

NULCLEAR NON-PROLIFERATION AND UNIQUE ISSUES OF COMPLIANCE

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Christopher Ford just spoke about compliance assessment and compliance enforcement, which are two concepts very inter-related and essential to non-proliferation. I will too focus my presentation today on compliance, but more specifically on its linkage with verification, another important element in non-proliferation. The Concise Oxford Dictionary describes compliance as the “action in accordance with request, command, etc.”¹ Compliance with non-proliferation obligations could then be understood as either a result of a threat of retaliation by others, or deriving from a voluntary decision to enter into such obligations.

The first type of compliance was most recently experienced in 1991 when the Security Council imposed stringent disarmament obligations on Iraq, threatening “grave consequences” in case of non-compliance (and “grave consequences” in the diplomatic lingo means “military attacks”). The inspections, therefore, implemented in Iraq from 1991 to 1998 and from November 2002 to March 2003, were extremely intrusive and unrestricted.

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1. CONCISE OXFORD DICTIONARY 292 (10th ed. 1999).

They inspected any place, any time, anywhere in Iraq, and they had access to any Iraqi official or scientists deemed relevant for verification purposes.

But most of the arms control, disarmament and non-proliferation obligations entered into by countries fall in the second category: voluntary agreements by which governments decide to accept certain restrictions under the expectation to benefit from joining those regimes.

In both cases, the third parties (the Security Council in the case of Iraq; the other states parties to the treaties in the case of voluntary agreements) see it as fundamental to ascertain whether the other governments are fulfilling their obligations. One important and common tool to ascertain compliance is through a “verification regime.” Thus, verification is the action to prove either compliance or non-compliance with non-proliferation agreements. The whole purpose of verification is to build confidence. In cases where proliferation concerns exist, states are demanded to be more open and transparent. Even if such measures go beyond a state’s legal obligations, they pay valuable dividends in restoring the confidence of the international community.

Verification also serves as deterrence due to the risk of detection of proscribed activities. For example, we now know that in July 1991 the Iraqi regime decided to destroy, unilaterally and in secret, its clandestine missile force to avoid being caught cheating by the United Nations Special Commission (UNSCOM).

Verification is not a rewarding activity—it goes unnoticed until something goes wrong. Verification is also not a perfect system, as its results depend on many technical, legal and most importantly, political factors. Moreover, verification is but one part of the non-proliferation regime. For the regime as a whole to function effectively, we must ensure not only effective verification but also effective export controls, effective physical protection of nuclear material and effective mechanisms for dealing with cases of non-compliance. It is imperative that these components are well integrated.

The effectiveness of a verification system depends on four elements:

- a) Adequate legal authority;
- b) Timely access to information;
- c) Timely access to locations and people for interviews; and
- d) Availability of state-of-the-art verification technology and the right to use it.

There are many versions of verification as there are many arms control, disarmament and non-proliferation agreements. The most common type of verification is the so-called “permissive regime,” such as the International Atomic Energy Agency’s (IAEA) or Organization for the Prohibition of Chemical Weapon’s (OPCW), as it is based on a voluntary acceptance by the

governments to be verified by external bodies. This type of verification in general has a limited legal scope, which reduces the actual inspection activities to certain types of materials and locations clearly defined by the agreements. Consequently, the assurances provided by this kind of verification are also limited. Still, they have proved to be an important tool for the international community. Without them, each individual state party to a multilateral disarmament or non-proliferation agreement would have to make its own assessment about the other parties' compliance with their obligations.

Over the past years, the IAEA has clearly made progress on some fronts in the verification area, but perhaps regressed on others. The IAEA's resumption of inspections in Iraq in 2002, the termination of inspections in North Korea, our investigation of clandestine nuclear programmes in Libya and Iran, the discovery of illicit nuclear procurement networks and the lack of agreement at the 2005 Nuclear Non-Proliferation Treaty (NPT) Review Conference have put the spotlight on an unprecedented array of challenges to the non-proliferation and arms control regime.

The IAEA's verification system has shown great resourcefulness and resiliency in dealing with many of these challenges. We have rapidly initiated intensive verification efforts in a number of countries and investigated the illicit procurement network. We have strengthened the verification system through enhanced use of satellite imagery, environmental sampling and a variety of new technologies—well as through the development of enhanced information analysis techniques, the introduction of integrated safeguards, and the transition towards a more qualitative, information based system. And perhaps most importantly, in dealing with these verification challenges, we have maintained our objectivity and independence, and thereby strengthened our credibility. In short, the past few years have continued to underscore the central importance of the IAEA's role in combating proliferation.

Let me now address two specific non-proliferation challenges and the verification activities conducted by the IAEA.

I. NORTH KOREA

Since 1993, the IAEA has been unable to fully implement its NPT safeguards agreement with North Korea. After an extended period of non-compliance with that agreement, in December 2002 North Korea asked IAEA inspectors to leave the country and a few weeks later declared its withdrawal from the NPT. Since that time, the IAEA has not been permitted to perform any verification activities in North Korea, and therefore, cannot provide any level of assurance about North Korea's nuclear activities.

The IAEA remains ready to work with all parties towards a comprehensive settlement that would both address the security needs of North Korea and

provide assurance to the international community that all nuclear activities in that country are exclusively for peaceful purposes. The agreement reached in Beijing at the six-party talks—after two years of complex negotiations—on the principles that should govern a comprehensive settlement, is a significant step forward. It is particularly welcome that North Korea has expressed its commitment “to abandon all nuclear weapons and existing nuclear programs and [to return], at an early date, to the Treaty on the Non-Proliferation of Nuclear Weapons and to IAEA safeguards.”²

This past September the IAEA Board of Governors expressed the view that a successfully negotiated settlement of this longstanding issue of maintaining the essential verification role of the IAEA would be a significant accomplishment for international peace and security.

II. IRAN

For the past two and a half years, the IAEA has been investigating the nature and extent of Iran’s nuclear program, with a view to assuring ourselves that all past activities have been declared to the IAEA, and that all nuclear material and activities in the country are under safeguards. Iran has failed in a number of instances over an extended period of time to meet its obligations under its Safeguards Agreement with respect to the reporting of nuclear material, its processing and its use, as well as the declaration of facilities where such material had been processed and stored.

Since October 2003, however, Iran has made good progress in correcting its past breaches and the IAEA has been able to verify certain aspects of Iran’s nuclear program. As a result, some aspects of that program—such as those related to uranium conversion, laser enrichment, fuel fabrication and heavy water—are now being followed up as routine safeguards implementation matters.

Since last November, our verification efforts have focused primarily on two aspects of Iran’s centrifuge enrichment activities. Regarding the first aspect, the origin of uranium particle contamination found at various locations in Iran, we have made good progress, with the active cooperation of Pakistan. Regarding the second aspect, clarifying the chronology of Iran’s centrifuge activities, we still have a number of unanswered questions and we have made repeated requests to Iran for additional information and access.

As our latest report in September made clear, Iran continues to fulfill its obligations under the safeguards agreement and additional protocol by providing timely access to nuclear material, facilities and other locations. This,

2. Christopher R. Hill, Asst. Sec. for East Asian & Pac. Aff. (U.S. Dept. of State), Statement before the House International Relations Committee (Oct. 6, 2005), *available at* <http://www.state.gov/p/eap/rls/rm/2005/54430.htm> (last visited Mar. 8, 2006).

however, is a special verification case that requires additional transparency measures as a prerequisite for the IAEA to be able to reconstruct the history and nature of all aspects of Iran's past nuclear activities, and to compensate for the confidence deficit created. By promptly responding to these IAEA requests, Iran would well serve both its interests and those of the international community. The more thoroughly we are able to clarify all of Iran's past nuclear activities, the more we will be in a position to understand and confirm the nature of the program.

As a confidence building measure, the Board has also, in a number of resolutions beginning in December 2003, urged Iran to maintain a voluntary suspension of all its enrichment related and reprocessing activities and has asked the IAEA to continue to monitor Iran's application of this suspension. Since August 8, Iran has been conducting conversion activities at the Isfahan Uranium Conversion Facility under IAEA verification. Other aspects of Iran's suspension remain intact.

The IAEA Board of Governors has continued to devote considerable attention to the implementation of Iran's NPT safeguards agreement. Last month the Board adopted a resolution that, *inter alia*, found Iran to be in noncompliance with its safeguards agreement and urged Iran to implement the transparency measures necessary for the IAEA to be able to clarify outstanding issues. The IAEA will continue to call on Iran to do its utmost to work with the IAEA and the international community, to provide assurance that its nuclear program is exclusively for peaceful purposes.

III. NUCLEAR FUEL CYCLE

Countries with nuclear industries have set up elaborate accounting and protection measures to ensure strong national oversight of their nuclear material. The IAEA inspects regularly to verify the accuracy of what countries report. Export controls restrict the transfer of sensitive technologies that could be misused for nuclear-weapons production.

However, controlling access to nuclear-weapons technology has grown increasingly difficult. The technical barriers to designing weapons and to mastering the processing steps have eroded with time. Much of the hardware in question is "dual-use;" for example, it is hard to justify restrictions on exporting "hot cell" technology that could be used for plutonium separation when the same equipment is vital for producing radioisotopes used in modern medicine. Changes in political fortunes or economic downturns have at times found nuclear scientists without jobs and reportedly willing to offer their knowledge and services elsewhere. And with the passage of time, the sheer diversity of technology has made it harder to control both procurement and sales. In pre-1991 Iraq, for example, scientists were simultaneously pursuing

no fewer than six different technologies to enrich uranium for eventual weapons use, shopping for essential equipment and specialized materials in more than ten countries.

Uranium enrichment is sophisticated and expensive, but it is not proscribed under the NPT. Most designs for civilian nuclear-power reactors require fuel that has been "low-enriched," and many research reactors operate with "high-enriched" uranium. It is not uncommon, therefore, for non-nuclear-weapon states with developed nuclear infrastructures to seek enrichment capabilities and to possess sizeable amounts of uranium that could, if desired, be enriched to weapons-grade.

While high-enriched uranium is easier to use in nuclear weapons, most advanced nuclear arsenals favor plutonium, which can be tailored for use in smaller, lighter weapons more suited for missile warheads. Plutonium is a by-product of nuclear-reactor operation and separation technology ("reprocessing"), also not proscribed under the NPT, can be applied to extract the plutonium from spent fuel for re-use in electricity production.

Under the current NPT regime, therefore, there is nothing illicit in a non-nuclear-weapon state having enrichment or reprocessing technology, or possessing weapon-grade nuclear material. And certain types of bomb-making expertise, unfortunately, are readily available in the open literature. Should a state with a fully developed fuel-cycle capability decide, for whatever reason, to break away from its non-proliferation commitments, most experts believe it could produce a nuclear weapon within a matter of months.

In 1970, it was assumed that relatively few countries knew how to acquire nuclear weapons. Now, with thirty five to forty countries in the know by some estimates, the margin of security under the current non-proliferation regime is becoming too slim for comfort. We need a new approach.

Several proposals have been floated in the past two years, including one by President Bush, to restrict the spread of enrichment and reprocessing facilities and technologies. However, countries with the potential to develop such technologies, in particular developing countries, are opposed to any further restriction. It is in that context that the Director General has presented his proposal for a Multinational Approach to the nuclear fuel cycle.

In 2004, the Director General established a group of senior experts to explore options for multilateral control of fuel cycle facilities. In February 2005, the expert group issued its report, and the Director General has been encouraged by the range of supporting initiatives that have followed. The uranium industry and the World Nuclear Association have set up a working group to explore the concept of fuel assurances. The United States has been developing a proposal on providing "reliable access to nuclear fuel," working with principal suppliers, for states that agree to forego independent enrichment

and reprocessing facilities. And the Nuclear Threat Initiative is working on a strategy that would help the IAEA set up an actual fuel bank.

In addition, with spent nuclear fuel stored in temporary sites in more than fifty countries, many without the proper geology for underground disposal, multilateral approaches to spent fuel management and disposal could be a solution for the future. In July in Moscow, at an international conference organized by the Federal Atomic Energy Agency (ROSATOM) in cooperation with the IAEA, considerable discussion took place on possibilities related to multilateral fuel storage and disposal, as well as fuel leasing or even full service nuclear leasing.

We should be clear that there is no incompatibility between tightening controls over the nuclear fuel cycle and expanding the use of peaceful nuclear technologies. In fact, by reducing the risks of proliferation we could pave the way for more widespread use of peaceful nuclear applications.

IV. NUCLEAR TERRORISM

The security of nuclear and other radioactive material and associated technologies has taken on heightened significance in recent years. The IAEA has been active in the field of nuclear security for many years, but the events of September 2001 propelled the rapid and dramatic re-evaluation of the risks of terrorism in all its forms—whether related to the security of urban centers, oil refineries, air and rail travel, or activities involving nuclear and radiological material. Terrorist attacks since that time have continued to keep these concerns in the forefront of our collective consciousness. It has become obvious that our work to strengthen nuclear security is both vital and urgent and that we must not wait for a “watershed” nuclear security event to provide the needed security upgrades.

Effective and credible approaches to nuclear security are essential not only for detecting and responding to illicit trafficking, but also for the protection of nuclear power plants, research reactors and the array of nuclear and other radioactive materials that support these and other nuclear applications. To optimize the effectiveness of these efforts, it is important to prioritize—to focus on those facilities and activities where the risk is greatest—and to maintain a balance between security needs and the many benefits of peaceful applications of nuclear technology.

International cooperation has become the hallmark of these security efforts. While nuclear security is and should remain a national responsibility, some countries still lack the programmes and the resources to respond properly to the threat of nuclear and radiological terrorism. For these countries, international cooperation is essential to help them strengthen their national

capacities. International cooperation is also essential to our efforts to build regional and global networks for combating transnational threats.

In that context, the IAEA has established a nuclear security plan to help states to improve their national capacities to guard against thefts of nuclear and other radioactive material and to protect related facilities against malicious acts. Important progress has been achieved in the last few years in increasing the governments' awareness of the potential risk of nuclear terrorism. But much remains to be implemented. International cooperation in this fight is essential, as the system is as strong as its weakest link. Loose controls in one country could mean safe passage or ground for a terrorist organization to acquire, plan and launch a nuclear or radiological attack to another country. And the consequences to the population and the environment in such an attack would not only be suffered by the country under attack, but also by its neighbors. After all, we are all on the same side in this fight.