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Transparency and Openness: Roles and Limitations in the Nuclear Nonproliferation Verification System

Contribution of the INMM International Safeguards Technical Division

Principal authors: James Larrimore, Myron Kratzer, John Carlson, and Bruce Moran

1. Introduction

While transparency has a long history of usage in arms control, the international safeguards community began to talk about "transparency and openness" in the aftermath of the discovery of Iraq's clandestine nuclear weapon program in 1992. In 1994 Cecil Sonnier brought that discussion into the Institute of Nuclear Materials Management (INMM) International Safeguards Division. In recognition of Sonnier's dedication to the division, which he founded and chaired for two decades, a memorial activity was initiated in July 2004, shortly after his death. It was felt that a reexamination of transparency and openness would be a suitable memorial discussion topic. This reexamination has taken into account important developments during the past two years in the role of transparency and openness in international safeguards and nonproliferation, driven by the "special verification case" of Iran.[1] This paper reports on the results of this memorial activity.

The first notable call for transparency and openness in the international safeguards area was by International Atomic Energy Agency[2] Director General Hans Blix before the Agency Board of Governors in February 1992 (see Section 1.1). This was followed by consideration in 1992-1993 by the Standing Advisory Group on Safeguards Implementation (SAGSI), reporting to the agency's director general (see Section 1.1). At that time the principal question addressed was whether and how transparency and openness could allow states to better demonstrate their non-proliferation credentials, through their interactions with the agency in the framework of their Nonproliferation Treaty (NPT) safeguards agreement. The possible role of transparency and openness in improving the efficiency of agency safeguards was also in consideration.

A role for transparency and openness with respect to undeclared nuclear activities was mentioned, but the concerns at that time were largely limited to the proven cases of Iraq and North Korea, although other potential trouble spots were recognized. Since 1994, the international community has had to deal with further noncompliance in North Korea and with the situations in Iran and Libya. And in late 2004, information came out about undeclared nuclear activities on a much smaller scale in South Korea (Republic of Korea)[3] and Egypt.[4] Discovery of the illicit nuclear proliferation network of A.Q.Khan of Pakistan[5] has added a further important challenge; the agency is reported to have discovered connections or contacts in more than thirty countries around the globe.[6]

The main challenge facing the international safeguards community in the last several years has been reacting to and addressing questions about the noncompliance of Iran.[7] As the agency and its member states have struggled with how to build confidence in Iran's compliance, Iran has been requested to take "transparency measures" that have been characterized by the agency as going beyond its legal obligations under the NPT and its safeguards agreement.[8] This represents a significant extension of the role of transparency and openness in international safeguards and nonproliferation. In this paper, we address the following important questions about transparency and openness:

1. What roles can transparency and openness play in cases where the compliance of a state with its nonproliferation and safeguards agreement obligations is in question?
2. What roles can transparency and openness play for states generally believed to be in compliance with their non-proliferation and safeguards agreement obligations?

3. How could and should the agency provide more transparency to its member states in order to increase the credibility of the assurances it provides?
4. What possibilities are there for further developments in transparency and openness in international safeguards and nonproliferation?

In the rest of Section 1, we review considerations of transparency and openness in international safeguards in 1991-94; transparency and openness in related verification regimes; and terminology related to transparency and openness. In Section 2, we address the first question above, which is perhaps the most important role of transparency and openness. In Section 3, we address the second and third questions, analyzing transparency between the agency and states in compliance, and transparency between the agency and states. In Section 4, we explore the fourth question, possible further developments in transparency and openness. And in Section 5, we present our conclusions and recommendations.

1.1 Transparency and Openness in International Safeguards and Nonproliferation, 1991–1994

Reaction to the Iraq clandestine nuclear program. Hans Blix, in his director general's statement to the February 1992 Board of Governors, placed openness and transparency in the forefront of safeguards and confidence building under the NPT:[9]

*Perhaps the broad objective of safeguards may be said to be the creation of a regime of **openness and transparency** and thereby to create confidence. There is no question of encroachment upon sovereignty. Verification activities are based on agreements freely made. To a state that respects a pledge given not to develop or acquire nuclear weapons, the strengthening of safeguards should be welcomed, provided it does not impede development or is very cumbersome—and this has not really been contended. The verification which occurs will result in a stronger—more credible—assurance about the peaceful nature of the state's nuclear programme.*

*It is important, I think, to retain the notion that **openness and transparency** about nuclear activities is the essential requirement to maintain confidence about their peaceful character and dispel any doubts in this regard. Full co-operation in implementing required safeguards is a way of achieving such **openness and transparency**. To create confidence a country may wish to go beyond the **openness** that follows from routine safeguards arrangements. It is reasonable to demand that the safeguards machinery should be sufficiently effective to detect violations—if any. By the same token, it is reasonable for governments to demand that it should be of use to dispel unfounded allegations.*

Blix's text seemed to clearly lay out the meaning and role of transparency and openness, and notably their relationship to confidence building. However, closer scrutiny generated much discussion. This was reflected by the statement in an unpublished paper written in 1994 as part of the INMM consideration that "*much confusion may exist regarding the use of the terms transparency and openness in the context of improved IAEA safeguards pursuant to the NPT*."

In this reexamination of transparency and openness, several points in Blix's citation were found to need clarification, if not modification. Blix's view on what was required to create confidence through openness and transparency was a starting point that has been built upon through international evaluations of what is required to meet recent proliferation challenges. International confidence is created through the agency's verification of the accuracy of the state's declarations and sufficient transparency of the state to provide assurance that activities have not been hidden from the agency and not declared. Openness of a state now includes bringing an Additional Protocol into force and permitting the agency to verify the nuclear fuel cycle-related activities identified by the state and to undertake additional measures to identify others that might not have been declared by the state. When compliance comes into question, routine safeguards arrangements are no longer viewed as adequate openness of a state.

A key clarification regards what Blix intended in saying a state "may wish to go beyond the openness of routine safeguards arrangements," which presumably meant the arrangements connected with routine reporting and routine inspections as provided for in comprehensive safeguards agreements based on INFCIRC/153.[10] A state *must* go beyond routine safeguards whenever the agency validly invokes either the special or ad hoc inspection authority of a comprehensive safeguards agreement. Also, in adopting an Additional Protocol based on INFCIRC/540,[11] states are now accepting the broader provision of information to and complementary access by

the agency. But how "unfounded allegations" are to be dispelled remains a work in progress; this is taken up later in this paper.

Improving efficiency and effectiveness of agency safeguards—1991-1994.[12] In 1991 SAGSI[13] began focusing on how agency safeguards could be implemented more efficiently and effectively, in support of the agency's response to the board's call for "strengthening the effectiveness and improving the efficiency" of agency safeguards. Initially, SAGSI revisited the earlier idea of greater transparency of facility operation, coupled with an increase of transparency through non-routine activities to confirm the absence within a state of unsafeguarded nuclear material and activities. Transparency and openness were considered to be key elements in SAGSI's exploration of so-called alternative approaches to safeguards, explored in 1991-93 and incorporated in SAGSI's report to the director general in April 1993 on its re-examination of safeguards implementation.

At the director general's request, SAGSI further developed the ideas on transparency and openness and reported them in November 1993. SAGSI explained that the concepts of transparency and openness are complementary, with the formulation: "If they are compared to a house, transparency is like a glass house. One can see from a distance what is happening in it. Openness on the other hand is like a brick house in which one is allowed to enter."

SAGSI addressed transparency in international safeguards at the level of states and their nuclear programs, at the level of state systems of accounting and control (SSACs), and at the level of facility operators. It further noted that transparency is also required in the relations between the Secretariat, the Board of Governors, and the member states. SAGSI suggested that these different aspects of increased transparency and openness might be a basis for enhancing the efficiency and effectiveness of the agency's safeguards system.

SAGSI noted that transparency is primarily related to providing information, and it listed additional information that a state might provide to the agency. This list was taken into consideration in the agency's Program 93+2, which was carried out between 1993 and 1995, and then was largely incorporated into the so-called expanded declaration in INFCIRC/540, adopted by the Board in 1997.

SAGSI noted that openness would be greatly improved by a state's willingness to permit wider access, and it pointed to the need for additional agency access to obtain assurances about the absence of undeclared nuclear activities. This idea was incorporated into the Model Additional Protocol as "complementary access."

As mentioned at the beginning, during 1994 the INMM International Safeguards Division pursued transparency and openness further, engaging in informal written and oral exchanges. That activity contributed to the general understanding within the international safeguards community, but did not generate published results given its informal nature.

In hindsight, it appears that discussions on transparency and openness in international safeguards had had their day by 1994. Approaches that were viewed as enhancing transparency and openness had been taken up in the agency's Program 93+2 and then in the Board of Governor's development of the Model Additional Protocol. But transparency and openness were destined to return to the discussions of safeguards and nonproliferation.

1.2 Transparency and Openness in Related Verification Regimes

In many areas of human endeavor, where there are calls for improvement, there are calls for transparency[14] and openness.[15] While it might be instructive and provide useful insights to look broadly at such usage, we limit consideration to a brief review of how transparency has been used in other international nuclear contexts. Openness has been used less frequently. We will suggest below that the term openness comes into play in the interactions of states with the agency under the NPT.

Transparency has long been central to arms control. As an example, recently in the context of START III negotiations the United states and Russia agreed that their experts would explore possible measures related to long-range sea-launched nuclear cruise missiles and tactical nuclear systems, including appropriate confidence-building and transparency measures.[16] The United Nations Institute for Disarmament Research (UNIDIR) has proposed a general definition of "confidence and security building measures" (CSBM): "*A CSBM seeks to introduce transparency and thereby predictability in relations between states by clarifying national intentions, reducing uncertainties about national activities, and/or constraining national opportunities for surprise*." [17] This juxtaposition of confidence-building measures and transparency, echoing Blix's 1992 statement, has been

reflected in the agency Board of Governors considerations on Iran in late 2005 and in 2006. It is, in fact, the key to the role of transparency between states under the NPT.

1.3 Transparency, Openness, and Cooperation

Here we discuss the meaning of transparency, openness, as well as the related term cooperation. The combination "transparency and openness" has sometimes been used; when used together, transparency alone would often suffice. SAGSI suggested that, for international safeguards, transparency should mean the provision by a state of *information* allowing others to see more clearly what its activities and capabilities are, while openness should mean the provision by a state of *access* that would enable others to see for themselves or through an intermediary, i.e., the agency. Another characterization is that transparency refers to a state of being in which it is very difficult to conceal illegitimate activity, and openness characterizes a policy (by a state) that seeks to achieve this transparency. We develop those ideas further in this subsection and in the remainder of the paper. Our general recommendation on terminology is that *transparency* be considered the appropriate primary term, which can include openness, and *openness* should be used only when its separate meaning is intended.

Transparency

Transparency is a widely used term in many fields. Transparency involves a condition, or state of affairs, evident to an observer—in the safeguards and nonproliferation context, to another state and to the agency. A determination of transparency results from an assessment by others and thus is a perceived *virtue* of an organization, government, or state. A government or state cannot achieve transparency simply by proclaiming it.

For international safeguards and nonproliferation, the context in which transparency is used must be carefully explained and qualified in order not to mislead or over-promise the effectiveness of safeguards. The concept of transparency arises because states have a strong national security interest in gaining confidence about the nuclear activities of other states and, to the extent that they can be inferred from these activities, also the intentions of other states in the nuclear area. States and the agency gain confidence about other states through differing means.

As has been demonstrated by recent cases, the agency assesses transparency as a part of how it gains the confidence to draw safeguards conclusions about a state. The agency's assessment of transparency involves a number of factors: how the state complies with the obligations of its safeguards agreement and Additional Protocol; how it cooperates with the implementation of safeguards by the agency; whether information from open sources is consistent with the nuclear activities declared by the state; what voluntary reporting the state does to the agency when appropriate; and what confidence-building measures the state undertakes when judged necessary to resolve outstanding issues. Some actions taken as confidence-building measures may be referred to as transparency measures between the state and the agency.

States also make an assessment of transparency as part of how they gain confidence that another state is meeting its obligations under the nonproliferation regime. A state's broader assessment of transparency may consider information it obtains independently from bilateral and multilateral contacts and from other sources, reports by the agency to its Board of Governors and annually to member states, open sources of information about the state,[18] and confidence-building measures undertaken by the state, including transparency measures and, if relevant, a state's voluntary constraints on sensitive nuclear activities.

Transparency in international safeguards and non-proliferation can be defined as: "the condition in which a state's nuclear programs, activities, facilities, capabilities, and intentions are known to other members of the international community, through explicit policies and actions of the state, by reason of its general climate and culture of openness, and by independent information available on the state."

The problem of completeness of transparency. When transparency is used, a qualifier is frequently added, often "full transparency."[19] This reflects one of the major problems with the term transparency—the tendency to think of it as complete, when it is unlikely to be complete given the many aspects involved. In fact, a basic limitation of transparency is that there is no way to verify whether it is complete. For the agency to assess whether a state's apparent openness and transparency are real and complete, the tools available are no more and no less than those provided in the relevant safeguards agreements, including the state's cooperation (see discussion later). The effectiveness of the tools may be limited by the effectiveness of countermeasures used to hide activities that a state does not want to be observed.

There may also be the expectation that full confidence requires complete transparency. On the contrary, not every detail needs to be available, only sufficient information, e.g., to see that technology is not being misused. Nevertheless, all information of safeguards relevance is useful and the limited transparency that corresponds to incomplete information is of value provided that the likelihood that it is incomplete and perhaps even inaccurate is recognized and given weight.

Without the agency being in effect the sovereign, it is difficult for it to achieve something close to full confidence. Safeguards cannot provide absolute assurance of the absence of undeclared nuclear activities for a state. “Every modern state maintains elaborate and costly programs to protect its classified national security information.”[20] While large-scale clandestine nuclear activities, like the Hanford and Oak Ridge installations in World War II, can no longer be kept clandestine, nuclear activities that are small enough might be hidden. With proper understanding of this limitation, transparency can strengthen the agency conclusion that it has no indications of undeclared nuclear activities.

Calling for transparency. Calling for transparency—by states and/or the agency—can be a legitimate part of the rhetoric employed to exert pressure for compliance in cases where there are questions about a state being in full compliance with its undertakings. However, calls for transparency are inherently ambiguous and might be interpreted as displacing calls for compliance with the safeguards agreement provisions per se. This might tend to blur the meaning or even weaken the significance of compliance and thus might undermine the agency’s rights to verify compliance. The question should be asked: “Why not call for compliance rather than for transparency?” If what appear to be positive responses to calls for transparency are given credence, or even the benefit of the doubt, the safeguards component of the non-proliferation regime will suffer. Care must be taken that making calls for transparency does not turn into a surrogate or substitute for the agency not asserting and making use of the rights that the agreements already give it.

Openness to the Agency

The concept of openness arises because the agency, under its statute and the NPT, has a unique mandate. The agency is charged with verifying whether states are fulfilling the obligations they undertake through their safeguards agreements with the agency. In order for the agency to properly carry out its mandate, states must comply fully with the obligations to provide information and access as set forth in their safeguards agreements. Openness in international safeguards and nonproliferation can be defined as the relationship between a state and the agency with respect both to the information and access that a state provides. Therefore, the objective of openness in international safeguards is to contribute to the agency’s process of verification and thus its ability to draw correct safeguards conclusions. We call that “openness to the agency.” For openness to the agency to contribute to transparency of the state, the information must be verified or the access performed so that the agency has confidence that what the state provides or offers is accurate and complete.

With respect to the agency verifying that declared nuclear material has not been diverted, a state’s obligations for openness are defined in its safeguards agreement, including an Additional Protocol where applicable. The strengthening measures adopted in the 1990s within the legal authority of INFCIRC/153, and several of the provisions of the Additional Protocol have expanded openness by states in such areas as cooperating to facilitate inspections on short notice and the use of remote transmission of safeguards data.

With respect to activities performed by the agency to support a conclusion that undeclared nuclear material and activities are absent, the strengthening measures adopted in the 1990s within the legal authority of INFCIRC/153 and the provisions of the Additional Protocol have expanded significantly the information and access routinely available. Explicit provision of access for the use of environmental monitoring in facilities, at nuclear sites and at other locations in a state is a new element of openness of states.

The openness of a state to the agency may be greater than its transparency to other states or the international community as a whole because of the agency’s obligation to maintain the confidentiality of information provided by states.[21] Thus, the agency may require and receive some information from a state that it is not able to share with other member states. Giving the agency access to such information should be encouraged, provided that it is made clear that it is preferable that states allow to be made public information relevant to its nuclear activities that is not sensitive for nonproliferation or proprietary reasons.

A key question about openness is whether a state can never say no to an agency request for any information or access. There is a basis for the agency to take the position that there is no limit.[22] There is no explicit limit in

paragraph 77 of INFCIRC/153 on the "information or locations in addition" to which the agency can request access, and demand it as a matter of right, if the Board determines that it is essential and urgent. This would include information that is not explicitly nuclear but is essential to provide the rationale for otherwise ambiguous nuclear activities, such as enrichment. The Board would make the decision as to whether the justification for the request is valid and politically acceptable.

Openness to the agency could mean even more than discussed above. An example could be the assembly and release of information that is helpful to the agency's task (or establishing arrangements that facilitate this). Of course, a state's ability to falsify information must be kept in mind, and the agency's ability to verify the accuracy and completeness of such information is limited. Nevertheless, information that is sufficiently diverse and independent in origin may be considered to have greater credibility than information solely from state sources—and this could be helpful for agency purposes.[23]

A further form of openness applicable to all states and independent of their safeguards agreement with the agency is to provide the agency information or to assist agency investigations about possible undeclared nuclear activities in other states, specifically regarding inquiries about purchasing specialized equipment or non-nuclear materials, exports and export denials, and use of ports for trans-shipment of such equipment and materials. Such information could be of great benefit to the agency.

Cooperation Between the State and the Agency

Cooperation is sometimes used where *openness* might be expected. Certainly openness requires a degree of cooperation, but cooperation does not assure complete openness. Therefore, it is helpful to address the meaning and usage of cooperation in relation to openness. There is a case for making a distinction between openness of a state to the agency and cooperation between a state and the agency.

Cooperation is a fundamental element in making any agreement work. One section of Part I of INFCIRC/153 is titled "Cooperation between the agency and the state" and this provision reads:

> *"The Agreement should provide that the agency and the state shall cooperate to facilitate the implementation of the safeguards provided for therein."*[24]

What was intended by *cooperate* in that INFCIRC/153 provision was something subjective and general, the state should not make unnecessary difficulties for the agency, and vice versa. To the contrary, by *openness* we mean something very concrete and objective: access to information and places. Either a state allows the access or it doesn't. If the agency has a right to the access and the state denies it, it is in noncompliance, regardless of how politely it says no.

However, a consequence of this legal provision in comprehensive safeguards agreements is that when cooperation is referred to without further qualification in an international safeguards context, it is reasonable to assume that it refers to agency-state cooperation to facilitate the implementation of the safeguards prescribed in the safeguards agreement (including an Additional Protocol, for states with one in force). If cooperation is intended to mean more than that, misunderstandings could occur. This problem can be avoided through the use of the term openness when appropriate.

There is also the matter of how a state responds to reasonable requests by the agency for additional information or other safeguards needs. It is open to a state to provide the agency greater information and access voluntarily when this appears likely to be helpful to overcome uncertainty. The fallback for the agency is that virtually complete access is required under the relevant safeguards documents, pursuant to a board finding that it is essential and urgent. If such information and access is freely and cooperatively given, that can carry with it a greater sense of validity, and a correspondingly higher degree of assurance than if the same information and access were obtained after delays and repeated requests, or only through the imposition of the agency's mandatory processes.

Finally, a new direction for cooperation of states with the agency has been raised in the Secretariat report on Iran for the November 2004 Board of Governors, in which cooperation is used many times. The "full and prompt cooperation with the agency of third countries" and "cooperation of other states" is called for.[25] That brings the actions of all states into play. Could it lead to the Secretariat naming those "third countries" that have, and perhaps those that have not, given it this additional cooperation? That may depend on whether the actions

involved in this "additional cooperation" are intended to build confidence through *transparency* or provide confidential information to the agency, i.e., through *openness*.

2. Role of Transparency and Openness Where the Compliance of a State with its Nonproliferation and Safeguards Agreement Obligations are in Question

2.1 Recent Cases

The concept of transparency and the concept of openness to a lesser extent have again become prominent in the informal and formal discussion of international safeguards.[26] The usage has been in connection with the recent cases where there were questions about compliance, notably the cases of Iran but also of Libya. The most extensive usage has been with regard to the Iran case, both in official documents and in the media. In the media, in March 2005, one commentator referred to "Iran's customary brazenness…in its repeated snubbing of efforts by [the agency] to promote nuclear transparency…"[27] Another commentator reported "an unusual gesture of openness"[28] when Iran took a group of journalists deep underground to visit the Natanz uranium enrichment facility; the U.S. State Department commented: "If Iran were really serious about demonstrating transparency in its nuclear program, it should answer all of the [agency's] outstanding questions."[29] Iranian officials have declared that their "nuclear activities are transparent."[30] And, a senior Israeli official was reported to have said, "The way to stop Iran is by…sanctions as a tool and a very deep inspection regime and full transparency."[31]

When there are questions about a state's compliance, the formal usage is more important. If a state is in fact in compliance with its safeguards agreement but is nevertheless the subject of suspicion, transparency and openness can play a role as tools to aid the agency to verify compliance. Additional information and openness, i.e., access to locations, people and documents, might result in greater transparency and strengthen the confidence in the state's compliance.

When questions have arisen about the compliance of a state with its safeguards agreement obligations, the agency follows a process that, while particular to the case, is guided by relevant provisions of INFCIRC/153 and the agency statute. The threshold step is for the director general to report the case to the Board of Governors. The board, taking account of the Director General's report, can decide that the case should be reported to the UN General Assembly and Security Council. Once a case has been referred to the UN Security Council, the Security Council may reaffirm the agency's rights and urge a state to comply with resolutions of the Board of Governors. It may also give the agency a mandate to carry out activities under a council resolution, as happened with Iraq in 1992 and with DPRK in 1994.

However, certain measures lie in the agency's competence even if a case is referred to the UN Security Council, such as suspension of agency membership, call for return of nuclear material, and most importantly, continuation of safeguards. In this sense, the board is no different in principle from the UN Security Council—a tribunal of member states—and should be seen as a part of the same system of adjudication.

If the board decides to deal with a case within the agency framework, at least for a period, it may adopt one or several resolutions with requests to the state and to the Director General. The director general is asked to report to the Board of Governors whether a state is in or has come into full compliance with its safeguards obligations. The implications of such a request have been unfolding over the past several years in the Iran case before the agency Board of Governors. That case has broken new ground and established precedents in dealing with questions of compliance in international safeguards, also with respect to transparency and openness.

With respect to consideration by the board of a conclusion reported by the director general on agency verification activities, it is the process of verification itself that is crucial. This distinction is an important one. There are many times in the process of verification when the agency will have to make judgments to guide its own efforts in order to end up with a conclusion to present to member states, but states will make their own conclusion and they will reflect their judgment, not the agency's, in their decisions in the Board as to whether or not to refer a state to the UN Security Council. Transparency and openness of a state can play a role with respect to the actions member states take in the Board of Governors.

Iran. The situation with Iran provides a concrete example. If Iran had complied with the reporting and access requirements of its safeguards agreement, it could have done all the things it now claims its agreement allows it to do, including enrichment, without in any way violating its safeguards agreement or the NPT. However, in view of its violations, whether Iran can claim the full rights given by the treaty and safeguards agreements to

complying parties has come into question. Moreover, the conduct of otherwise permissible activities if undertaken while R&D possibly connected with weaponization is also in progress would raise questions as to compliance with the NPT and safeguards agreements. Fuel cycle activities with the potential for the production of weapons usable material would raise the most serious questions. But, any nuclear activity of a scale and nature, including reactor construction and operation, that could contribute to weapons material production could come under suspicion and scrutiny. While the conduct of weaponization activities in the event that they are discovered or reasonably suspected thus has obvious relevance to the determination of compliance, it must be emphasized in the strongest possible terms that it is unnecessary that such activities be discovered in order for noncompliance with the provisions of safeguards agreements to be established, and appropriate corrective actions to be initiated.[32]

The director general has emphasized the importance for Iran to provide active cooperation and maximum transparency in order for the agency to gain full understanding of the extent and scope of its previously undeclared activities and to verify the correctness and completeness of its current declarations relevant to its nuclear program.[33] Additional openness and the resulting transparency may reduce doubts, with the essential proviso that the completeness of the transparency will never be assured. However, when noncompliance has been established, as in the case of Iran, a high degree of transparency will be called for, which is perhaps not achievable in practice, leaving an uncertainty which safeguards alone may be incapable of resolving.

Other recent cases. Libya was another significant case, where the director general was able to report that the state, while in non-compliance for a substantial period, had given active cooperation and what is believed to have been full openness to the agency. Therefore, he concluded that Libya was taking the necessary corrective actions and being sufficiently open to the agency to come into compliance with its safeguards obligations. In the Republic of Korea (ROK) case in 2004, the director general stated that the failure to report certain sensitive nuclear activities was of "serious concern" but "the ROK has actively cooperated with the agency in providing timely information and access to personnel and locations, and has permitted the collection of environmental and other samples." This cooperation, in combination with the apparently limited scale of the activities that the ROK failed to report, allowed the director general to conclude that although continuing follow-up was needed, resolution of the issue could be handled through routine safeguards under the agreement and additional protocol.

2.2 Confidence-Building Measures

Transparency helps to engender confidence—e.g., if state X concludes that it understands the rationale for state Y's nuclear program, and is confident that it is aware of the details of that program—including what it believes to be the absence of research and development on production of weapons-usable fissile material, or an appropriate civil purpose for such R&D—then state X can factor those conclusions into its strategic assessments and decision-making affecting state Y. It must be clearly recognized, however, that state X's understandings in regard to the nuclear program and intentions of state Y may be incorrect and its confidence, therefore, may be misplaced.

In his statement for the November 2004 board, the director general introduced a new concept and term—"confidence deficit"—saying: "A confidence deficit has been created, and confidence needs to be restored. Iran's active cooperation and full transparency is therefore indispensable."[34] The introduction of the concept of confidence deficit at that stage in the Iran case reflects a maturing of thinking about how to address both non-proliferation concerns and safeguards compliance questions. A confidence deficit develops when noncompliance with safeguards obligations is coupled with incomplete transparency. The concept of confidence restoration/confidence building has been explicitly brought into the handling of this case. This is consistent with the United Nations Institute for Disarmament Research (UNIDIR) definition of a confidence and security building measure (see Section 1.2).[35] Intrinsically, confidence-building measures can only have a partial effect, as steps toward a restoration or achievement of full confidence.

For states with legally binding NPT safeguards obligations, confidence-building measures should not be used to describe actions that a state in noncompliance undertakes to remedy the noncompliance with those obligations. Other states are entitled to full compliance and should expect the agency to demand it. Therefore, it was good to see that confidence building and the confidence deficit concept were not used for the case of the Republic of Korea, also before the November 2004 Board of Governors.

Depending on the circumstances, however, building confidence—or coming back out of a confidence deficit—may require a state to provide the agency information and access beyond that which it has obligated itself to

provide under its safeguards agreement, broad as those obligations are, and to take wider actions or accept limitations on its actions, such as the suspension of certain nuclear activities. The acceptance of such actions by a state falls in the area of confidence-building measures.

In the Iran case, the Board of Governors started in November 2004 to request Iran both to fully meet its obligations under its safeguards agreement and to take voluntary confidence-building measures, such as termination of all enrichment related activity, that a complying party is not legally obligated to take.[36] In February 2006, Iran was explicitly called to respond positively to confidence-building measures with respect to its declared nuclear program, namely to resuspend all enrichment-related and reprocessing activities, to reconsider the construction of a heavy water research reactor, to ratify its Additional Protocol and, pending ratification, to act in accordance with it. While Iran's non-compliance with its safeguards agreement does not in itself provide a legal obligation for Iran to take these actions, neither does Iran enjoy the legal right, as would a state in compliance, to continue these activities. It is in this sense that certain activities go beyond the legal obligations of the NPT and safeguards agreements. As additional confidence-building measures, specific openness actions, called *transparency measures* that extend beyond the formal requirements of the Safeguards Agreement and Additional Protocol," were requested of Iran, namely, to provide such "access to individuals, documentation relating to procurement, dual use equipment, certain military-owned workshops and research and development as the agency may request."[37] This application of confidence-building measures, which includes voluntary actions by the state and specific transparency measures between the state and the agency, provides a model for use in future cases. But care must be taken that calling for confidence-building measures does not lead to confusion between obligatory and voluntary actions.

Bilateral or regional cooperation between states could include establishment of nuclear transparency measures to increase confidence. A study of regional transparency measures covering nuclear safety, security and safeguards has been presented recently.[38] States might consider opportunities for developing appropriate bilateral or regional transparency measures to complement safeguards, and where they do develop transparency measures, making the information from these available to the agency.

2.3 Transparency Visits

In the Secretariat's report on Iran to the November 2004 board, certain types of access for inspectors were called transparency visits "in the interest of confidence building."[39] While this is not a new concept,[40] it raises important considerations.

In the Model Additional Protocol, the concept of agency visits in the interest of confidence building was introduced in Article 8, which provides for a state to voluntarily "offer the agency access to locations in addition to those" otherwise provided for by the additional protocol and to request "the agency to conduct verification activities at a particular location." Such Article 8 access would seem to match the intent of the term "transparency visit."

Which side initiates discussion of such a visit is not important. It is clear especially in INFCIRC/153 but also in INFCIRC/540 that this additional access should be arranged cooperatively when possible. In many cases, a transparency visit would be voluntarily agreed to by the state. What is important is how the state reacts when the agency wishes to have additional access and the state does not wish to voluntarily offer it.

The key point here is that in states with comprehensive safeguards agreements, the provisions, even based on INFCIRC/153 alone, provide a strong basis for verification, without any additional openness. The agency has the right to go anywhere in the state "when it considers that information made available by the state is not adequate for the agency to fulfill its responsibilities under the Agreement." If the agency Secretariat asks and gets turned down by the state, which would represent a serious case, the agency board can invoke the "essential and urgent" provision to require the state to permit the access.

A transparency visit is in effect a special inspection that has not been formally requested as such. Using transparency visit as a label may be useful for smoothing the process. But care is required not to prejudice the agency's right of complete access by implying that these visits can take place only with the agreement of a state. Special inspections, whether viewed as "*transparency visits*" or formally designated as special inspections, can take place at the invitation of a state or at the initiative of the agency, and need not be authorized by the Board of Governors. If a state refuses a special inspection, the Secretariat will need to gain the support of the Board of Governors for further action.[41]

The Iran case provides relevant examples. The agency has been reported to wish access to two military sites.[42] In one case, the agency was reported to have made a request for a "transparency visit." Calling it a "transparency visit" may make the process easier for the state to agree, but the agency should make it clear that it has rights. In the other case, it was reported that the Iranians have said they will not grant the access unless the agency is able to present reasonable evidence of nuclear material on the site.[43] A reported Iranian statement was: "[The agency] should have evidence that there are nuclear activities," not just "We heard from someone that there is dual-use equipment that we want to see."[44] This raises the question of the limits, if any, on the agency's complementary access and special inspection rights.

The framers of the Model Additional Protocol did put limits on complementary access (Article 5). In particular, complementary access to "any location specified by the agency," other than places on a nuclear site or nuclear-related locations identified by the state, is in the first instance "to carry out location specific environmental sampling" (Article 5c), and is subject to denial if the state is "unable to provide such access," provided the state makes "every reasonable effort to satisfy agency requirements, without delay, at adjacent locations or through other means."

For a special inspection, there is a threshold requirement, but it is a very low one, viz., "if the agency considers that information made available…is not adequate to fulfill its responsibilities," the key one of which is to ensure that "safeguards will be applied on all material and to verify that such material is not diverted…" To do this, as made clear in the agency statute,[45] the agency needs and shall have "access at all times to all places and data and to any person…as necessary to account for [nuclear] materials." In other words, access by the agency can be needed to places where the evidence will show that safeguards do not need to be applied. Contrary to the Iranian assertion mentioned above that there must be evidence of nuclear activities at a location at which the access is requested, there need only be a nexus with nuclear material.[46] But what is sufficient nexus has not been defined. The degree of nexus being a matter of judgment, it may be questioned by the state. Obviously, the state possesses the power not to comply. It is then in noncompliance, and the processes for dealing with noncompliance must be initiated.[47]

Recently, a broader usage of transparency visits, beyond states with comprehensive safeguards agreements, has arisen. There have been reports of agency's requests made to Pakistan, a non-NPT state, in the course of the agency's investigation of the illicit nuclear proliferation network.

In summary, it is important to have a proper understanding of the concept of transparency visits in relation to complementary access and to Article 8 visits under an additional protocol and to the agency's special inspection rights of INFCIRC/153. The agency has rights of access that should not be diluted through the use of the euphemism of transparency visits.

3. Role of Transparency and Openness Under Routine Safeguards

While the transparency of states to each other or to the international community as a whole is the end objective and therefore the most important aspect of transparency, in this section we focus on the interactions between states and the agency under routine safeguards and possible roles of openness to the agency and transparency measures. We also address voluntary provision of information to the agency by states (3.2) and the transparency of the agency about safeguards implementation in states (3.3).

3.1 Role for States with Different Types of Safeguards Agreements

Safeguards are implemented by the agency under three types of safeguards agreements: comprehensive safeguards agreements for NPT non-nuclear-weapon states; voluntary offer agreements for nuclear weapon states; and INFCIRC/66-type agreements for other states. For the NPT non-nuclear-weapon states, four situations of their comprehensive safeguards agreements can be distinguished:

- states with significant nuclear activities with an Additional Protocol in force
- states with significant nuclear activities in the process of putting an Additional Protocol in force
- states with significant nuclear activities that may choose not to accept an Additional Protocol
- states that (as far as known) hold such limited nuclear material that they have a so-called "small quantities protocol" (SQP) to their safeguards agreement, suspending inspections and other safeguards procedures that would otherwise apply.[48] These states can be subdivided into those that agree to accept a revised SQP (a

model agreed by the Board of Governors in 2005) reinstating some verification activities by the agency, those that also include an additional protocol, and those that do neither of these.

A majority of NPT states with a significant nuclear program now have Additional Protocols in force. A comprehensive safeguards agreement (i.e., based on INFCIRC/153) with an Additional Protocol in force now represents the comprehensive safeguards norm. Once an NPT state has put its Additional Protocol in force, the agency carries out the activities it considers necessary to draw an initial conclusion on the absence of undeclared nuclear material and activities in that state. Then, safeguards implementation moves into so-called integrated safeguards. In principle, this process involves information and access called for in the safeguards agreement and Additional Protocol. In practice, the agency has found that the process for drawing the initial conclusion may raise issues that call for information or access beyond routine safeguards. One example is resolving questions about the history of nuclear activities in a state, which may require information and access that do not involve currently declared nuclear material, facilities, and locations. The state might say that to meet such a request, it must go beyond its obligations. The agency would respond that such information and access is necessary. With good cooperation between the state and the agency, in the sense of paragraph 3 of INFCIRC/153, such situations can be handled through additional openness and perhaps transparency measures, and resolved. The boundaries for this type of situation are still being established.

Regarding NPT states in the process of putting an Additional Protocol in force, some have stated the intention to sign an Additional Protocol but have not yet done so, and some have signed an Additional Protocol but have not yet put it in force. As a general rule, during the process of signing and putting the Additional Protocol in force, these states are treated similarly to states not having an Additional Protocol in force.

NPT states with a significant nuclear program that have a comprehensive safeguards agreement but do not have an Additional Protocol in force are a rapidly decreasing but important minority of states. As the number of states that may choose not to accept the new comprehensive safeguards norm diminishes, the agency's conclusions about these states are likely to attract increasing scrutiny. Such states remain subject to all of the obligations of the NPT and comprehensive safeguards agreements and may well constitute the most important group of states from the standpoint of safeguards implementation. Although the agency will not state a conclusion about the absence of undeclared nuclear material and activities in these states, other member states will expect the agency to do all that the safeguards agreements foresee, and perhaps more, to provide as robust safeguards conclusions as possible for these states. Therefore, it is likely that the agency will, from time to time, request information and access of such states beyond their legal obligations. How the state reacts and this process proceeds will be considered in the agency's evaluation. With good cooperation between the state and the agency, in the sense of paragraph 3 of INFCIRC/153, such requests can be met through additional openness, including perhaps transparency measures, and resolved. In SQP states, which represent a majority of NPT states, agency activities are infrequent. The agency Board of Governors approved a strengthening in the approach to safeguards implementation in SQP states in 2005. SQP states are also invited to conclude an Additional Protocol (as of this writing, 30 have done so). It is possible that an issue may arise for an SQP state that leads the agency to request transparency measures by the state, e.g., information and access beyond the obligations in the SQP. How the state reacts and this process proceeds will be considered in the agency's evaluation. With good cooperation between the state and the agency, in the sense of paragraph 3 of INFCIRC/153, such requests can be met through additional openness and perhaps transparency measures, and resolved.

The agency does not draw state-level safeguards conclusions about the nuclear weapons states. It only reports on the results of the limited activities performed under the individual voluntary offer agreements. These states will have individually crafted additional protocols in force, under which the agency will receive certain information and, for three of the states, access. The agency may request transparency measures of a nuclear weapon state, e.g., information beyond its legal obligations in conjunction with the agency's investigations about another state. How the nuclear weapon state reacts and this process proceeds may influence how other states react to agency requests for transparency measures.

The agency does not draw state-level safeguards conclusions about states with INFIRC/66-type agreements (i.e., India, Israel, and Pakistan), it only draws conclusions on the results of the activities performed under the individual agreements. These states may put in force individually crafted Additional Protocols, under which the agency will receive certain information and perhaps access. The agency may request a transparency measure by any of these states, e.g., information or access beyond the legal obligations of the INFCIRC/66 agreements and Additional Protocol of the state in conjunction with the agency's investigations about another state.

3.2 Voluntary Provision of Information to the Agency

One form of openness of states to the agency is the voluntary provision of information beyond that called for in the safeguards agreement. In 1993, the so-called Voluntary Reporting Scheme (VRS) was introduced with Board of Governors endorsement.[49] It provides a mechanism for the voluntary reporting by states on nuclear material not required under an INFCIRC/153-type safeguards agreement and of exports and imports of specified equipment and non-nuclear material.[50] Export information is of special and unique importance because it may provide the agency with information that importing states would not provide on themselves. Much of the information to be provided under the VRS is included in the Additional Protocol; some is not, in particular equipment imports. States with an Additional Protocol in force could voluntarily provide such information to the agency.[51]

The agency has also established mechanisms for states to voluntarily provide information on neptunium and americium, and on incidents of illicit trafficking in nuclear material and other radioactive sources.

3.3 Agency Transparency

The transparency of the agency's safeguards implementation determines how much confidence member states gain from its verification activities. Reporting by the agency that it has found no indications of noncompliance is only partly useful to states. Member states need to know what the agency did to judge how much weight to put on the agency's conclusions. This is especially important in relation to undeclared nuclear activities. In fact, it is fundamental, since a statement that no undeclared activities were found or indicated could be made if the agency does nothing at all. Such a conclusion begins to acquire meaning and value if states know that the agency has performed substantial verification before reaching the conclusion.

But confidentiality has been a hallmark of reporting on the agency's safeguards implementation, and the general rule has been "no news is good news." The basis for this general rule is the statutory requirement that the staff "shall not disclose any industrial secret or other confidential information…" The use of this general rule has been generally interpreted to mean that if a specific state is not singled out in agency documents for the Board of Governors and member states, the agency has no substantive concerns with that state's compliance with safeguards obligations. However, the "no news is good news" custom means the agency is not required to disclose developing problem areas.[52]

This approach provides limited transparency for member states, and two forces have been working to modify it. One is from states that consider they are full and strong supporters of the NPT and fully comply with their safeguards agreement obligations. They would not be averse to getting public credit by being mentioned explicitly by the agency. The second is the number of recent cases of noncompliance or serious safeguards breaches, which have been reported explicitly to the Board of Governors and even publicly by derestricting documents and making them available through the agency Web site.

Starting with the November 2004 agency Board of Governors meeting, greater transparency of the agency Secretariat and board seems to have been established as standard practice. Not only were the Director General's Introductory statement to the Board, the Secretariat's report on Iran,[53] the Director General's November 29, 2005, statement to the board, and the resolution adopted on Iran[54] placed immediately on the agency Web site, also the Secretariat's report on the Republic of Korea (ROK)[55] and the Board Chairman's Conclusion[56] were made available on the Web site.[57]

With that transparency of the agency accomplished, the way would seem to be open for the Secretariat to be more transparent about all states, including states that are not special verification cases.[58] In assessing the degree of transparency that could be expected from the agency about its safeguards implementation, it should be recognized that while the agency is under a statutory obligation not to divulge state information, it is under no obligation, and indeed has only limited authority, not to disclose information on its own safeguards measures and their implementation. That type of information should be maintained confidential only when its disclosure would adversely affect the effectiveness of implementation of safeguards. Beyond this, the only statutory or agreement right or reason to maintain confidentiality is the pragmatic one of not discouraging states from cooperating and not giving states too much insight into how they are being safeguarded.

The primary document in which the agency reports to states on the safeguards results is the annual Safeguards Implementation Report (SIR). The annual safeguards statement is made public and published in the agency's

Annual Report. With the introduction of the Additional Protocol, there is movement in the direction of increased reporting. Starting in 2004, the SIR Executive Summary, which presents background on the safeguards statement, has been placed on the agency Web site, and its contents have been expanded.

The naming of states in the safeguards statement and SIR is currently limited to states for which the second conclusion has been drawn, to the cases of noncompliance (Iraq and DPRK), and recently to cases reported by the director general to the Board of Governors (Libya, Iran). Safeguards results for individual states could be reported in the SIR, and states could choose to make further information about the safeguards performed in their country public. For this to happen, the situation must evolve to where the agency is able and willing (i.e., requested by states) to make meaningful positive statements about states' compliance with safeguards obligations.

A reasonable level of transparency of the agency with respect to such states would include annual reporting about the measures applied and the results of safeguards implementation and the annual reaffirmation of the safeguards conclusions of no indications of diversion or of undeclared nuclear material and activities.

The challenge for the agency and for its member states is to extend the practice of increased reporting—not necessarily in same degree of detail, but still considerable detail—to all states. Further expansion of this transparency would be desirable in the interest of confidence building.

4. Possibilities for Further Developments in Transparency and Openness

In this section, we develop the idea raised in Section 3.1 that states might enhance transparency by offering greater openness to the agency than required by their safeguards agreement, suggesting specific actions that states might take. Then we briefly explore the possibility of moving toward formalizing transparency measures taken by states.

4.1 Possibilities for States with Different Types of Safeguards Agreements

For all states, a possibility would be to follow up the recent call by the agency director general for greater openness in the light of the nuclear black market of A.Q.Khan, by providing information to the agency on sensitive technology transfers to other states.[59] The following further transparency might be offered:

- Provide information to the agency on inquiries about purchasing specialized equipment or non-nuclear materials, export requests, exports and denials for export of nuclear equipment and technology. (States with Additional Protocols are required to report exports, but not requests and denials. For members of the Nuclear Suppliers Group, coordinated arrangements might be adopted.); and
- Provide information to the agency about illicit transfer by their nationals of sensitive nuclear technology to the extent and as promptly as possible under applicable law.

For NPT states with a comprehensive safeguards agreement and additional protocol, the following further openness to the agency and transparency might be offered:

- Make public the measures employed under the safeguards agreement by the agency in the state and the results of those activities
- Provide information to the agency and assist agency investigations about possible undeclared nuclear activities in other states, particularly regarding specialized equipment or nonnuclear materials
- Accept other transparency measures if requested by the agency.

For states with a comprehensive safeguards agreement without an Additional Protocol in force, the agency has the same right and obligation to apply its safeguards to all nuclear material in all peaceful nuclear activities as in states that have adopted an Additional Protocol. It has in some respects less explicit authority to undertake safeguards measures designed to contribute to drawing a safeguards conclusion on the absence of undeclared nuclear material and activities. Therefore, in such states there is considerable scope for openness to the agency and enhanced transparency. In addition to putting an Additional Protocol in force, it is suggested that the following actions by such states might be adopted:

- If the state has signed an Additional Protocol, act as if it were in force pending its formal ratification, or participate fully in the Voluntary Reporting Scheme
- Provide the agency with a declaration of the state's nuclear activities beyond those covered by the comprehensive safeguards agreement

- Provide information and access to locations, provided for in the Additional Protocol to the extent that these are additional to those explicitly provided for in comprehensive safeguards agreements
- Permit the collection of environmental and other samples away from nuclear sites, in accordance with the provisions in the Additional Protocol
- Provide information to the agency on joint activities with other non-nuclear-weapon states such as research and development activities, uranium mining, and equipment and materials manufacturing
- Provide the agency to the extent feasible in light of security restrictions information about possible undeclared nuclear activities in other states and assist the agency in its investigations of such activities, particularly regarding exports to such states of the equipment or non-nuclear materials listed in Annexes 1 and 2 of the Model Additional Protocol.

The above list deliberately does not include confidence-building measures involving modifying nuclear activities of a state. Such confidence-building measures currently under discussion include freezing sensitive nuclear development activities, such as an enrichment program, and participating in a multilateral nuclear arrangement (MNA) to obtain enrichment, spent fuel and high-level waste services. These measures are not considered to be transparency or openness.[60]

For the voluntary offers, there is scope for transparency by nuclear weapon states in the following areas:

- Reporting by nuclear weapon states of transfers of nuclear material to or from non-nuclear weapon states is important for supporting the agency's conclusions on the absence of diversion of declared nuclear material in the non-nuclear weapon states. Therefore, full and timely reporting by nuclear weapon states to the agency on transfers of nuclear material to or from non-nuclear weapon states should be ensured
- Provide to the agency the information included in the Voluntary Reporting Scheme if included under the applicable Additional Protocol, in particular information on joint activities with non-nuclear-weapon states such as research and development activities, uranium mining, and equipment and materials manufacturing
- Provide to the agency any releasable information that can contribute to the identification of undeclared nuclear activities in a non-nuclear weapons state (NNWS) or otherwise help the agency with the job of resolving questions about the compliance of a non-nuclear weapons state.

For states with INFCIRC/66-type safeguards agreements, there is scope for openness to the agency and transparency with respect to activities in the state involving transfers of nuclear material, equipment or technology to other states. In addition to concluding an additional protocol, as foreseen in the Foreword to INFCIRC/540, it is suggested that the following actions by such states might be adopted:

- Participate in the Voluntary Reporting Scheme, in order to shed light upon the nuclear fuel cycles of other states, including providing to the agency information about the export of nuclear equipment and technology
- Provide information to the agency on joint activities with non-nuclear weapons states such as research and development activities, uranium mining, and equipment and materials manufacturing
- Provide the agency with information and assist agency investigations about possible undeclared nuclear activities in other states, particularly regarding specialized equipment, nuclear and non-nuclear materials
- Accept transparency measures beyond what is already subject to safeguards in the state, when requested by the agency, including transparency visits with environmental sampling and access to personnel.[61]

4.2 Towards International Norms of Transparency?

Further ideas for utilizing transparency in international safeguards and nonproliferation have been mentioned several times. In Blix's 1992 statement discussed in Section 1, he refers to "a regime of openness and transparency."[62] An unpublished paper written as part of the INMM consideration of transparency in 1994 contained the suggestion, "Greater efforts to encourage all nations to accept certain standards of openness against which their performance could be judged might not only improve transparency and enhance existing safeguards, but could also produce more efficient use of existing resources at the same time." In June 2004, ElBaradei proposed that limitations be placed on the production of new nuclear material through reprocessing and enrichment, possibly by agreeing to restrict these operations to being exclusively under multinational controls. He noted that these limitations, undertaken as confidence-building measures, would need to be accompanied by proper rules of transparency.[63]

In other arms control areas, transparency regimes or transparency measures have been negotiated between the parties. Despite the general interest and enthusiasm in the early 1990s, little has developed in the multilateral domain.[64] Would international norms for transparency further strengthen the non-proliferation regime?

A regime of transparency between states and involving the agency, within the framework of multilateral, bilateral, and unilateral measures of the nonproliferation regime, would need agreed international norms. The negotiation of norms for transparency between the states and the agency can be expected to be complex. The agency statute provision for access at all times to all places and the openness requirements contained in safeguards agreements and additional protocols establish a base-line norm. Internationally accepted definitions would need to be developed for transparency goals and measures. This might be done by the agency and SAGSI developing recommendations for review by the Board of Governors' Committee on Safeguards and Verification.

5. Conclusions and Recommendations

Conclusions

- Transparency in international safeguards and non-proliferation can be defined as: "the condition in which a state's nuclear programs, activities, facilities, capabilities, and intentions are known to other members of the international community, through explicit policies and actions of the state, by reason of its general climate and culture of openness, and by independent information available on the state."
- A determination of transparency results from an assessment by others and thus is a perceived *virtue* of an organization, government or state. A government or state cannot achieve transparency simply by proclaiming it.
- The agency assesses transparency in gaining the confidence to draw safeguards conclusions about a state. The agency's assessment of transparency involves, *inter alia*, how the state complies with its safeguards obligations, how it cooperates with the agency, and whether information from all sources is consistent with the declarations by the state.
- States make a broader assessment of transparency as part of how they gain confidence that another state is meeting its obligations under the nonproliferation regime. A state's assessment of transparency may consider information it obtains independently, reports by the agency, open sources of information about the state, and confidence-building measures undertaken by the state, among others.
- A simple explanation of *transparency* and *openness* in international safeguards is that transparency means the availability of *information* on a state that allows others to see more clearly what the state's activities and capabilities are, while openness means the provision by a state to the agency of information and access. Transparency should be considered the primary term, which can include openness. Openness should be used only with reference to information and access provided by a state to the agency.
- The agency is required by its statute and safeguards agreements to maintain the confidentiality of information received in confidence from member states. States may provide information of safeguards relevance to the agency that goes beyond that which the state is prepared to place in the public domain. Giving the agency access to such information should be encouraged, provided that it is made clear that it is preferable that states allow information relevant to its nuclear activities that is not sensitive for nonproliferation or proprietary reasons to be made public.
- The agency may receive, and should make use of, information provided by states on the nuclear activities of other states. In making use of such information, the agency should take all means within its capabilities to independently assess the validity of the information, but it cannot dismiss information provided by responsible sources solely on the basis of its confidential character.
- There can be no assurance that information obtained under the rubric of transparency is complete and accurate. On the contrary, its assessment and use as an aid to the drawing of safeguards conclusions either by the agency or other states must take into account the fact that all modern states maintain elaborate systems to protect information which they deem to be important to their national security and cannot be expected to disclose, in the interest of transparency, information which they wish to conceal.
- Requests for access to locations not explicitly subject to ad hoc or routine inspections under comprehensive safeguards agreements or to complementary access to declared locations under the Additional Protocol to such agreements, referred to in this report as "transparency visits," may, if

acceded to by the state, contribute to the ability of the agency and other states to understand and thus have more confidence in the purpose and nature of the state's nuclear activities. In requesting such visits, however, the agency must use care not to undermine its rights of access to the locations in question under its special inspection or complementary access authorities, which provide for very broad access as needed to verify compliance with safeguards obligations.

- Calling for transparency is not a substitute for and should not be allowed to undermine demands for full compliance with the explicit obligations of safeguards agreements.
- Confidence-building measures, which may include voluntary actions by a state and additional openness of the state to the agency, are welcome and potentially important when a restoration of confidence is necessary. Confidence-building measures include actions by a state that go beyond the obligations of safeguards and nonproliferation agreements, such as refraining from particular nuclear fuel cycle activities that, while permissible if undertaken for peaceful purposes, can help contribute to confidence on the part of other states in the peaceful character of a state's nuclear programs.
- But care must be taken with confidence-building measures, first that calling for them does not lead to confusion between what is obligatory and what is voluntary. Actions that a state is already obligated to take under its safeguards and non-proliferation agreements, such as providing access that has been denied, should not be viewed as confidence-building measures. In addition, while confidence-building measures can contribute to confidence as to the absence of additional, undeclared activities, they cannot provide assurance on their absence.
- In order to make the agency's safeguards findings of maximum usefulness to member states, the agency should inform states in considerable detail of the measures that the agency has implemented in arriving at its findings. The provision of such information by the agency is of particular importance in respect to making judgments as to the absence of undeclared activities, since statements that no evidence was found of undeclared activities can be made even if no measures to determine their presence were undertaken. The agency has no statutory obligation to maintain the confidentiality of its own safeguards activities, although it has a limited right to do so when required to ensure the effectiveness of its safeguards implementation.
- Transparency, openness, cooperation, and confidence-building measures are of particular relevance and importance for a state whose compliance with its safeguards obligations has come into question. States with all types of safeguards agreements with the agency can undertake openness actions in order to assist the agency, build transparency, and enhance international confidence.

Recommendations

It is recommended that the following areas related to the use of transparency and openness in international safeguards be evaluated further, within the framework of or in coordination with the agency.

- Expanded transparency in agency reporting in the annual SIR, as discussed in Section 3.3
- Transparency and openness measures by states with different safeguards agreements, as discussed in Section 4.1.

End Notes

1. This term was used in agency Director General's introductory statement to the Board of Governors of September 19, 2005, and in the Board Resolution adopted on September 24, 2005. Both documents are available on the agency Web site.
2. In this paper the International Atomic Energy Agency will be referred to as the agency.
3. Professor Eun Cheol Lee, Seoul National University, "Nuclear Transparency Efforts of the ROK & IAEA Inspection," responded to the information by referring to the government's "nuclear transparency policy". "As a confidence-building measure for the transparency, Korea government declared four-point peaceful nuclear policy on 18 September [2004]," TCNC Newsletter, October 1, 2004.
4. "Egypt said to run nuclear tests with possible links to weapons," Associated Press. Vienna, January 4, 2005; Dafna Linzer, "Egyptians reportedly took part in past nuclear experiments," Washington Post, January 5, 2005.
5. The Khan operation has threatened the non-proliferation regime by making it easier for would-be proliferants to obtain what they want and therefore has increased the likelihood that proliferation will take

place, but it has not fundamentally affected the safeguards component of the regime as defined by the NPT and safeguards agreements. Whether a state clandestinely imports materials and equipment, or clandestinely makes them itself should not fundamentally impact the need for and ability of safeguards to detect their presence.

6. Broad, William J., and David E. Sanger. 2004. As Nuclear Secrets Emerge, More Are Suspected, The New York Times, December 26, 2004.
7. In the nonproliferation sphere, North Korea continues to be an important case.
8. t is important, however, that actions requested of a state that do not go beyond the legal obligations of its safeguards agreement should be characterized as compliance, and not transparency, issues.
9. This citation can still be found on the agency's Web site, www.iaea.org.
10. IAEA. 1972. The Structure and Content of Agreements Between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons, INFCIRC/153 (Corrected).
11. IAEA. 1997. Model Protocol Additional to the Agreement(s) between State(s) and the International Atomic Energy Agency for the Application of Safeguards, INFCIRC/540 (Corrected).
12. Material in this section is based on the recollections of one of the authors (JAL), who worked with SAGSI during this period, and on limited distribution documents.
13. The Standing Advisory Group on Safeguards Implementation, reporting to the agency Director General.
14. An example was Jeffrey Sachs, head of the UN Millennium Development Project, calling for transparency and codes of conduct in a presentation on his book, The End of Poverty, at the World Bank on March 22, 2005.
15. An example is found in Paul Wolfowitz's farewell statement as ambassador to Indonesia in May 1989: "If greater openness is a key to economic success, I believe there is increasingly a need for openness in the political sphere as well," quoted in article by Alan Sipress and Ellen Nakashima, "Jakarta Tenure Offers Glimpse of Wolfowitz," Washington Post, March 28, 2005.
16. Arms Control Association. 2003. The START III Framework at a Glance, Fact Sheets.
17. The claim for transparency would be more realistically stated as "lowering unpredictability, as a contribution toward clarifying national intentions," rather than achieving predictability.
18. A state that has a free and inquisitive press and is widely involved in international interactions would be assessed more positively than a state that does not have those characteristics.
19. For example, in IAEA, Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, Report by the Director General, IAEA Report GOV/2004/83 (November 15, 2004) [Derestricted November 29, 2004], paragraphs 87, 90, 96, 112.
20. Kratzer, Myron B. 2002. Integrated Safeguards: What's in a Name, Proceedings of the 43rd INMM Annual Meeting.
21. It has been reported that there is reluctance to give information because the agency is prone to leaks. Without confidence that confidentiality will be maintained, states will not be fully open to the agency.
22. INFCIRC/153 permits access anywhere and everywhere as required to verify compliance. In February 1992 the Board of Governors reaffirmed states' obligations to place all activities under safeguards and the agency's right of access, under special inspections, to any location in a state needed to verify compliance with this obligation.
23. For example, a state in which uranium mining takes place might (a) facilitate the availability of information on uranium production, that serves to cross-reference and aid in substantiating reporting provided to the agency, such as company reports and taxation/royalty reports, and (b) draw the agency's attention to these sources of information.
24. INFCIRC/153, paragraph 3. See Note 10.
25. IAEA, Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, Report by the Director General, IAEA Report GOV/2004/83 (November 15, 2004) [Derestricted 29 Nov 2004], paragraph 2, fifth bullet.
26. The terms transparency and openness have been used frequently in recent agency documents. Several uses are referenced in this article. Transparency is often qualified, most frequently as "full transparency." In agency board documents on Iran and Libya in 2003 both transparency and openness have been used, not always together.
27. Ramberg, Bennett. 2005. A way to break the nuclear impasse: Dealing with Iran II, International Herald Tribune, March 24, 2005.
28. Reuters. 2005. Reporters Shown Underground Iran Nuclear Plant, March 30, 2005.
29. Deputy State Department Spokesman Adam Ereli, presenting the views of the United States government in a Voice of America News Editorial, April 13, 2005, Iran's Nuclear Program: "If Iran were really serious about demonstrating transparency in its nuclear program, it should answer all of the [agency's] outstanding questions. If Iran were really serious about allaying the concerns of the international community, they

would stop denying [the agency] full and unrestricted access to suspicious sites like the Parchin high explosive facility. They would stop refusing [agency] requests to interview key officials associated with Iran's nuclear activities. They would tell the truth about the history of their advanced P-2 centrifuge program. They would tell the truth about their Lavizan facility before they bulldozed it to the ground. They would answer openly questions about past plutonium-separation experiments."

30. Foreign Ministry Spokesman Hamid Reza was quoted by the official IRNA news agency as saying: "Our nuclear activities are transparent and under the supervision of the IAEA." Iran Denies Smuggling Uranium from Monitored Site, Reuters, April 13, 2005.
31. Ritter, Scott. 2005. Sleepwalking to Disaster in Iran, Aljazeera, March 30, 2005.
32. The decision on the non-compliance of DPRK was taken without knowing the amount of plutonium diverted or discovering weaponization activities.
33. IAEA, Director General, Introductory Statement to Board of Governors, September 13, 2004.
34. IAEA, Director General, Introductory Statement to Board of Governors, November 25, 2004. He used the term again in his introductory statement to Board of Governors, September 19, 2005.
35. Confidence-building measures are particularly relevant when the parties involved, usually but not necessarily a two-state pair, have no binding legal obligations with respect to each other in a specific area of mutual interest. That is a different situation than in the nonproliferation and safeguards area.
36. IAEA, Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, Resolution adopted by the Board on November 29, 2004, IAEA Report GOV/2004/90. The phrase confidence-building measure appears four times, once qualified as voluntary and once as voluntary, non-legally binding.
37. IAEA, Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, Resolution adopted by Board on February 4, 2006, IAEA Report GOV/2006/14 (Derestricted February 4, 2006).
38. Hori, Keiichiro. 2006. Transparency of Peaceful Use of Nuclear Energy in East Asia, Proceedings of the 47th Annual INMM Meeting.
39. IAEA, Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, Report by the Director General, IAEA Report GOV/2004/83 (15 November 2004) [Derestricted November 29, 2004],Transparency visit is used in the title of Section B.2. An expanded form (in paragraph 96) is: "transparency visit in the interest of confidence building." Further requests for transparency visits have not occurred in agency documents during 2005-2006.
40. Examples of such visits are those made by Director General Blix at the invitation of North Korea to see the reprocessing research facility before a formal inspection visit, and invitations to the Director General to visit Iran, carried out by Deputy Directors General for Safeguards.
41. Board involvement would be required to decide that a special inspection is "essential and urgent" under INFCIRC/153 paragraph 18, as a matter of interpretation under INFCIRC/153 paragraph 21, or under the dispute resolution procedure under INFCIRC/153 paragraph 22. In the arrangements for a transparency visit, the modalities of the visit are established. This includes which personnel will perform the visit (e.g., the inclusion of specialists by the agency), whether managed access will be used at the request of the state, which facility/location staff and records are to be made available, which measures are to be performed and which equipment is to be used.
42. The Tehran Times reported on October 12, 2004, that Pierre Goldschmidt, then Deputy Director General for Safeguards, IAEA, referring to an agency request to visit a site, said, "We think it's good for Iran to show transparency so that everyone can be confident that there is no nuclear activity taking place at [the Parchin military] site."
43. An example of such reporting was "Under its mandate, the agency can inspect a site if it has indications that nuclear materials are present, and it needs to be able to offer proof if challenged," Carla Anne Robbins, "As Evidence Grows of Iran's Program, U.S. Hits Quandary," Wall Street Journal, March 18, 2005.
44. David Sanger, The New York Times, January 5, 2005.
45. The negotiating history of INFCIRC/153 directly ties the special inspection provisions to the agency statutory access provision. The authority under INFCIRC/153 is extremely broad and clearly extends to any place that the agency can make any connection with nuclear material.
46. The one questionable area is to a location, e.g., a military facility, where the agency makes no contention that it has information pointing to a nexus with nuclear material, but only information relating to possible intended future use of such material. If the state refuses an agency request, the inspection must be authorized either through arbitration or a Board determination that it is essential and urgent.
47. That is the explicit meaning of paragraph 18 of INFCIRC/153. If the board determines that an action by the state is "essential and urgent," the state must do it.
48. At the time of writing, sixty-three states have comprehensive safeguards agreements and eighty-seven states have SQPs.
49. IAEA, GOV/2629 (1993).

50. The list of specified equipment and non-nuclear material in the Voluntary Reporting Scheme is incorporated in Annex II of INFCIRC/540.
51. Although reporting of equipment imports might allow a cross check between export and import information, the difficulty in extracting import data from customs databases or from importers would likely result in missed reporting of imported items and thus inconsistencies.
52. In the past, there have been calls for the Director General to regularly state to the board that "there was no evidence of noncompliance with any safeguards agreement, except in the cases of X and Y."
53. IAEA, Director General's introductory statement to the Board, November 2004.
54. IAEA, Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, Resolution adopted by the Board on November 29, 2004, IAEA Report GOV/2004/90.
55. IAEA, Implementation of the NPT Safeguards Agreement in the Republic of Korea, Report by the Director General, IAEA Report GOV/2004/84 (11 November 2004).
56. IAEA, Chairman's conclusion on Item 4(c), Nuclear Verification, Implementation of the NPT safeguards agreement in the Republic of Korea, November 26, 2004.
57. Reports on the agency Web site now include: on Iran, Director General's reports to the agency Board of Governors, his introductory statements to boards, and Board Resolutions from June 2003 through March 2006; on Libya, reports dated September 18, 2004, and February 20, 2004; on Iraq, reports and statements to the UN Security Council from January 2003 through October 2004.
58. See note 1.
59. In 2004 the agency set up a covert nuclear trade analysis unit looking at covert procurement activities.
60. However, transparency may play a different role in such arrangements. Mohamed ElBaradei in an article for a UN review, as reported on October 29, 2004, by Agence France Press, called for placing "transparent limits" on processing of plutonium and weapon grade uranium as part of his call for a tougher, broader application of the NPT. ElBaradei, in a speech at Carnegie International Nonproliferation Conference, June 21, 2004, spoke of the need for proper rules of transparency in the context of proposed limitations on enrichment and reprocessing. ElBaradei convened an Expert Group on Multilateral Approaches to the Fuel Cycle in 2004; it presented its report in March 2005.
61. Reuters. 2005. Pakistan Considering Sending Nuclear Parts to IAEA, Reuters, Islamabad, March 25, 2005: "Pakistan's refusal to allow IAEA experts to take environmental samples inside the country has prevented the IAEA from verifying Iran's explanation."
62. Perhaps Blix was intentionally alluding to the recognition by the international community in those years of the importance of providing a greater degree of openness and transparency in the broad arms control and disarmament field. Evidence of this can be found in treaties and other measures agreed at the level of the United Nations and in several regional contexts. Of particular importance is the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and Their Destruction (CWC). For reasons that are not clear, this trend halted following the conclusion of the CTBT in 1996 and the adoption of the Additional Protocol in 1997.
63. Mohamed ElBaradei, Speech at Carnegie International Non-Proliferation Conference, June 21, 2004.
64. Walker, William. 2003. Some Reflections on Transparency in the Contemporary Security Environment, Disarmament Forum, no. 2, 55–60.