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NEWS ANALYSIS

NONLETHAL WEAPONS

Research on arms that immobilize people and cripple equipment is urged

LOIS EMBER

Tibetan buddhists would call this an auspicious coincidence; others might be more suspicious. Less than two weeks after the use of an incapacitating agent ends the Russian hostage crisis, the National Research Council (NRC) releases a report on nonlethal weapons completed more than a year ago but held for classification review.

The report, titled "[An Assessment of Non-Lethal Weapons Science and Technology](#)," emphatically recommends that the U.S. military give high priority to the research and development of weapons that incapacitate people but don't kill them or that interfere with the operation of critical sensors and equipment without destroying them. To achieve this, the NRC committee recommends the establishment of special research centers and top-brass oversight to ensure their development.

Nonlethal weapons fall into two categories: one operates through physical means and the other through physiological. Sticky foams, microwaves, and acoustic devices fall into the first category. Riot-control agents, malodorants, and so-called calmatives--sleep-inducing or mind-altering agents--belong to the second. Research on calmatives has been the most controversial, raising questions of legality vis-à-vis international treaties ratified by the U.S.

Jonathan B. Tucker, a senior fellow at the [U.S. Institute of Peace](#) and a chemical weapons expert, says the section on the legality of such agents "is pretty garbled, very confused in its analysis of the legal implications of the weapons." That may be, he suggests, because the committee had "no experts in international law or arms control."

Of the 17 members, four, including the chairman, are from Department of Energy labs, four others are Defense Department contractors, and two retired military are among five independent consultants who may have worked for the Pentagon.

National Academy of Sciences spokesman William Kearney says, "It was a balanced panel with the expertise needed to meet the charge, which was the state of the science" of those weapons. Kearney lays the study's "extraordinarily long" review time at the feet of the sponsors: the Joint Nonlethal Weapons Directorate and the [Office of Naval Research](#). "The study was given to JNLWD for classification review a year ago," he explains, but it only cleared "for release in October."

Still, Edward Hammond, U.S. director of the [Sunshine Project](#), a nonprofit opposing nonlethal chemical agents, agrees with Tucker. The committee argues that calmatives could be "well

within the bounds of U.S. treaty obligations." But Hammond says this "assertion appears to be based on information provided by on-the-record proponents of incapacitating chemical weapons and can hardly be considered to be an independent, objective resource."

"When incapacitating agents that work by disrupting physiological systems are used, then I think you are crossing the line."

Hammond fears that controls on chemical weapons will rapidly fall apart as other countries follow the U.S.'s lead in the development and deployment of nonlethal weapons. And he believes the study gives JNLWD "a green light to continue development of gas weapons." JNLWD spokesman Shawn Turner says his directorate is not now sponsoring research on such agents.

The committee's conclusions on chemical weapons are "terribly irresponsible" and a "body blow to global chemical weapons control," Hammond contends. His group believes calmatives are outlawed by the [Chemical Weapons Convention](#) (CWC).

The Defense Department has been researching nonlethal chemical weapons on and off since the 1970s. This research may have been halted or gone underground when the U.S. ratified the CWC in 1993. Although the Sunshine Project has been trying for years to find out, the extent of research on nonlethal chemical agents under the Pentagon's aegis--and then at the Department of Justice--is unknown.

THE REPORT GIVES short shrift to the legal implications of using nonlethal chemical agents, possibly because the committee backed into the issue while assessing the state of the science. "There is some room for investigating these weapons," says committee chairman, Miriam E. John. "But," she cautions, "such research has to be consistent with the constraints of the CWC." John, a chemical engineer and a vice president of Sandia National Laboratories, says the treaty is "confusing and open to variable interpretation," especially to military decisionmakers.

Nonlethal chemical agent issues, George W. Parshall notes, "certainly raise questions about conflicts with U.S. obligations under the CWC." Parshall, a chemical weapons expert and former director of chemical sciences at DuPont, points to the Moscow "fiasco" in agreeing "with the committee's finding that more research on nonlethal antipersonnel agents is desirable."

Yet deployment is another matter. Tucker maintains that CWC "is clear in prohibiting the use of incapacitants and the munitions designed to deliver them for military use--as opposed to law enforcement purposes." This prohibition also applies to the use of riot-control agents "as a method of warfare," according to treaty language.

Tucker has "no problems with nonlethal weapons that rely for their effects on their physical properties--like sticky foam." But, he says, "when incapacitating agents that work by disrupting physiological systems are used, then I think you are crossing the line."

The CWC aims to avoid what Tucker calls a "slippery slope" by "attempting to rule out any combat use of toxic chemicals, including incapacitating and riot-control agents." Remember, he says, World War I and the Iran-Iraq War of the 1980s started with the use of such nonlethal agents as tear gas "and then escalated rapidly to lethal agents."

Tucker argues that the report's distinction "between 'defensive' and 'offensive' military use, and

the argument that the CWC permits the use of chemical incapacitants in a combat zone for 'military operations other than war,' or in situations where combatants are intermingled with civilians, appear legally questionable."

Committee member John B. Alexander, a retired Army colonel and independent consultant, tells C&EN, however, that he personally believes "treaties are meaningless." As he explains, "They were constructed in another time for a different purpose. They did not foresee the technological advances that have taken place or the devolution of the world into a war on terrorism."

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