Chapter 8
International Nuclear Cooperation

8.1 Overview

The threat of global nuclear war has become remote, but the risk of nuclear attack against the United States and its allies and partners has increased.

The international security environment has changed dramatically since the end of the Cold War. As stated in the 2010 Nuclear Posture Review Report, the threat of global nuclear war has become remote, but the risk of nuclear attack against the United States and its allies and partners has increased. Nuclear terrorism and nuclear proliferation are global problems requiring cooperation among the United States and its international partners and allies. The United States works closely with certain allies to ensure the common use of best practices and to enjoy the benefits of independent peer review. The United States also engages cooperatively with its North Atlantic Treaty Organization (NATO) allies within the NATO nuclear structure to coordinate operations associated with forward-deployed U.S. nuclear weapons that would be used in defense of NATO allies.

As a result of this need for international engagement, the United States participates in various Programs of Cooperation—legal frameworks for international information

exchange—with a number of international partners, including the United Kingdom, France, and NATO. The most robust of these programs are with NATO and the United Kingdom, and this chapter will focus on these programs as representative examples of how such Programs of Cooperation function.

Within the United States, the Atomic Energy Act (AEA) governs the exchange of nuclear-related information. Sections 91c, 123, and 144 of the AEA describe the different types of exchanges in which the United States may legally engage. According to the AEA, all international information exchanges are predicated on the existence of an Agreement for Cooperation, such as a mutual defense agreement (MDA), with the individual nation or organization. For example, the MDA between the United States and the United Kingdom was originally signed in 1958.[1]

According to the AEA, all international information exchanges are predicated on the existence of an Agreement for Cooperation, such as a mutual defense agreement, with the individual nation or organization.

Given the existence of a formal mutual defense agreement, the Atomic Energy Act further stipulates that all exchanges conducted under the auspices of the agreement must be approved by the president of the United States. The mechanisms for authorizing specific international transmissions were called "Presidential Determinations." In 1959 and 1961, however, President Eisenhower and President Kennedy, respectively, delegated this authority to the secretaries of defense and energy through Executive Orders 10841 and 10956. As a result of these orders, Presidential Determinations became Statutory Determinations (SDs). Executive Order 10956 stipulates that SDs under certain sections of the AEA must continue to be referred to the president for final approval.

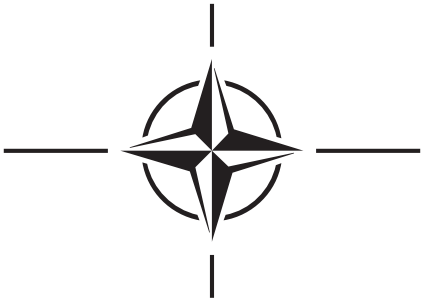
Today, SDs are still the mechanism for authorizing specific information exchanges with foreign partners. SDs are decided jointly by the secretary of defense and the secretary of energy. Each SD must explain the purpose of the international communication (why the information should be transmitted) and specify the exact nature of what is authorized for transmission. The SD must also delineate any restrictions of what is not transmissible because it is not authorized for communication. Most SDs relate to weapons design information, although increasingly SDs are also being developed and approved to share nuclear information to counter the threats of nuclear terrorism and nuclear proliferation.

[1] The *Agreement Between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United States of America for Cooperation on the Uses of Atomic Energy for Mutual Defense Purposes* is commonly called the Mutual Defense Agreement. The agreement was first signed on July 3, 1958.

8.2 U.S. Nuclear Cooperation with NATO

On April 4, 1949, the North Atlantic Treaty was signed by the founding members of NATO (Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom, and the United States) in Washington, D.C. Article 5 of the Treaty guaranteed the mutual defense of its members. In December 1949, the first *Strategic Concept for the Defense of the North Atlantic Area* was published; it outlined different areas for cooperation among NATO member countries in the area of military doctrine and procedure, combined training exercises, and intelligence sharing.

The Nuclear Planning Group (NPG), established in 1967, provides a forum for NATO member nations to exchange information on nuclear forces and planning. At the ministerial level, the NPG is composed of the defense ministers of NATO nations that take part in the NATO Defense Planning Committee. The NPG serves as the formal Alliance consultative body on nuclear forces planning and employment. It is the ultimate authority within NATO with regard to nuclear policy issues. NPG discussions cover a broad range of nuclear policy matters, including the safety, security, and survivability of nuclear weapons, communications and information systems, and deployment issues, and the NPG also covers other issues of common concern such as nuclear arms control and nuclear proliferation.



The role of the NPG is to review the Alliance's nuclear policy in the light of the ever-changing security challenges of the international environment and to adapt it as necessary to address these challenges. It also provides a forum in which member countries of the Alliance can participate in the development of the Alliance's nuclear policy and in decisions on NATO's nuclear posture, regardless of whether or not they maintain nuclear weapons. Decisions within the NPG are made by consensus. Thus, the policies agreed upon by the NPG represent the common position of all participating countries.

The senior advisory body to the NPG on nuclear policy and planning issues and nuclear weapons safety, security, and survivability matters is the High Level Group (HLG). The HLG is chaired by the United States and is composed of national policy makers and experts. The HLG meets approximately twice a year, or as necessary, to discuss aspects of NATO nuclear policy, planning and force posture, and matters concerning the safety, security, and

survivability of nuclear weapons. The HLG relies on the technical work of the Joint Theater Surety Management Group (JTSMG) to maintain the highest standards in nuclear surety.

The JTSMG was established in August 1977 to seek active participation and consultation among the NATO Nuclear Program of Cooperation nations to ensure an effective theater nuclear surety program. The JTSMG serves as the focal point for the resolution of technical matters pertaining to nuclear surety. The group reports to the HLG vice-chairman, who provides high-level attention and oversight to JTSMG activities. The JTSMG is co-chaired by representatives from U.S. European Command (USEUCOM) and Supreme Headquarters Allied Powers Europe (SHAPE). The JTSMG meets in working group session four times annually and in plenary session twice annually.

In the *Strategic Concept for the Defense and Security of the Members of the North Atlantic Treaty Organization*, adopted by NATO Heads of State and Government in Lisbon in November 2010, NATO members affirmed that deterrence, based on an appropriate mix of nuclear and conventional capabilities, remains a core element of the overall NATO strategy. The members further affirmed that, as long as nuclear weapons exist, NATO will remain a nuclear alliance. As a contributor to the strategic nuclear forces of the NATO alliance, United States nuclear cooperation with NATO will remain important into the future.

8.3 U.S.-UK International Program of Cooperation

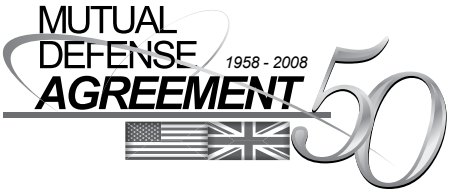
The United States and United Kingdom have worked closely on nuclear weapons issues since the 1940s. The work of Frisch and Peierls in England during the early days of World War II identified the means by which the potential for an atomic explosion could be contained in a device small enough to be carried by an aircraft. This information was shared with the United States and ultimately resulted in the decision to pursue the Manhattan Project, thereby leading to the beginning of the nuclear age. (For more information on the history of nuclear weapons, see Chapter 1: *Nuclear Matters History and Policy.*)

The closeness of the relationship and the level of nuclear cooperation between the two sovereign nations should never be mistaken for an inability to act alone.

Apart from a period of restriction under the McMahon Act (1946-1958), key aspects of the U.S. and UK nuclear programs have been the subject of technical and information exchange at a level appropriate to the evolving strategic situation and the nations' developing cooperation. Today the relationship between the United States and the United Kingdom is the strongest that it has been for decades, as both nations face, together with NATO,

21st century security challenges and the common threats of nuclear terrorism and nuclear proliferation. At the strategic policy level, the United States and the United Kingdom share a common view. U.S. and UK contributions to NATO extended nuclear deterrence form a very visible, shared commitment to NATO's security. To facilitate this cooperation, the UK maintains a liaison officer at the United States Strategic Command. The closeness of the relationship and the level of nuclear cooperation between the two sovereign nations should never be mistaken for an inability to act alone. The president of the United States is the only person who can authorize the use of U.S. nuclear weapons, and the prime minister of the United Kingdom is the sole individual able to authorize the launch of a UK Trident missile.

As the United States and United Kingdom face the challenges of maintaining safe, secure, and effective independent deterrents, the importance of the relationship endures. Under the U.S.-UK International Program of Cooperation, there are regular exchanges of information and experience at all levels. Through this relationship, both countries are able to benefit from shared wisdom and experience as they work together to counter nuclear threats and independently advance the status of their nuclear weapons programs.



As the nature of the special relationship between the United States and the United Kingdom has evolved over the decades since the MDA was first signed, the technical areas of collaboration have reflected the scientific, military, and political focal points of the times. Historically, the technical areas of information exchange were authorized by specific Statutory Determinations on a case-by-case basis, taking into account the desired outcomes of the proposed collaboration and the potential risks to national security of sharing such sensitive nuclear weapon information.

The intent of the SDs has been to share only certain atomic information (Restricted Data/ Formerly Restricted Data) deemed necessary for the furtherance of mutual objectives that would benefit both countries' nuclear deterrent programs. Collectively, the SDs make eligible most, but not all, atomic information for sharing with the United Kingdom. There still exist some areas of information not authorized by any SD; however, these areas have the potential to become eligible over time as changing scientific, military, and political necessities dictate.

Under the terms of the Atomic Energy Act, the Department of Energy (DOE) and the Department of Defense (DoD) are responsible for controlling the dissemination of U.S.

atomic information. This information may not be disclosed to foreign nations or regional defense organizations unless it meets the criteria specified in applicable agreements for cooperation and Statutory Determinations. Once the criteria have been met, there are a number of mechanisms for such exchanges, depending on the medium involved. These mechanisms include Management Arrangements, Administrative Arrangements, Joint Working Groups (JOWOGs), Exchanges of Information by Visit and Report (EIVRs), and Channels.

8.3.1 Management Arrangements

The Management Arrangements detail the means of supervisory oversight over the cooperation effort. The two management levels are known as the Principals and the Second Level. The Principals (consisting of the assistant secretary of defense for Nuclear, Chemical, and Biological Defense Programs (ASD(NCB)), the NNSA administrator, and the UK Ministry of Defence chief scientific advisor) meet approximately every 18 months to take stock of the enterprise (referred to as Stocktake). During Stocktake, the Principals review the long-term strategic direction of the enterprise and issue guidance for future collaborations. The meeting of the Second Level participants is held every six-to-nine months and is led by government officials one step below the Principals. Second Level meetings review technical information, manage the bulk of the day-to-day business of the collaborations, and prepare materials for the Stocktake meetings.

8.3.2 Administrative Arrangements

Administrative Arrangements with the various nations and regional defense organizations lay out the various mechanisms for information exchange, whether in person, in written form, or in electronic exchanges. The Administrative Arrangements supporting the MDA between the United States and the United Kingdom, as an example of such arrangements, is a document signed by the deputy administrator for Defense Programs within the NNSA, the assistant secretary of defense for Nuclear, Chemical, and Biological Defense Programs for the DoD, the Director, Strategic Technologies within the UK Ministry of Defence, and the UK Head, Nuclear and Strategic Deterrent Office, British Embassy. The arrangements detail administrative procedures to be followed by the two countries in the implementation of the MDA. The arrangements cover topics such as: transmission channels, visit requests,

requests for information, marking of documents, reproduction, classification, reports, transmission to third nations, and dissemination.

8.3.3 Joint Atomic Information Exchange Group

The Joint Atomic Information Exchange Group (JAIEG) is the U.S. entity responsible for reviewing and making determinations on the transmissibility of atomic information related to U.S. nuclear weapons sponsored for disclosure in light of the policy provided by the DoD (ASD(NCB)) and the DOE (the NNSA Administrator). The JAIEG is also responsible for providing support to the DoD, the DOE, and other requesting U.S. agencies in implementing and formulating administrative arrangements (such as reporting, accounting, and dissemination procedures) with other nations or regional defense organizations. In the United Kingdom, the Atomic Control Office (London) or the Atomic Co-ordinating Office (Washington) acts for the UK Ministry of Defence in these matters as they pertain to the Mutual Defense Agreement.

8.3.4 Joint Working Groups

JOWOGs are administrative bodies established to facilitate the oral and visual exchange of technical information between representatives of the United States and the United Kingdom who are engaged in various areas of cooperation and research pursuant to the MDA. JOWOGs are co-chaired by the United States and the United Kingdom. JOWOG members are appointed by participating U.S.-UK laboratories and agencies dedicated to the advancement of research in a designated field. JOWOGs meet periodically to consider progress made, to suggest further avenues for investigation, and to propose divisions of work between participating laboratories or agencies. Under the auspices of a JOWOG, visits between laboratories or agencies are made to review a particular project or to accomplish a specific objective.[2] Current U.S.-UK JOWOGs include nuclear counterterrorism technology, nuclear warhead physics, nuclear warhead accident response technology, and methodologies for nuclear weapon safety assurance, among others.

8.3.5 Exchange of Information by Visit and Report

In addition to the JOWOGs, the United States has developed an EIVR concept to be used as an administrative instrument to promote the controlled oral/visual exchange of atomic information. EIVRs differ from JOWOGs in that, with one exception, they are not granted continuous authorization for the exchange of atomic information, as JOWOGs are within their areas of exchange. Authorization to exchange U.S. atomic information under the

[2] All visits are subject to the procedures and controls required by the United States and United Kingdom for visits involving the exchange of atomic information.

aegis of an EIVR must be requested from the JAIEG on a case-by-case basis. Recent EIVR topics have included nonproliferation and arms control technology, safety and security, and nuclear intelligence.

8.3.6 Channels

In most cases, information exchanges must be approved on a case-by-case basis. Sometimes, however, when the nature of the exchange is predictable and repetitive, blanket approval for that type of information may be granted by the authorizing authority. Therefore, a final method of information sharing between the United States and a foreign government is called a *channel*. A channel is a joint arrangement between the United States and a foreign government for the exchange of specific project/program-type information. Channels are reserved for management executives and a few specific project-type data exchanges. The establishment of transmission channels with foreign governments and regional defense organizations are held to the minimum consistent with operational and security requirements. Currently approved channels between the United States and the United Kingdom include the U.S./UK Executive Channel and the Trident Warhead Project Group Channel, among others.

U.S.-UK Nuclear Threat Reduction

In recent years, the United States and the United Kingdom have built on the relationship established for the exchange of nuclear deterrent atomic information to develop a series of scientific programs to address and reduce the threat posed by nuclear proliferation. This has been reflected in new governance procedures, as shown in Figure 8.1. As part of this work, the United States and the United Kingdom are conducting joint work to further develop the nations' capabilities in nuclear forensics to identify sources of radioactive material, to improve capabilities to detect nuclear material, and to improve abilities to respond to a terrorist nuclear incident. The United States and the United Kingdom are also working together on techniques to verify nuclear disarmament.

8.4 International Nuclear Cooperation Issues and Challenges

Nuclear weapons-related information and knowledge are closely controlled by those countries that maintain it. Because of the sensitivities associated with these weapons and the nature of nuclear cooperation among nations, there are several issues and challenges associated with international nuclear cooperation that must be effectively approached and managed.

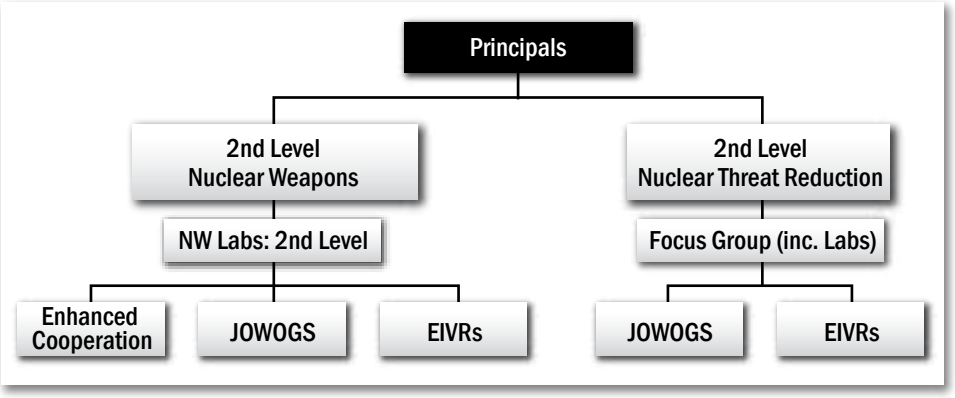


Figure 8.1 NTR Governance

One such issue involves an option currently being considered called "Direct Release," wherein scientists and engineers at the U.S. national security laboratories would be granted permission to transmit information to foreign partners directly without first going through the JAIEG. At issue is whether the United States should delegate heretofore inherently government functions to non-governmental organizations and individuals for the sake of efficiency, convenience, and, given the growing challenges arising from nuclear terrorism, efficacy in fighting common nuclear threats. Specifically, at issue is the right balance between a productive flow of information and open communication between international partners and appropriate and prudent limitations on the level of openness. Statistically speaking, the more people who share secrets, the more vulnerable the secrets become. Similarly, the more organizations and nations that join the classified discussion, the more vulnerable the information may become.

All sovereign nations must evaluate the risks and rewards of expanding the circle of classified information sharing. Each nation must consider the trustworthiness of partner nations; specifically, whether the other country is willing and able to safeguard classified information in an acceptable manner. Partner nations may also have relationships with third-party countries with which the United States has issue or vice versa.

On the other hand, nuclear threats are becoming increasingly global in their impact. An act of nuclear terrorism would not only directly affect the nation attacked, but it would also affect all states within the international community that value order and stability. Thus, international cooperation to combat nuclear terrorism and nuclear proliferation is more important than ever, and the calculations among the competing considerations that affect national and international security must also evolve with the threat and the ability to respond effectively.