

Annex O – TAP AND TOR FOR PROPOSED FOLLOW-ON ACTIVITIES TO HFM-073

O.1 TAP FOR PROPOSED FOLLOW-ON TO HFM-073

ACTIVITY	Exploratory Team	Human Effects of Emerging Non-Lethal Technologies										TBA
PRIORITY	High											05/2005
PRINCIPAL MILITARY REQUIREMENTS		3	4	5								05/ 2006
MILITARY FUNCTIONS		4	6	11	12	13	14					
PANEL AND COORDINATION		Human Factors and Medicine (HFM)						SAS-060; HFM				
LOCATION AND DATES		Various; Semi-annual										
PUBLICATION DATA		TR or MP					06 / 2004		40			
KEYWORDS	Non-Lethal	Weapons			OOTW			Peace-keeping				
	Biological Effects	Medical			Protection			Technology				
	Directed Energy	Stun Devices			Radio Frequency			Lasers				

O.1.1 Theme

There is a great need for NATO to develop a Non-Lethal Weapon (NLW) capability and human effects issues are critical to meeting this need. Of particular importance, are issues raised by emerging technologies, such as RF and stun devices. NATO has been progressing toward acquiring a NLW capability since 1994. In 1999, the NATO NAC issued a Policy on NLW, which included the following definition: “NLW are weapons which are explicitly designed and developed to incapacitate or repel personnel, with a low probability of fatality or permanent injury, or to disable equipment with minimal undesired damage or impact on the environment.” The Policy also gave the following direction, “NATO planners shall ensure that the potential contribution of Non-Lethal Weapons is taken fully into account in the development of their plans.” At the April 1999 Washington Summit, NATO approved a Strategic Concept to equip the Alliance for the challenges of the next century and launched its Defence Capabilities Initiative (DCI) to implement this goal. DCI item EE 2(i) addressed the need to develop capabilities across the full spectrum of crisis response operations, including NLW. The lead for the DCI tasking went to the RTO, under which the SAS Panel developed a NATO RTO Roadmap. This roadmap endorsed three Technical Teams, one of which became HFM-073 (TG-12). This TAP is for an Exploratory Team to consider a follow-on effort to HFM-073, which completes its work in Dec. 2004.

O.1.2 Justification

The SAS-035 TT “Non-Lethal Weapons Effectiveness Assessment” has proposed a basic mathematical methodology for assessing the effectiveness of non-lethal weapons in a specific scenario. Inputs to the methodology include the physical characteristics of the weapon and the environment in which it is used, the level of a weapon’s output that reaches a specific target, and the actual response of the target vis-à-vis the desired response and the military requirement. In their final report, the group recognized that the lack of adequate target response data is a significant inhibitor to the implementation of its methodology. The SAS-040 TT on a “Long-Term Scientific Study on Non-Lethal Weapons and Future Peace Enforcement Operations” held a multinational exercise to evaluate future technologies that might be suited to address the whole spectrum of NATO peace support operations. Five promising technologies were identified: RF devices, anti-traction approaches, rapid barriers, stun devices, and nets. The HFM-073 TT “The Human Effects of Non-Lethal Technologies” addressed the human effects of NLT from the perspective of both the target (effectiveness and non-lethality) and the operator/bystander (fratricide, long-term health effects). The implications of NLWs on training and field medicine were reviewed. Special attention was directed to the issues involved in obtaining target response data of the type, quality, and quantity that would satisfy the methodology proposed by SAS-035.

The proposed Exploratory Team will build on the work of SAS-035, SAS-040, and HFM-073, specifically addressing the medical and policy implications, data available, data needed, and processes for collecting data, focusing on the future technologies identified by SAS-040. We believe that it is critical to keep expertise in human factors and medicine involved in the effort to provide NATO an effective and acceptable NLW capability.

O.1.3 Topics to be Covered

The promise of emerging NLT for meeting the human aspects of NATO’s NLW needs.

Health and safety issues raised by emerging NLT.

Medical issues raised by emerging NLT.

Data requirements for evaluating emerging NLT.

Protection issues raised by emerging NLT.

O.1.4 Chairman

USA.

O.1.5 Members

CHE, CZE, DEU, FRA, GBR, NOR, SWE, USA, others TBD (DEN, ESP, NLD, POL).

National Resources Available: TBD.

O.2 TERMS OF REFERENCE (TOR) FOR PROPOSED FOLLOW-ON TO HFM-073

TERMS OF REFERENCE – Exploratory Team (HFM ET -xx) Human Effects of Emerging Non-Lethal Technologies

O.2.1 Origin

Background

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The proposed Exploratory Team will build on the work of SAS-035, SAS-040, and HFM-073, specifically addressing the medical and policy implications, data available, data needed, and processes for collecting data, focusing on the future technologies identified by SAS-040. We believe that it is critical to keep expertise in

human factors and medicine involved in the effort to provide NATO an effective and acceptable NLW capability.

O.2.2 Objectives

This technical group will address the human effects of select Emerging NLTs, including RF and stun devices in order to:

- Assess their potential value for addressing NATO’s desire for an NLW capability;
- Assess their impact on health and safety of personnel;
- Evaluate any untoward medical issues and facilitate medical planning;
- Determine the new data requirements; and
- Review the need for novel protection procedures and equipment.

Duration of the ET will be 1 year.

O.2.3 Products

The proposed products of the TG are:

- Recommendation on a new Technical Team on the Human Effects of Emerging NLT;
- Draft TAP, TOR, and POW for new Technical Team, if justified; and
- A final report.

O.2.4 Resources

Membership

The membership will be composed of experts in fields relating to the human effects of non-lethal technologies, including medical doctors, psychologists, physiologists, and engineers, from governmental agencies, industry, and academia. All members from HFM-073 will be invited. A new call for members from all nations participating in the HFM and SAS Panels will be conducted.

Participating nations at this time: CHE, DEU, FRA, GBR, NLD, NOR, SWE, USA.

Lead Nation: TBD.

Chairman: TBD.

(The lead nation (USA) for HFM-073 will plan the first meeting.)

National and/or NATO resources needed

National resources: Man power and travel funding by the nations.

NATO resources: TBD.

RTA Resources Needed

TBD.

O.2.5 Security Classification Level

NATO unclassified, open for PfP, except for single events.

O.2.6 Participation by Partner Nations

All NATO member nations, Partners for Peace, and members of the Mediterranean Dialog are welcome to participate.

O.2.7 Liaison

The Exploratory Team will liaise and coordinate its activities with other RTO activities concerned with non-lethal weapons, especially the SAS Panel's study on Non-Lethal Weapons (SAS-060). This goal will be realized by double membership, by exchange of documents, and perhaps by an official liaison relationship.

Liaison with TTCP, as well as with the European Working Group on Non-Lethal Weapons, and the US Joint Non-Lethal Weapons Human Effects Center of Excellence is sought.

O.3 TECHNICAL ACTIVITY PROPOSAL (TAP) FOR LECTURE SERIES

ACTIVITY	RLS	Human Effects of Non-Lethal Technologies											TBA by RTB Spring 2006
Activity REF. Number	HFM-145/RLS												01/2007
PRINCIPAL MILITARY REQUIREMENTS		1	3	4	5							NU	12/2007
MILITARY FUNCTIONS		1	4	6	11	12							
PANEL AND COORDINATION		HFM						SAS					
LOCATION AND DATES		USA, WEU, New member state, TBD										P-I	
PUBLICATION DATA		EN				01/2008		TBD		NU			
KEYWORDS	Non-Lethal	Weapons			OOTW			Peace-keeping					
	Biological Effects	Medical			Protection			Technology					
	Directed Energy	Stun Devices			Radio Frequency			Lasers					

O.3.1 Background and Justification (Relevance to NATO)

Non-Lethal Weapons (NLW) are explicitly designed and developed to incapacitate or repel personnel, with a low probability of fatality or permanent injury. They should enhance the capability of NATO forces to achieve objectives such as to accomplish military missions and tasks in situations and conditions where the use of lethal force may not be desired. In addition to preparation for the physical and physiological aspects of NLW use, there should be preparation for psychological effects, both for the target, bystanders, and the forces employing the NLW. While the effects of some non-lethal technologies (NLT) will be self-reversing, other effects may benefit by medical intervention to limit lethality and long-term effects. The availability of rapid medical treatment may be essential for enlarging the margin of safety and gaining the policy approval of some NLT. The SAS-035 TT has proposed a basic mathematical methodology for assessing the effectiveness of NLW in a specific scenario. The SAS-040 TT held a multinational exercise to evaluate future technologies that might be suited to address the whole spectrum of NATO peace support operations. The HFM-073 TT addressed the human effects of NLW from the perspective of both the target (effectiveness and non-lethality) and the operator/bystander (fratricide, long-term health effects). In order that the Alliance can develop and use these types of weapons, the scientific advances in this area must be communicated to the line medical officers and the challenges must be understood by field commanders and headquarters.

O.3.2 Objective(s)

This LS will aim to bring this knowledge to practicing military medical personnel and to inform military operational personnel of the realities of these types of operations. Education, emphasizing the new developments, will improve the effectiveness of NLT use and reduce the number of potential undesired effects. By understanding the consequences on human beings, participants will be able to determine the true NLW capabilities.

O.3.3 Topics to be Covered

Overview of NATO Activities on Non-Lethal Weapons, Human Effects of Non-Lethal Technologies, Medical Issues for NLT, Training in NLW, Use of Non Lethal Weapons in Military Operations Other Than War, NLW Strategies to Combating Terrorism, Cost-effectiveness of NLW use.

O.3.4 Deliverable (e.g. S/W Engage Model, Database, ...) and/or End Product (e.g. Final Report)

Educational Notes, Meeting Proceedings.

O.3.5 Technical Team Leader and Lead Nation

Dr. M. Murphy, USAF/AFRL/HED, USA.

O.3.6 Nations Willing/Invited to Participate

CAN, CHE, CZE, DEU, FRA, GBR, NLD, NOR, SWE, USA, others TBD.

O.3.7 National and/or NATO Resources Needed (Physical and Non-Physical Assets)

Participation of speakers and meeting facilities in countries hosting the Lecture Series.

O.3.8 RTA Resources Needed (e.g. Consultant Funding)

Consultant funding for Lecture Series speakers.

