



IMPROVING METRICS FOR THE DEPARTMENT OF DEFENSE COOPERATIVE THREAT REDUCTION PROGRAM (2012)

The Cooperative Threat Reduction (CTR) Program of the Department of Defense (DoD) seeks to work with partner countries to address security threats of mutual concern that could manifest in, transit through, or emanate from their territories. CTR began in 1991 to assist the former Soviet Union with the dismantlement and nonproliferation of weapons of mass destruction (WMD). The program now includes several other countries and has shifted its focus to improving partner nations' capabilities to deter, detect, and respond to emerging WMD threats. This shift from dealing with specific sources of known risk to potential sources of future risk makes it more difficult for CTR to set and monitor the achievement of tangible goals.

To that end, Congress directed the Secretary of Defense to “develop and implement metrics to measure the impact and effectiveness of activities of the CTR Program of the DoD to address threats arising from the proliferation of chemical, nuclear, and biological weapons and weapons-related materials, technologies, and expertise” [Section 1304, P.L. 111-84]. The Secretary completed a report describing DoD’s metrics for the CTR Program in September 2010 and, as required in the same law, contracted with the National Academy of Sciences to review the metrics. A committee was assembled and evaluated the metrics based on whether they provide decision makers the essential information to manage the effectiveness and impact of CTR programs. *The committee found that DoD provides reasonable metrics for some of the activities of the CTR Program that consolidate and eliminate WMD and weapons material, and a solid starting point for developing metrics for their newer, expanded capacity-building efforts.*

Definition of a *metric*: an evidence-based tool that effectiveness or performance measures impact and of a program or a project toward its objectives.

Assessment of the DoD Metrics Report

For meaningful evaluation, DoD must (1) state the objectives of the CTR program and the projects; (2) identify the capabilities it is trying to develop or maintain; (3) link those capabilities to metrics; (4) ensure that the metrics reflect program effectiveness and impact; and (5) plan for and measure sustainment of activities in partner countries.

Recommendations for Improving Metrics

A Plan for Developing Metrics

Before metrics are developed, the objectives of the overall U.S. CTR Program must be stated clearly, including linkages to threat or risk predictions. U.S. goals and those of partner countries do not need to match exactly but should be compatible and explicitly stated. This requires deliberating with partner countries to define objectives for joint activities and identifying the partner capacities that need to be developed to meet the CTR objectives. Those objectives should then be collaboratively determined and prioritized based on their anticipated impact and the resources required to achieve good results. Only after this initial mission-based discussion has occurred should metrics be defined.

For metrics to be meaningful, there must be agreement on baselines, data milestones, and measures of success. The source of data for each metric and the entity that will provide and maintain the data (ideally, an entity independent of the decision makers and implementers) must also be determined. After recognizing that different metrics may be appropriate for different stages of a project, metrics should be prioritized based on their importance to achieving program objectives and the capacity required.

Metrics, and exercises if appropriate, should be built into the implementation of each program activity. Once metrics, plus time and costs expended on each project, have been evaluated independently and in conjunction with partner countries, the results should be used in making future decisions.

Objectives and Partnership

(1) *For each program in the DoD Metrics Report, DoD should include a concise statement of its objectives and of how the program is intended to reduce threat or risk.* Because the activities of the CTR Program are no longer restricted to achieving quantifiable goals with a clear link to security, like “deactivate 1,000 nuclear warheads,” it is all the more important that the connection between its activities and a reduction in threat or risk be clearly stated in each metrics report. Metrics should include not just inputs (e.g. training materials provided) but outputs (e.g. changes in apprehension rates at borders). Ideally, metrics would be developed from outputs linked to the capacities that the programs are trying to build in partner countries.

(2) *Objectives for projects and the overall CTR Program in a partner country are developed jointly between the United States and the partner country. An agreed set of metrics should also be built into projects from the outset. They may change, but the parties responsible for the projects should know at any given time the metrics that will be used to measure impact and effectiveness.* It is also important to define the role of partner countries in achieving project objectives.

Priorities

(3) *The committee judges that using a consistent framework to prioritize and refine metrics within each program would help DoD and other CTR decision makers. Using such a framework, DoD can identify the highest priority metrics, ensuring that the metrics are useable and useful, and allow decision makers to feed results back into the overall CTR objectives and budgetary process. Any of several decision-making or priority frameworks would work, including the decision analysis technique of swing-weight analysis and/or the DoD capabilities-based planning process.* Currently, the DoD Metrics Report mixes project management measures with higher-level program performance metrics for some of the CTR programs, and it weighs equally metrics that are critically important and others that are not.

Working with Other Agencies

(4) *DoD plans to leverage other U.S. Government agencies’ experience, capabilities, and assets as CTR expands to new countries and as it continues existing programs. DoD also needs to communicate, coordinate, and cooperate with relevant agencies.*

Some of the agency programs similar to those under CTR include: the U.S. Customs and Border Protections, the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, the U.S. Agency for International Development, and the DoD's Defense Security Cooperation. Together with CTR, these programs form a "whole of government" effort to address the threat of WMD. The use of similar metrics will facilitate their cooperation.

Time and Change

(5) DoD's metrics and planning process should factor in more explicitly both planned and unplanned change over time. During the phases of active DoD involvement in a CTR project and afterward during sustainment--which is its own stage requiring resources (budgets, equipment, and trained people)--clearer planning for how metrics results will feed into decision making will make the metrics more credible and useful for both DoD and the partner country.

Different project stages require different metrics as measures of progress. In the early stages, even when operating according to plans, projects are unlikely to have measurable impact, but that does not mean that they are not on track or will not have an impact. At the same time, if progress is not satisfactory, metrics can inform the DoD and the partner country that corrective actions may be needed so resources can be better utilized or reallocated. Additionally, when objectives change due to changing circumstances (international, political, financial, etc.), managers may need to change the metrics for them to remain relevant.

Independent Evaluation

(6) Capacities that are being built by CTR programs need independent evaluation of how they perform in action. This can be accomplished by several means, ranging from expert observations of routine operations to comprehensive exercises that test the full scope of capabilities. The level of effort can be tailored to the scope of the program, its resources, and its relative importance. DoD and its partners should build such independent evaluation into each project. The Defense Security Cooperation Program might be a good model for how to proceed.

Other Major Issues for CTR in the Future

Defining and measuring completion and sustainability are critically important for CTR programs, particularly capacity-building programs, and should be part of the formulation of objectives. Policymakers tend to hold one of two different visions of completion and sustainability: 1) the "project view," in which DoD becomes a partner with a country, engages in a set of concrete activities with a well-defined beginning and end, and then exits and monitors sustainment after project completion, or 2) the "relationship view," in which DoD becomes a partner with a country and works with that country to build a joint or multilateral network that is exercised regularly to maintain an ongoing relationship with no defined end date. These visions appear mutually exclusive, but can be incorporated within the different phases of a program. The initial phase often involves intensive efforts and capital expenditures; schedules and milestones for completion of this phase would be expedient. The long-term relationship that follows may be open-ended, but it also should require far less funding, which should allay some concerns about programs with no exit strategy.

Committee on Improving Metrics for the Department of Defense Cooperative Threat Reduction Program: **Jay C. Davis**, *Chair*, Hertz Foundation, Livermore, California; **George W. Anderson, Jr.**, Lawrence Livermore National Laboratory, California; **Steven J. Gitomer**, National Science Foundation, Santa Fe, New Mexico; **Mary Alice Hayward**, Areva, Inc., Bethesda, Maryland; **Mark F. Mullen**, Los Alamos National Laboratory, Los Alamos, New Mexico; **Gregory S. Parnell**, United States Military Academy, West Point, New York; **Kim K. Savit**, SAIC, McLean, Virginia; University of Denver, Colorado; **Nicolas Van de Walle**, Cornell University, Ithaca, New York. **National Research Council Staff:** **Micah D. Lowenthal**, Study Director (November 2010 to completion); **Anne M. Harrington**, Study Director (through October 2010); **Glenn Schweitzer**, Director, Program on Central Europe and Eurasia; **Rita S. Guenther**, Program Officer; and **La'Faye Lewis-Oliver**, Administrative Coordinator.

For more information, contact Policy and Global Affairs at (202) 334-2811 or visit <http://nas.edu/pga/cisac>. Copies of *Improving Metrics for the Department of Defense Cooperative Threat Reduction Program* are available from the National Academies Press, 500 Fifth Street, NW, Washington, D.C. 20001; (800) 624-6242; www.nap.edu. This report brief was prepared by Catherine Kolf based on the committee's report.