

## Conclusions

### 4.1 JOINT NON-LETHAL WEAPONS DIRECTORATE

The case for non-lethal weapons appears to be strong and getting stronger. For NLWs to achieve their potential as an integral option within the warfighters' arsenal, however, their development must be executed through the Services' Title X responsibilities, and their operational employment must be effectively supported by policy and doctrine. Today, however, NLWs are at best a specialty item, most often linked to limited roles in peacekeeping or force protection rather than being viewed for traditional warfighting missions. Operational experiences during the past decade have increased awareness of the military usefulness of non-lethal weapons options, but advocacy within the Services, with the exception of the Marine Corps, remains weak.

In many respects, employment of NLWs represents uncharted territory for DOD. The effects of most NLWs are not well understood, leaving rules of engagement not clearly defined. While categorized as "non-lethal," some weapons may cause irreversible health effects or may, in fact, be lethal under certain conditions. For some classes of NLWs, the human effects may be invisible in the absence of a medical examination, may appear only after considerable time has elapsed, may be exacerbated by environmental factors or individual susceptibilities, and may include psychological as well as physiological or biomechanical effects. The problem is compounded by the diverse range of phenomenologies that could provide non-lethal weapons options and by the use of the term "non-lethal" to encompass weapons that achieve materiel effects as well as weapons that target humans.

The JNLWD has made visible progress in a relatively short time in its role as advocate and coordinator for non-lethal weapons programs within DOD. NLWs

are unlikely to survive the Services' requirements processes in the absence of strong advocacy, and non-lethal weapons options are unlikely to be operationally employed in the absence of a far better understanding of both mission effectiveness and potential health or materiel effects. The committee therefore sees a continued need for the JNLWD to focus and facilitate transformation from the present to a time when non-lethal weapons options are fully normalized within DOD's development, acquisition, and operational processes.

It is the committee's judgment that the directorate could more effectively speed the normalization of non-lethal weapons options by focusing its limited resources on a few high-priority problem areas. Accordingly, the committee came to these conclusions:

- Without compelling new ideas, NLWs will remain a specialty item in the warfighter's tool kit and will never become the effective element of warfighting that countless studies and limited operational experience have affirmed NLWs can be.
- Without a different process for introducing new non-lethal weapons capabilities—one more integrated into the normal Service development and acquisition cycle—the current scope of the program offers only a low probability of moving even the best ideas to the field in the future.
- Without a much stronger overall program to understand and characterize the effects and effectiveness of non-lethal weapons, commanders will remain reluctant to request or employ them.
- Without concepts for the use of non-lethal weapons, developers will not be successful in focusing ideas and programs.

The JNLWD should now focus on the following: stimulating new non-lethal weapons concepts through exploratory investment; stimulating the requirements process through lessons learned from real-world uses, gaming, and experimentation; and building the intellectual underpinnings to give commanders the confidence that NLWs provide effective and viable options for specific missions. The committee believes that once the Services recognize the value of non-lethal weapons options and commanders gain confidence in their usefulness, this family of weapons will compete favorably within the requirements process. At that stage NLWs would become part of the Services' culture, hence, the Services would become the advocates, and the responsibility for the assessment of the effectiveness and effects of proposed non-lethal weapons systems would transition to an appropriately augmented test and evaluation community.<sup>1</sup>

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<sup>1</sup>The committee observed that the Joint Combat Identification Office (JCIDO) provided a somewhat parallel precedent for a limited-life joint organization. JCIDO was established in 1993 to deconflict and coordinate technology development and to build a repository of signatures to facilitate non-cooperative target recognition. After successfully rationalizing the activities and establishing ownership within the Services and joint staff, JCIDO was disbanded in the late 1990s. The committee estimates that the execution of a strong and focused program by the JNLWD during the next decade could achieve comparable success.

#### 4.2 NON-LETHAL WEAPONS AND NAVAL EXPEDITIONARY FORCES

The committee believes that the mission needs for NLWs to support naval expeditionary forces are clear and compelling. Force protection challenges and shortfalls alone should be motivating the Navy to a higher level of commitment to the development and acquisition of promising non-lethal weapons technologies and systems. Implementation of the Sea Strike concept makes the case for the Navy even more compelling. The Marines have sufficient and successful tactical experience with NLWs to motivate interest in more capable systems to support operational as well as tactical needs.

As mission motivations for NLWs grow, especially for more sophisticated systems, new non-lethal weapons programs cannot be supported within the constraints of the JNLWD's budget and scope of responsibilities. At the same time, these new programs are faced with inserting themselves into an exhaustive list of already identified and established Navy and Marine programs. Successful integration of NLWs into naval expeditionary forces will take some deliberate institutional changes within the Department of the Navy. Planning and assessment to consider NLWs integrally with other force improvement options should be the rule rather than the exception within the Office of the Chief of Naval Operations for Warfare Requirements and Programs (N7). Future naval capabilities integrated product teams should be addressing NLWs more pervasively and should be identifying key enabling capabilities. R&D investments by ONR are needed to develop more advanced and capable NLWs, tailored to naval needs and environments. In short, both the Navy and the Marine Corps should show Service leadership by preparing for the needed shift in focus of the JNLWD, as noted above, and accepting their own end-to-end responsibilities for researching, developing, acquiring, and fielding non-lethal weapons systems to meet their unique needs.