctrine on less-lethal options. It was also recognized that currently there is no single technology that has potential to meet all the needs of the police service. All have their limitations.

Notwithstanding, the use of less-lethal devices is undoubtedly saving lives in jurisdictions where police officers are equipped with a range of accessible less-lethal options. These jurisdictions have also seen a significant reduction in officers resorting to discharging conventional bullet firing weapons, improving public safety, and reducing use of batons as well as the incidence of violent struggles with police officers. It is essential that organizations have robust policy and guidance documents relating to the use of specific less-lethal options.

Cultural and Historical Inhibitors

Historic and cultural issues were a factor that often inhibited full use of currently available options. The US use of police dogs and water cannon during the 1970's race riots were cultural impediments to developing these tactics as was early use of baton rounds as a means of crowd dispersal in Northern Ireland. Despite historical baggage there were examples of how public education, police training and advances in technology can enable progress to be made and technologies to be used with public support in appropriate situations to save lives and protect society. The recent successful introduction of the UK baton round system as a less-lethal option in support of firearms in the UK is one such example.

In 1991, the Rodney King incident in Los Angeles had the potential to stop or impede the acceptability of electrical devices. However TASER® was now being widely used throughout LA and North America and is being evaluated in the UK. In reviewing the reasons for this turn around in public acceptability, the following points were noted with respect to TASER® technology and the LA experience:

- The technology had changed in terms of design, appearance and effect;
- There was public engagement and information provided with respect to the technology;
- The police training programmes were more extensive;
- Community Support Groups were now in place;
- The police proactively engage with all community and interest groups especially in the aftermath of any controversial use of force incident; and
- The public wish and expect police to have effective and tested less-lethal options in resolving critical situations.

Similar public education processes were noted in Canada in respect of TASER® and the UK trial was being undertaken on a similar basis. It was considered that such a process could be used to ensure that enhanced technologies, which could contribute to the saving of lives and effective resolution of incidents, were not removed from the police armory because of perceptions of previous abuse or inappropriate use. Rather it was important that improved technology, revised guidance on use, and effective post-use scrutiny enabled effective and appropriate use to save lives.

It was reported that the Canadian experience of water cannon had been positive and consideration was being given to use chemical irritants (CS) within the water supply. It was also noted that this concept, widely used in Europe, was not being taken forward by the Police Service of Northern Ireland who had recently introduced modern, built-to-specification water cannon. The introduction had involved what is considered to be the most comprehensive research, technical assessment, and medical assessment ever undertaken in respect of this technology (for details see the report at *http://www.nio.gov.uk/pdf/batonrep4.pdf*)

It was also acknowledged that ILEF had provided the opportunity for interchange between policy-makers, scientists, medical experts, and practitioners on an international basis and had resulted in the sharing of good practice.

It was also acknowledged that ILEF had provided the opportunity for interchange between policy-makers, scientists, medical experts, and practitioners on an international basis and had resulted in the sharing of good practice. One example of this was that many US agencies have followed the UK in changing the point of aim for impact rounds from centre body to the belt buckle region. It was important to understand that this decision had been based on the informed medical opinion and the need to ensure that the point of impact avoided the thorax and head. The nature of injury (i.e., the predictability that a strike in a particular part of the body was unlikely to result in serious or life threatening injuries) was important in determining the extent to which the system could be classified as being less-lethal. This medical evaluation was closely allied to the ethical component of the 4-stranded Acceptability Matrix being used in the UK (Strategic, Operational, Ethical, and

Societal factors), details of this are set out in the 2nd report of UK Steering Group (see page 44 of the Phase 2 report at http://www.nio.gov.uk/pdf/batonrep4.pdf).

Where Are the Gaps? Training, Command, Technology?

It was considered that the right framework and language is needed to enable Chief Officers, Government, and the public to be informed of operationally and technically accurate details of less-lethal equipment and its deployment. There was also a need to ensure that the appropriate strategic and tactical training was given to Operational Commanders. They need to be exposed to the wider issues. This could not completely be delivered by tactical trainers who would not have been exposed to or have had the opportunity to critically consider strategic issues.

It was considered that, internationally, practitioners understood the tactical and weapons issues related to less-lethal options but that often commanders had a knowledge and skills gap.

It was considered that, internationally, practitioners understood the tactical and weapons issues related to less-lethal options but that often commanders had a knowledge and skills gap. This had given rise to unrealistic expectations and critical misunderstandings of certain weapon systems. A number of UK police forces had mistakenly believed that the L21 baton rounds would instantly incapacitate, while Northern Ireland officers realized this to be incorrect. Many UK officers were surprised when the first operational uses in Great Britain (GB) did not result in instant incapacitation. Similarly, the Canadian experience of 37mm Arwen was such that in public order situations operational officer expectations were not met and officers were surprised it did not knock the person down.

There was clearly a need for the public to be informed and educated about less-lethal systems which were being introduced. This had occurred in Canada in relation to the introductions of the TASER® and had eased its introduction.

Are Specific Tactics in Place for Less-Lethal Options?

In considering tactics, it was agreed that it was necessary to differentiate between technologies designed to encourage compliance as opposed to those which invoked a degree of incapacitation. There may also be a need to consider the context in which LLWs would be used. While the directions and guidance on use should be essentially the same irrespective of the situation, there may be specific command and control or authority issues in public order situations which would not apply in one-on-one or small group confrontations.

The early use of baton round to disperse crowds had more recently been replaced by the precise accurate use against specific individuals who were offering serious threats. This application applied both within the context of public order situations and the lone aggressor. While this distinction between use against individuals (albeit in public order context and their former use as a crowd control dispersal concept) had been articulated, it had not fully entered the public consciousness. It therefore followed that baton round technology (unlike water cannon or so called tear gas) should not be described as dispersal tactic. This is a significant change in role from the earlier one, which was simply to maintain distance and to disperse or contain the crowd.

There was disappointment expressed that the malodorants have not been pursued as vigorously as other technologies. It was recognized that essentially these were chemical compounds and did require testing. However they could be used in either dispersal or area denial capacity and if applied through an accurate and discriminating projectile, could assist in making an individual not only desist any violent action but isolate the perpetrator from associates.

The potential for greater use of malodorants was discussed particularly in that it was recognized that these were essentially chemical agents and there is a requirement to determine what tactical advantage they offered beyond other chemical dispersants. It was agreed that there were circumstances where malodorants would be useful. The objective was to make an individual desist from violent activity and to disperse, and there were other situations where there was a need to immediately arrest the individual.

It was suggested that operators should have a careful articulation of the effect that they want, not the solution. It was agreed that this articulation of effect should sit within the operational requirement.

Policy writers and tacticians must be careful not to preclude a technology from a given situation where it could be used to protect or save lives. It was recognized that technologies could have crossover applications into situations which were outside of the envisaged situational use for which they had been introduced. For example, it was stated that within Canada, some police organizations train to the use of TASER® in 'touch stun' mode within a public order/crowd situation. Also, an operational example was cited from elsewhere in which the police approached a rioting crowd in line formation while collectively 'arcing' the TASER® and this had the effect of causing the crowd to disperse.

There was a need for policy developers to adopt a holistic overview and there were risks in devolving responsibility for developing less-lethal options to separate public order, firearms and officer safety sub groups. It was considered that greater integration was required. The way forward was considered to be through a more integrated Conflict Management Committee and the holding of regular Conflict Management conferences

Are Less-Lethal Tactics "Tacked-on?"

It was acknowledged that some less-lethal weapons are controversial and this is made worse when they are 'tacked-on' as a supporting option within a conventional firearms operation without there being an integrated set of tactics within a broader use of force doctrine. Within the UK, it had become the norm to dispatch a police dog patrol when firearms officers are sent to an incident. Increasingly, armed response crews are also issued with Baton Guns.

Situations were discussed where operational commanders had dismissed less-lethal options due to the perception that they were dealing with a lethal threat which they considered could only be met by lethal force. The consensus view was that in most situations there is no reason (subject to the number of officers available for deployment) why less-lethal are not also deployed, albeit with lethal capability over watch. It was agreed that there is a need to incorporate LLW into operational contingency plans and standard operational procedures.

Another consideration is whether the deployment of a LLW might actually aggravate a situation rather than resolve it and this needs articulating. Essentially this was no different than other considerations for police deployment to specific events and a graduated response to threats is normally appropriate.

Police presence and tactics should be designed to resolve threats and to minimise threats to the public and the police officer. There was concern expressed about vertical or linear use of force continuums that placed weapons or tactics not a hierarchy of options. The preferred model was much more situational which permitted the appropriate option to be selected at the appropriate time. This concept was well articulated in the UK's Guidance on use of TASER® in the following words:

> *The TASER® should not be regarded as replacement for other routinely issued protective equipment or for conventional firearms but rather one of a number of options. An officer may also need to resort to another option if the device does not have the effect intended. In circumstances where authorised firearms officers have been deployed to a situation, the authorisation to utilise their firearm will also include the authority to use any other less-lethal option or technology with which they have been issued including where appropriate the TASER®. It would be inappropriate for commanders or supervisory officers to attempt to restrict the deployment of an authorised firearms officer to a particular less-lethal technology or use of force option.(ACPO TASER® guidance section 5)*

It was considered important that this type of generic guidance should, where appropriate, be uniformly applied to all less-lethal weapons. There was a risk that each set of operational guidance even when issued with a particular jurisdiction would be subtly different.

Recommendations

- **Articulate Operational Requirements to Manufacturers.** There is a need to create a mechanism to communicate agreed international Operational Requirements being developed by EORG with manufacturers. One option was for ILEF to harness the support of the International Association of Chiefs of Police. It would then be able to articulate and

communicate the 'model' international law enforcement operational requirements to manufacturers and suppliers and for law enforcement to begin to drive technology development in this field.

- **Identify Desired Effects and Outcomes.** There is a need to formulate an operational statement of desired effects/outcomes of less-lethal weapons. However, there are risks in having a rating of incapacitation. There should be as much clarity as possible as to what a particular device does, or does not do. There are also hazards in developing rigid definitions of effect. There is a need to appreciate that there are different interpretations influenced often by departmental doctrine and historical issues. This is work that could be developed by EORG.

- **Describe and Provide Measures of Effectiveness.** There is a need to link descriptions of effectiveness with measures of effectiveness. The group was made aware of work commenced in the UK under the auspices of the Patten/ ACPO Steering Group to identify effectiveness criteria for less-lethal devices. A summary of the emerging approach is provided in the Steering Group's phase 4 report (see *http://www.nio.gov.uk/pdf/batonrep4.pdf,* page 18). The integration of these descriptions with the type measures described by syndicate 2 could enable effectiveness criteria to better articulated and measured.

- **Incorporate Psychological Criteria into Operational Requirements.** There is a need to identify and understand the psychological elements of aggressive behavior in conflict situations and ensure that the development of less-lethal weapons includes design factors intended to operate on both the physical and psychological level. It was evident that the use of the red dot on the TASER® was in itself resolving many situations without resort to discharge of the weapon. Similarly, it was evident that the often intended deterrent effect of a show of force capability could ether diffuse or incite a crowd.

- **Share Information on Operational Trials**. There should be a mechanism to notify other departments and jurisdictions of structured force wide or national operational trails. It would be useful if there was a wider source of information for such trails. One suggestion was that these could be stored on the International data-base being discussed by Syndicate 1.

- **Develop a holistic approach to conflict management**. A more holistic approach to minimal force options and to conflict management is encouraged. This should include developing a greater understanding of what causes individuals or crowds to react in particular ways. There is a need for a greater understanding of the parameters and range options are applicable; from brawls outside a pub through to full public disorder situation as well as encounters with emotional disturbed individuals through to determined armed criminals or terrorist groups.

SYNDICATE SESSION 4:

Specifying Definitions, Standards, & Testing

CHAIR: Colonel Andrew F. Mazzara (USMC-Ret)

The purpose of this Session, led by Colonel Andy Mazzara of the Applied Research Laboratory at Penn State, was to address definitions, standards, and testing. The desire was to develop a way forward in clarifying terminology and developing standards for less-lethal technologies specifically and minimal force option in general.

The group from Syndicate Session 4 worked through the EORG products on definitions.

Definitions

The group first addressed the subject of defining a scale for incapacitation. An incapacitation scale would enable users and medical personnel to better classify and articulate outcomes in a manner which would enable comparison. It would have the potential over time to provide informed data on the range of likely outcomes and could eventually be used to give devices an incapacitation rating. Although the scale may not provide complete clarity, users need to know what generally to expect from a particular system or device. Device failures are often reported due to lack of realistic expectations (e.g., the first British Police experience with using a baton round in a non-public order situation did not result in incapacitation). There was a similar experience when a TASER® failed to incapacitate and follow-up measures were necessary. A well-developed scale might allow officers to more easily select a system or approach from a number of options according to a scenario or threat. Additionally, having a universal test method considers that the levels of required performance and acceptability may vary by country, culture, and organization.

Much of the discussion centered around the appropriate metrics to characterize such a scale. One such approach would be to assign a time for incapacitation (e.g., 2 to 3 seconds; 2 minutes; 15 minutes; 1 hour; more than 1 hour) for a number of "levels of incapacitation." An alternate approach might be to broadly define a level by a particular desired response. For example, the scale could start at distracting, through debilitating[3], into incapacitating[4]:

[3] Debilitating has been defined by the EORG of ILEF as degraded functionality to the point of inability to present a threat. Considered by degree, but only partially or not completely incapacitating.

[4] Incapacitating has been defined by the EORG of ILEF as causing temporary and total dysfunction and a complete inability to perform basic aggressor functions or pose a threat.

- Level 1 – Subject(s) temporarily distracted
- Level 2 – Subject(s) debilitated/degraded function
- Level 3 – Subject(s) incapacitated/self-recovery
- Level 4 – Subject(s) incapacitated/requires medical intervention

The group did not achieve consensus, but recommended that it should charge the EORG (Electronic Operational Requirements Group) with drafting and vetting levels of incapacitation in some form.

The nature of less-lethal technologies is that the desired effect on a particular subject is as much a function of the characteristics of the target (subject) as it is a function of the characteristics of the particular weapon or device.

There are a growing number of terms related to less-lethal weapons and their effects. These terms seem to take on a number of different meanings depending upon the weapon, target, situational context, and whether the discussants are law enforcement, military, or academic professionals. Often these terms are defined for legal purpose or simply as a matter of convenience.

There should be a concerted effort put forward to conducting a literature review to identify a comprehensive international terminology list, identifying new terms (e.g., pain compliance) and address/resolve discrepancies with regard to definitions so that we might press forward with a common vernacular when discussion less-lethal systems.

Standards

The group also debated the issue of the appropriateness and methodology of establishing international standards for less-lethal development and testing. First, they acknowledged that there is precedent for establishing such standards. There are accepted international standards and protocols in many professional fields which influence – if not govern – research, development, testing, and manufacturing. On the other hand, it was also noted that in the area of less-lethal technologies and their effects on humans there are many variables that often make each encounter unique. This is not nearly as precise a science as, for example, electrical engineering, where there are indisputable principles at work. The nature of less-lethal technologies is that the desired effect on a particular subject is as much a function of the characteristics of the target (subject) as it is a function of the characteristics of the particular weapon or device.

Members of the group illustrated that particular countries often define their standards based on the review of generally accepted standards developed by other countries or international organizations unaffiliated with a particular government. For example, with regard to body armour standards, the French have a tender document (non-binding), whereas the British Police have a formally established government standard (binding). In the UK the Police Scientific Development Branch of Home Office have published standards for the testing and classification of both ballistic and knife resistant body armour, which manufacturers wishing to have body armour tested for police use are required to accept and mark their products according to such classifications.

The US National Institute of Justice (NIJ), French and PSDB standards whilst similar do have their differences (point blank shot, penetration depth, etc).

There was consensus that accuracy and other measurable characteristics of weapons might have established standards and these must be reasonable. For example, we should define minimum safe range based on point of aim and not try to anticipate every possible move by a subject. However, developing standards for effectiveness could be illusive, due to the variability of the human anatomy and its condition (fitness, health, intoxication, emotional response). It was also emphasized that there are operational use differences that would impact on perceived effectiveness. There are often differences in what may be viewed as effective for public order and individual assailant scenarios. The public order situation might require preventing future hostile actions, whereas individual assailants often need to be brought under immediate control before they become a threat.

One member described the work currently being done by the North Atlantic Treaty Organization (NATO) Studies, Analysis, and Simulation (SAS) Panel number 035 regarding less-lethals. The NATO framework might be an approach for ILEF and participating member organizations to consider as an initial set of "measures of performance" and "measures of response." In the open feedback forum it was considered that these measures of performance and response could be integrated with some UK work already underway to describe the measures of effectiveness.

Who sets standards?

Certainly an important aspect of gaining general acceptance of an international standard in any field is the support of appropriate academic and professional organizations, governments, the private sector, and of course the practitioners in the community to which those standards apply. The group agreed that, in terms of implementing standards, it would be best if they were established (if not developed) by the body responsible in each jurisdiction for determining standards for police equipment at the national level. An independent body would be a second choice for who should establish standards, merely because the standards would not be binding. Least desirable would be for manufacturers to establish standards, although in many cases that is currently the de facto state of affairs.

There was general agreement that gaining the political if not monetary support of professional organizations such as the International Association of Chiefs of Police (IACP), The Association of Chief Police Officers (ACPO), the Police Executive Research Forum (PERF), and the National Tactical Officers Association (NTOA) would be crucial to pursuing acceptance and implementation of developed standards by governments.

Recommendations

- ***Literature Review.*** That members of ILEF (perhaps as a continued EORG task) pursue international funding to conduct a literature review to compile a comprehensive international terminology list, identify new terms (e.g., pain compliance), and address/resolve discrepancies with regard to definitions so that we might press forward with a common vernacular when discussion less-lethal systems.

- ***ILEF Standards.*** That the EORG (Electronic Operational Requirements Group) develop a comprehensive set of standards for review by all ILEF members, then publish these documents for external/peer review by practitioners, industry, and professional organizations. These standards should consider including levels of incapacitation in some form and establishing or defining levels of effectiveness, recognizing that human variability will always be a challenge.

SECTION 2:

Special Remarks

KEYNOTE ADDRESS:

Developing a Less-Lethal Approach for the Police Service: a UK Perspective

Chief Constable Paul Acres QPM

Paul Acres is the Chief Constable of the Herefordshire Constabulary, England. He is also the Chair of the Conflict Management Sub Committee of the Association of Chief Constables, England Wales and Northern Ireland. As such, he has responsibility for the development of National Guidance and Policy, the development of less-lethal approaches to the management of conflict, and responses to potentially violent situations.

Ladies and Gentlemen, as Chair of Conflict Management Portfolio for ACPO [Association of Chief Police Officers], England Wales and Northern Ireland, thank you very much for this opportunity to update you on the approach being taken within the United Kingdom to the development of a less-lethal approach in the management of conflict and the police services responses to violent situations.. I would also wish to extend your thanks to PSDB for hosting us at this superb venue.

The ACPO Conflict Management Portfolio embraces:

- Officer Safety issues associated with Self Defence, Arrest and Restraint
- Managing Public Order – Keeping the Peace
- Police Use of Firearms
- Close links with ACPO (TAM) - Terrorism and Allied Matters
- The use of Police Dogs and Horses

Whilst the portfolio deals with important issues in relation to the development of equipment the overall emphasis is on policies, process and training designed to 'Manage Out' Conflict and Violence.

The whole point of the police service and our very clear priorities are reflected in our Statement of Common Purpose and Values is to protect, help and reassure. So in resolving conflict at whatever level our aim is always the same. It is to do so safely without any use of force if possible. If it is not possible then we seek to use only the minimum amount of force necessary. It is an ethical position and leaders of the service work constantly to ensure the principles underpin all we do.

This conference has been organised as part of the international drive to develop policing approaches to the management of conflict and less-lethal weapons. Participation by the various policing, non-government organisations and other experts from Great Britain, Northern Ireland and overseas is very much welcomed and indeed essential if we are to achieve best results.

Increasingly the most active, dangerous and prolific criminals are resorting to a wide range of sophisticated weaponry to further their aims and we must be able to respond to and remove the threat robustly. In doing so we must ensure the safety of our public and staff and reassure all that our use of force is proportionate. But reassurance should not lead to the creation of false expectations. Where officers face firearms we must respond with firearms and we continually develop weaponry and tactics to counter new threats such as suicide killers. What we seek with less-lethal options is to realise always the principle of using the minimum force necessary in any situation.

This is now the third ILEF gathering and much work has been carried out in this area in the UK since we started. I thought it would be helpful if I updated you on our progress. A few months before last years meeting, 3 key documents had been produced: the Joint ACPO Operational Requirement for Less-Lethal Weapons, the PSDB review of commercially available and near market less-lethal options, and the first report of the Joint Patten ACPO Steering Group led by the Northern Ireland Office.

The 4th Report of this group has just been published and will be made available to you during this conference. The international linkages formed as a result of the previous two International Law Enforcement Forums and the many other links between Scientific and Policing organizations worldwide have proved invaluable in ensuring a joint approach to the review. I think that is significantly good news.

The ACPO Operational Requirement was the first crucial step in the UK programme to identify less-lethal options for the police. It also provided the basis for the prioritization and evaluations carried out by PSDB, as well as that carried out by DSTL where medical implications of the use of the more promising options are established. It is the bedrock of all our development.

Indeed the approach taken has now been formalised in the Code of Practice on the Use of Firearms and less-lethal weapons. Issued by a Government Department, this Home Office Code is the first of its kind in the United Kingdom. This is a seminal document amongst other stipulations it requires each police force to have a nominated senior officer who has policy responsibility for this important area and requires the scientific monitoring of and the medical review of potential less-lethal weapons.

The Defence Scientific Advisory Council on the Medical Implication of Less-Lethal Technologies or DOMILL have been called upon to provide statements on a number of the technologies that have been deployed or trialed in the UK since that first meeting of the Forum. These have included:

- Use of the L21A1 baton round at ranges under 20 metres;
- Comparative injury potential of the L21A1 and the 12 Gauge sock round;
- Medical evaluation of TASER;
- Testing and medical evaluation of a made to specification Water Cannon (currently being introduced in Northern Ireland details of which you will hear later).

For each of the technologies used ACPO have issued comprehensive guidance on use. The medical evaluation and statements that are made and laid before Parliament on these technologies have been in part based on the guidance issued as to how these technologies will be used.

The 1999 Human Rights Act requires ACPO, in common with other public authorities throughout the UK to review in detail how we undertake all our business. It has been particularly relevant in respect of firearms and less-lethal weapons. Establishing the attributes and medical implications of any weapon we deploy to such an exact degree allows an informed judgment to be made on whether the option is proportionate. As was reported at the last ILEF we have developed a strategic audit framework which we have used to review each technology that we have introduced against its Strategic, Operational, Ethical and Societal effects.

Because the UK has a predominantly unarmed police force any additional use of force option may be seen as an increase in our weaponry rather than an attempt to reduce the use of force used. This is a sensitive and important issue. We seek to move forward with public support with their consent and their confidence. It is essential if we are to develop the concept of public engagement, which is central to our approach to Building Safer Communities. Where officers are permanently armed, less-lethal options will perhaps more readily be seen as an attempt to reduce the level of force.

L21 Baton Round System

In November 2001, ACPO in consultation with the Home Office had taken the decision to adopt the L21 baton round system as a less-lethal Option to be deployed by armed firearms officers in situations those who were presenting an violent threat. We had previously been closely involved with this weapon system as a potential Public Order contingency - however we recognised that the significant improvements in accuracy and consistency over the type of baton rounds previously used in Northern Ireland made it appropriate for use as a less-lethal option in other situations.

Whilst it took the best part of a year to introduce and train Firearms officers in this new equipment it is now in service with all forces in England and Wales and is being introduced as a less-lethal option to all forces in Scotland.

Since its introduction it has been fired on 17 occasions, often at close quarters without causing serious or life threatening injuries. Its availability and use has undoubtedly saved lives. There is a demonstration of this round after lunch.

M26 TASER® Trials

We have also introduced the TASER® in a limited field trial, which you will also hear more about later. The introduction of technologies such as TASER® that allow officers to gain compliance by a more effective means than pain compliance must be welcomed and encouraged but, as I said earlier we must ensure we fully understand any medical implications of their use before deployment. The current field trial has followed this approach and any extension to it will also be carefully implemented.

Development Work

So far we have not identified any impact technologies that can match the performance of the L21A1 however a programme to develop an Attenuating Energy Projectile has been put in place to develop a round which can offer safety advantages over the L21A1 whilst maintaining its accuracy and effectiveness. There is also a parallel programme to develop a Discriminating Irritant Projectile that will accurately deploy a sensory irritant at an extended range.

The corporate work that has been carried out over the last few years is important. PSDB have produced a database framework to contain the work and make the sharing of results and experiences easier. You will have an opportunity to see this during the conference and to have an influence on how it is taken forward and developed. This forum has come together to share information and I hope that this can be continued by using frameworks such as the one PSDB have developed.

I also hope this forum will be able to identify what still needs to be done in this area. Less-lethal technologies are a growth area and we need to ensure that developments are driven by people such as ourselves using well founded Operational Requirements rather than allowing manufacturers to drive us to use their latest development. We can help manufacturers to do this by the production of requirements and standards. This is what we have done in many other areas of police equipment and, although there are difficulties to be overcome, I hope that we will be able to do this with less-lethal technologies as well.

I want to take this public opportunity to thank all those who have supported us – in particular, Brian Coleman and PSDB who seem to me to be world leaders in the rigorous assessment and research of such weaponry and who are always clearly focused on providing answers to our operational problems; Robin Masefield and the Northern Ireland Office; and Colonel Andy Mazzara and the team from Penn State University for their work in helping to develop this International forum on less-lethal options and for their active and continuing support. I look forward to working with you and am now pleased to introduce Assistant Chief Constable Ian Arundale, from the West Mercia Constabulary who leads the ACPO Police use of Firearms Committee and is your Chairman and Moderator for the rest of the conference.

PRESENTATION:

Northern Ireland and the Wider International Context

Robin Masefield CBE

Robin Masefield CBE, is head of the Northern Ireland Office's Patten Action Team. He provided an update on the work of the UK Steering Group led by the Northern Ireland Office in consultation with the Association of Chief Police Officers, England, Wales, Northern Ireland and Scotland. The Steering Group are reviewing alternative approaches to the management of conflict. The work undertaken by the Steering Group includes a less-lethal research and development programme, which is one of the most comprehensive ever undertaken in within policing.

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Background

Public order policing and in particular the use of baton rounds in these situations by the security forces in Northern Ireland was one of the many issues addressed by International Commission on Policing in Northern Ireland (the Patten Report). The Commission reported in September 1999 and its recommendations were accepted by Government and as such form the basis for the transformation of Policing within the Police Service of Northern Ireland. Two recommendations in particular (69 and 70) are directly associated to the issues which form part of the ILEF discussions:

- *An immediate and substantial investment should be made in a research programme to find an acceptable, effective and less potentially lethal alternative to the Plastic Baton Round (PBR).*
- *The police should be equipped with a broader range of public order equipment than the RUC currently possess, so that a commander has a number of options at his/her disposal which might reduce reliance on, or defer resort to, the PBR.*

In the summer 2000, the Secretary of State for Northern Ireland, having consulted with Cabinet colleagues and others, established a UK-wide Steering Group to lead a research project aimed at:

> *…establishing whether a less potentially lethal alternative to the baton round is available; and reviewing the public order equipment which is presently available or could be developed in order to expand the range of tactical options available to operational commanders.*

The Steering Group, chaired by Northern Ireland Office, comprised representatives from Her Majesty's Inspectorate of Constabulary, the Home Office, the Association of Chief Police Officers, the Ministry of Defence, the Police Authority for Northern Ireland, the Police Scientific Development Branch (PSDB) of the Home Office and the members of the Police Service Northern Ireland, and was chaired by the Northern Ireland Office.

The Steering Group has produced four publicly available detailed reports on less alternative approaches to the management of conflict and less-lethal weapons (http://www.nio.gov.uk/issues/policing.htm).

The phase 4 report (http://www.nio.gov.uk/pdf/phase4rep.pdf) of the Steering Group was published on the 29th of January 2004.

The work of the Steering Group has enabled a number of in-depth research programmes to be undertaken. These have included:

- Use of the L21A1 baton round at ranges under 20 metres;
- Scientific and medical of the 12 gauge sock round;
- Scientific and medical evaluation of TASER; and
- Testing and medical evaluation of a made to specification water cannon for use by the Police Service of Northern Ireland.

Arrangements have also been made for patrol officers in Northern Ireland, in common with colleagues throughout the rest of the UK, to be issued with personal incapacitant CS Sprays; orders have been placed for 6 built-to-specification water cannons for use by the PSNI; and guidelines on the use of baton rounds in public order situations have been revised.

Use of the Current Baton Round

The introduction of the current UK L21 baton round system overlapped with a major research programme implemented by Government following the publication of the Patten Report.

I am pleased to be able report that due to improvements in the public order situation no baton rounds have been fired in Northern Ireland since September 2002.

The accuracy and consistency of the baton round has, however, enabled it to be introduced to firearms officers across the United Kingdom as a less-lethal option. Since the baton round has been introduced in this role, there have been a total of 21 baton rounds fired against individuals in 17 incidents in Great Britain, many of which have been at close quarters (Correct at 29th Jan 2004). Resort to the L21A1 in those circumstances obviated the need to use higher levels of force, saved lives, and did not result in serious or life threatening injuries being caused to the person struck by the baton round.

The Wider Approach of the Steering Group

The reports of the Steering group are deliberately entitled "*A Research Programme Into Alternative Approaches Towards the Management of Conflict*;" and whilst a great deal of research has gone into the scientific and medical evaluation of less-lethal weapons, considerable work and research has also gone into the issues associated with understanding the dynamics of crowds and public order policing.

In the spring of 2003, in support of the work of the Steering Group, the Northern Ireland Policing Board asked for research to be undertaken in regard to the dynamics of crowds. This work built on the management of conflict models set out in the earlier phase 2 and 3 reports of the Steering Group. The Penn State's Institute for Non-Lethal Defense Technologies (INLDT) Human Effects Advisory Panel (HEAP) report on "*Crowd Behavior, Crowd Control, and the Use of Non-Lethal Technologies (January 2001)*" was one of the key documents that helped shape our approach to this area and demonstrates the benefit of international sharing of information.

The author of the Northern Ireland Policing Board study, Neil Jarman, will be speaking in one of the workshops at Thursday's wider conference in London to which interest groups and NGO Conference have been invited. Extracts from Neil Jarman's report on Public Order in Northern Ireland during the summer of 2003 is sub-titled '*Nothing Happened*' and can be found at page 35 of the Steering groups phase 4 report. No doubt the efforts of police, community leaders and influencers all contributed to creating an environment where resort to baton rounds was not considered necessary.

Within Northern Ireland, the report of the Steering Group and the work it represents has considerable political importance. But its significance is wider than just Northern Ireland. We are genuinely committed to transparency – to putting as much as we can into public. In relation to this ILEF conference, the timing is good as the report has only just been published and is current.

There is also considerable interest in the International Operational Requirement for less-lethal technologies being developed by the Electronic Operational Requirements Group (EORG) established after last year's ILEF conference. I believe this work has great potential.

The Political Context

There is great international interest in support for the Peace Process in Northern Ireland and for the policing transitions that are taking place. There have also been regular meetings between the British and Irish Prime Ministers. The issue of acceptable and effective less-lethal weapons and alternatives to baton rounds remain one of the issues to be resolved and have featured in such discussions.

The significance of the issue was reflected in the statement issued by the Northern Ireland Office Minister on the 9th April 2003, which contained the following paragraph:

> *On the basis that an acceptable and effective and less-lethal alternative is available, the baton round would no longer be used after the end of 2003. In the event that that has not been achieved, the Government would report on the progress of the fourth phase of the research programme and review the options for less-lethal alternatives, consulting widely with a range of interested parties including the Chief Constable and the Policing Board*

Since then, the work has continued apace. The work of this international forum of experts has been important to providing an international aspect to the work programme. However, despite a protracted and international search for a commercially available product, we have been unable to find anything that meets the criteria of an acceptable, potentially less-lethal alternative to the baton round currently in service which provides an effective capability that does not expose officers and the public to greater risk in violent public disorder. In the forward to the Phase 4 report the Northern Ireland Office Minster states:

> *It is our judgment that there is still no commercially available product that is an acceptable, more safe and effective alternative to the current baton round although we will continue to monitor all developments. Against this background, two alternatives to the current baton round are currently being developed which the Government believes has the potential to fulfill this criteria.*

Current work

Very good progress is however been made in developing two alternative projectiles, which are currently at the prototype stage. The first, the Attenuating Energy Projectile (AEP), is a result of research following up on previously published evaluation of the current L21 baton round by the independent medical advisers (DOMILL). This approach is designed to reduce the peak force, thereby achieving a similar effect to the existing baton round, but more safely. This development work is continuing. Subject to testing, it is hoped that this alternative will be available by the end of 2004, ready for operational deployment before summer 2005.

Other work in progress includes exploration of a different technology that has potential to meet the Patten requirements in the longer term. This approach, the Discriminating Irritant Projectile (DIP), would incapacitate a violent individual through delivery of irritant to their upper body, at a distance.

I would commend to you the detailed work on the operational requirement for the AEP and the DIP rounds set out page 11-18 of the Phase 4 Report and the work on effectiveness criteria outlined at pages 18 and 19 of the report. The proposal in relation to the DIP is to incorporate elements of technology similar to those already in use with some police forces in Western Europe and the US to create a safer and acceptable, but still effective alternative to the current baton round. As a new system for the United Kingdom, it is inevitable that it will take around a year longer to develop.

The International Context

In Northern Ireland, the Phase 4 Report and the work it represents has considerable political importance. But its significance is wider than just Northern Ireland. There is genuine commitment to transparency – to putting as much as we can into public. Both the material on the water cannon evaluation and testing and the detail on the TASER® trial in England and Wales together with ACPO policy have not been published before. We hope they may be of help and interest to law enforcement agencies in other countries. Likewise we want to draw on others research and good practice.

When Police officers either within their own environment, or when engaged with military in peacekeeping missions elsewhere are engaged in managing conflict and responding to potentially violent encounters there is a requirement on them to have access to less-lethal means of resolving the conflict.

Article 2 of the UN Basic Principles on the use of Force and Firearms requires that:

> *Governments and law enforcement agencies should develop a range of means as broad as possible and equip law enforcement officials with various types of weapons and ammunition that would allow for a differentiated use of force and firearms.*

It is, therefore, appropriate that Article 2 is the theme of the third day this conference and will be held in the Royal Society of Arts building in London and in which we will all have the opportunity to explore issues relevant to the use of force with a much wider interest group.

Article 2 is also of central importance to the work of this forum. The UN principles transcend national boundaries and provide us all with an international framework within which to work.