

WMD COMPLIANCE & ENFORCEMENT SERIES

PAPER TWO



IAEA MECHANISMS TO
**ENSURE
COMPLIANCE**
WITH NPT SAFEGUARDS

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CONTENTS

Summary.....	1
1 IAEA Safeguards.....	3
1.1 The Objective	3
1.2 Implementation of Safeguards.....	4
2 What is Non-Compliance?.....	7
2.1 Determining Non-Compliance.....	7
2.2 The Role of The IAEA.....	8
3 Individual Cases.....	11
3.1 Iraq.....	11
3.2 Romania.....	12
3.3 The Democratic People's Republic of Korea	13
3.4 The Islamic Republic of Iran	16
3.5 Libya.....	20
3.6 The Republic of Korea	21
3.7 Egypt.....	22
3.8 The Syrian Arab Republic	22
4 Lessons Learned.....	25
Appendix.....	29

ABBREVIATIONS AND ACRONYMS

AP	Additional Protocol
CSA	comprehensive safeguards agreement
CTBT	Comprehensive Nuclear-Test-Ban Treaty
IAEA	International Atomic Energy Agency
INVO	Iraq Nuclear Verification Office
JCOA	Joint Comprehensive Plan of Action
LOF	location outside facilities
LWR	light-water reactor
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
SQ	significant quantity (of nuclear material)
VOA	voluntary offer safeguards agreement
UNSCOM	United Nations Special Commission
UNMOVIC	United Nations Monitoring, Verification and Inspection Commission
WMD	weapons of mass destruction

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EXECUTIVE SUMMARY

- The safeguards administered by the International Atomic Energy Agency (IAEA or Agency) are an essential element of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Conclusion and implementation of a comprehensive safeguards agreement (CSA) with the Agency is one of the key obligations of non-nuclear-weapon States Parties to the NPT. Under a CSA, the IAEA has the right and obligation to ensure that safeguards are applied to all nuclear material of the State concerned, that is, to verify the correctness and completeness of the State's declarations concerning its nuclear material and activities. For States that have concluded a CSA and an Additional Protocol (AP), the IAEA is in a position to draw conclusions regarding the peaceful use of all of the State's nuclear material, the so-called 'broader conclusion'.
- The IAEA provides a robust technical and organizational framework to consider cases of non-compliance with safeguards obligations. The safeguards arrangements include a number of steps that allow the Agency to seek clarifications from States and to deal with potential violations by reporting their concerns to the IAEA Board of Governors. The Department of Safeguards, which carries out the inspections, the IAEA's Director General and the Board of Governors have well-defined roles in the process.
- The Agency has the authority to impose certain penalties on a State that is found to be in non-compliance with its safeguard obligations, including the suspension of technical assistance to the State. However, the key mechanism available to the IAEA for enforcing compliance with such obligations is reporting the violation to the UN Security Council, the General Assembly and the IAEA Member States.
- Throughout the history of the IAEA, there have been eight cases of non-compliance that were brought to the attention of the Board of Governors. Each of these cases was handled by the IAEA in consideration of the seriousness of the situation and the approach taken by the State to remedy the situation.

1 IAEA SAFEGUARDS

1.1 THE OBJECTIVE

The International Atomic Energy Agency (IAEA) was established in 1957 to promote the peaceful use of nuclear technology. To ensure that the technology is used in a peaceful way, the Agency was authorized to establish and administer safeguards “designed to ensure that special fissionable and other materials, services, equipment, facilities, and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose.” The Agency is also authorized to apply safeguards, “at the request of the parties, to any bilateral or multilateral arrangement.”

One such multilateral arrangement pursuant to which parties request the IAEA to apply safeguards is the Treaty on the Non-Proliferation of Nuclear Weapons (NPT).¹ Article III of the NPT requires that:

Each non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency. ... The safeguards required by this Article shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such State, under its jurisdiction, or carried out under its control anywhere.²

The safeguards agreements that State Parties to the NPT conclude with the IAEA are known as comprehensive safeguards agreements (CSA).³ The IAEA also implements safeguards pursuant to voluntary offer safeguards agreements (VOAs) concluded with the five nuclear-weapon States Parties to the NPT and item-specific safeguards agreements with three non-NPT States (India, Israel and Pakistan).⁴ The focus here is on CSAs and the IAEA’s practice in connection with instances of non-compliance.

¹ See IAEA, 1989, “International Atomic Energy Agency Statute (as Amended up to 23 February 1989)”, article III.A.5. While the IAEA has a broad mandate to administer safeguards for a variety of projects, States providing assistance may choose to administer their own safeguards instead. This was a common practice in early assistance projects, but later virtually all safeguards were transferred to the IAEA. See, for example, IAEA, 1998, “The Evolution of IAEA Safeguards”, International Nuclear Verification Series, no. 2, https://www-pub.iaea.org/MTCD/Publications/PDF/NVS2_web.pdf, pp. 7-10.

² Treaty on the Non-Proliferation of Nuclear Weapons, IAEA, INFCIRC/140, 22 April 1970.

³ CSA undertakings are based on the model contained in the IAEA document INFCIRC/153, 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”, <https://www.iaea.org/sites/default/files/publications/documents/infcircs/1972/infcirc153.pdf>.

⁴ These agreements are sometimes referred to as INFCIRC/66 safeguards, after the document that first described item-specific safeguards. See IAEA, 1965, “INFCIRC/66. The Agency’s Safeguards System (1965)”, <https://www.iaea.org/sites/default/files/publications/documents/infcircs/1965/infcirc66.pdf>.

CSAs may be complemented with a voluntary Additional Protocol (AP) concluded on the basis of the Model Additional Protocol developed in the 1990s.⁵ An AP provides the Agency with a broader set of tools to verify that all material in a State with a CSA in force remains in peaceful use and provides additional information about the nuclear programme of a State, including research and development activities not involving nuclear material. An AP further allows the IAEA access to all parts of a State's nuclear fuel cycle, from mining to nuclear waste disposal. None of the eight States that were found to be not fully compliant with their safeguards obligations had at the time an AP in force with the IAEA.

1.2. IMPLEMENTATION OF SAFEGUARDS

The administrative body within the IAEA Secretariat responsible for the implementation of safeguards is the Department of Safeguards. The department carries out all in-field verification activities, an essential element of the IAEA safeguards system that allows the IAEA to verify fully a State's compliance with its undertakings under a CSA.

Routine inspections are based on established criteria and guidelines that "specify the scope, the normal frequency and the extent of the verification activities required to meet the quantity and the timeliness components of the inspection goal".⁶ The safeguards procedures also have to protect the confidentiality of information that is collected in the process.⁷ CSAs are complemented by Subsidiary Arrangements for applying safeguards at nuclear facilities. The Facility Attachment for each nuclear facility "briefly describes the facility, specifies in detail the arrangements for safeguarding it", including the frequency of inspection and places within the facility to which the IAEA has routine access.⁸

The development of these inspection procedures dates back to the 1970s. However, the safeguards tools and methods are in constant development. For example, as noted above, the Model Additional Protocol was developed in the 1990s to provide the IAEA access to additional information and locations, which offers the IAEA better tools with which to

⁵ 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), May 1997. All five of the NPT NWS have concluded an AP to their respective VOAs; India has also concluded an AP to an item-specific safeguards agreement. Although based generally on the Model Additional Protocol, each of them varies from the Model in some respect.

⁶ IAEA, 2002, "IAEA Safeguards Glossary", 2001 Edition, International Nuclear Verification Series, no. 3, https://www.iaea.org/sites/default/files/iaea_safeguards_glossary.pdf, p. 25.

⁷ Each CSA stipulates "that the Agency shall take every precaution to protect commercial and industrial secrets and other confidential information coming to its knowledge in the implementation of the Agreement. The Agency shall not publish or communicate to any State, organization or person any information obtained by it in connection with the implementation of the Agreement, except that specific information relating to such implementation in the State may be given to the Board of Governors [...] but only to the extent necessary for the Agency to fulfil its responsibilities in implementing the Agreement". See 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), p. 2, para. 5.

⁸ IAEA, 1998, "The Evolution of IAEA Safeguards", International Nuclear Verification Series, no. 2, https://www-pub.iaea.org/MTCD/Publications/PDF/NVS2_web.pdf, p. 44.

implement its authority to verify correctness and completeness of State's declarations.⁹ For those States that have concluded both a CSA and an AP, the Agency can draw a broader conclusion that *all* nuclear material in a State remains in peaceful activities or "was otherwise adequately accounted for".¹⁰

⁹ On correctness and completeness, see in particular 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), para. 2.

¹⁰ IAEA, 2002, "IAEA Safeguards Glossary", 2001 Edition, International Nuclear Verification Series, no. 3, https://www.iaea.org/sites/default/files/iaea_safeguards_glossary.pdf, p. 100.

2 WHAT IS NON-COMPLIANCE?

There are many ways a State can be non-compliant with its safeguards obligations. Some are more serious than others. Examples of non-compliance, as outlined in the IAEA Safeguards Glossary, are presented in table 1 below.¹¹

Examples of non-compliance with safeguards obligations	Diverting nuclear material from declared nuclear activities, or failing to declare nuclear material required to be placed under safeguards
	Undeclared removal of declared nuclear material from a safeguarded facility or the use of a safeguarded facility for handling undeclared nuclear material, e.g. the undeclared production of high enriched uranium in an enrichment plant, or the undeclared production of plutonium in a reactor through irradiation and subsequent removal of undeclared uranium targets
	Failing to declare nuclear material, nuclear activities or nuclear related activities required to be declared under an AP
	Violating the agreed recording and reporting system
	Obstructing the activities of IAEA inspectors
	Interfering with the operation of safeguards equipment
	Preventing the IAEA from carrying out its verification activities

FIGURE 1. *Examples of non-compliance with safeguards obligations*

2.1 DETERMINING NON-COMPLIANCE

Under a CSA, safeguards are applied to verify a State's compliance with its undertaking to accept safeguards on all nuclear material in all its peaceful nuclear activities *and* to verify that such material is not diverted to nuclear weapons or other nuclear explosive devices or for purposes unknown.

- To ascertain that there are no indications of a diversion of declared nuclear material from peaceful nuclear activities in a State, the Agency carries out a comprehensive evaluation of all the safeguards-relevant information available to it. This includes information on the design and operation of nuclear facilities, the State's nuclear material accounting reports, declarations submitted under an AP and the results of the Agency's in-field verification activities.

¹¹ Ibid., pp. 13-16.

- To ascertain that there are no indications of *undeclared* nuclear material or activities in a State, the Agency evaluates the consistency of the State's declared nuclear programme with the results of the Agency's verification activities under the relevant safeguards agreements and additional protocols. This form of evaluation can also draw from all other safeguards-relevant open-source information available to the Agency, including satellite imagery, scientific publications, annual reports of nuclear-relevant institutes and information from third parties.

Information from third parties, including intelligence provided by States as well as open-source information, can play an important role in the IAEA's evaluation. Such information is particularly important in detecting signs of undeclared activity. While the IAEA has powerful tools for verification and analysis, detecting nuclear activity at clandestine facilities usually requires intelligence capabilities, which the IAEA does not have. Third-party and open-source information is considered in combination with other available information derived from IAEA verification channels.

Collectively, these activities enable the Agency to discover inconsistencies that can be categorized according to their magnitude and potential implications as either 'discrepancies' or 'anomalies'. An example of a discrepancy could include differences between facility records and inspector observations or indications of unexplained events detected in camera surveillance results. If a discrepancy involves a 'significant quantity'¹² of nuclear material it is classified as a possible anomaly and reported to the Director General. Other examples of anomalies include the denial or restriction of IAEA inspector access, unreported safeguards-significant changes to facility design or operating conditions, signs of unreported nuclear material found in samples and satellite imagery indicating a possible unreported nuclear facility. In all such cases, whether a discrepancy or an anomaly, a State is first given an opportunity to explain the inconsistencies found.

2.2 THE ROLE OF THE IAEA

Even though the NPT relies on the safeguards administered by the IAEA, the Agency is not an NPT body and it does not have authority to determine whether or not a State is in compliance with all of its obligations under the NPT.

Instead, the Agency can make a narrower determination as to whether a State is in compliance with its safeguards obligations. To achieve this, safeguards evaluation reports are prepared by teams of inspectors with multiple skillsets.

Article XII of the IAEA Statute defines the process for handling non-compliance cases through the Secretariat and the Board of Governors as follows:

¹² Significant quantity (SQ) is the approximate amount of nuclear material for which the possibility of manufacturing a nuclear explosive device cannot be excluded. For example, 8 kilograms of plutonium or high enriched uranium containing 25 kg of uranium-235. Ibid., p. 23, para 3.14.

The Board shall call upon the recipient State or States to remedy forthwith any non-compliance which it finds to have occurred. The Board shall report the non-compliance to all members and to the Security Council and General Assembly of the United Nations. In the event of failure of the recipient State or States to take fully corrective action within a reasonable time, the Board may take one or both of the following measures: direct curtailment or suspension of assistance being provided by the Agency or by a member, and call for the return of materials and equipment made available to a recipient member or group of members. The Agency may also, in accordance with article XIX, suspend any non-complying member from the exercise of the privileges and rights of membership.¹³

While this article provides that IAEA inspectors “shall report the non-compliance” to the Security Council, the model CSA contains somewhat different language. If the Agency is not able to verify the non-diversion of safeguarded nuclear material, the Board “may make the reports provided for in paragraph C of Article XII of the Statute”.¹⁴ In practice this means that the reporting rests with the discretion of the Board of Governors.

The Director General’s reports on compliance-related issues, and statements by the Director General made at a Board meeting on the matter, are normally prepared jointly by drafting teams that include staff of the Department of Safeguards, as well as members of the legal and policymaking organs of the Secretariat.

The final report is submitted to the Board as a report of the Director General. In advance of the Board’s deliberations on such reports, the Secretariat can provide more detailed technical briefings that are *not* considered official statements of the Secretariat nor necessarily made available in written form to the Member States. The Board, of course, can take the information in these technical briefings into consideration. When necessary or requested by the Board, the Secretariat also provides the Board with oral reports and clarifications, which are entered in the official record.

In practice, the Director General and the IAEA Secretariat have a certain degree of flexibility in the presentation of cases of non-compliance to the Board. For example, the individual cases considered in section 1.3 show that in some cases the Secretariat avoided using the words ‘non-compliance’, instead leaving that judgement to the Board.

If the Board decides to “report the non-compliance to all members and to the Security Council and General Assembly of the United Nations,” it would request the Director General to transmit the report prepared by the IAEA Secretariat and submitted to the Board by the Director General.

¹³ IAEA, 1963, “The Statute of the IAEA”, <https://www.iaea.org/about/statute>, article XII(c).

¹⁴ 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), para. 19.

It is important to note that the IAEA has neither the authority nor the means to physically prevent the diversion of material or misuse of equipment. Accordingly, the primary tool for addressing non-compliance is the reporting of such non-compliance to the IAEA Member States, and to the Security Council and the General Assembly. This reporting mechanism ensures that the international community can take corrective actions as deemed appropriate.

3 INDIVIDUAL CASES

There have been eight breaches of obligations under the CSAs that the Director General has reported to the Board of Governors.¹⁵ In four of these cases—Iraq, the Democratic People’s Republic of Korea, the Islamic Republic of Iran, and the Syrian Arab Republic—the Board concluded that the State was non-compliant with its safeguards obligations. All of these cases were reported to the Security Council for action. In two other cases—Romania and Libya—the Board concluded that the States concerned had taken corrective measures to rectify the situation. These cases were reported to the Security Council ‘for information purposes only’. The Board considered the remaining two cases—Egypt and the Republic of Korea—to be of ‘serious concern’ but not meriting a report to the Security Council. See the appendix for a summary of these eight cases.

3.1. IRAQ

On 3 April 1991, the Security Council adopted resolution 687, which called for the elimination of all of Iraq’s weapons of mass destruction (WMD).¹⁶ The resolution demanded that Iraq “reaffirm unconditionally” its NPT obligations and cease all of its nuclear-weapon related activities. Iraq was also required to submit a full declaration of all of its nuclear weapon-related activities and to place all nuclear weapon-usable materials under IAEA control.¹⁷

Under the resolution, the IAEA was tasked with conducting on-site inspections, as well as with the destruction, removal or rendering harmless of all relevant items.¹⁸ The IAEA Director General was also asked to develop a mechanism for long-term monitoring of Iraq’s compliance with these undertakings and to work in cooperation with the United Nations Special Commission (UNSCOM) that was established by the Security Council to address the non-nuclear aspects of Iraq’s WMD programmes.

Resolution 687 gave the IAEA a broad mandate that went beyond the scope of Iraq’s CSA. It is also notable that the request to conduct inspection and monitoring activities came to the IAEA Director General from the Security Council, not the IAEA Board of Governors. The Board had not issued a ruling on Iraq’s compliance with its comprehensive safeguards obligations at the time the Security Council adopted resolution 687.

Iraq submitted its first Security Council-mandated declaration in April 1991. The IAEA conducted its first inspections in May and June 1991. These inspections raised a number of

¹⁵ In 1970s and 1980s, the Democratic People’s Republic of Korea violated some of its obligations under the item-specific safeguards agreement in force at that time, but this was revealed only during the investigations of its CSA declarations in 1993.

¹⁶ Security Council, resolution 687, 3 April 1991, <http://unscr.com/en/resolutions/doc/687>.

¹⁷ Ibid., para. 11.

¹⁸ Ibid., para. 12.

issues, resulting in Iraq's submission of an amended declaration. These developments led the Secretariat to report to the Board that Iraq was in non-compliance with its obligations under the CSA.¹⁹ The Board confirmed the findings of the Secretariat in a resolution adopted on 18 July 1991²⁰ and reported Iraq's non-compliance to the Security Council and General Assembly and the IAEA Member States, as required by the IAEA Statute.

The role of the IAEA continued on the ground until December 1998 when the IAEA and UNSCOM inspectors had to withdraw from Iraq. The Agency was then limited to conducting remote analysis of data without having access to the facilities in Iraq until November 2002, when the Agency returned with the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC).²¹ In March 2003, the inspectors had to withdraw again in advance of United States military action. The IAEA later resumed the implementation of safeguards under the CSA and has conducted annual inspections in Iraq ever since.

Iraq exploited weaknesses in the export control system to acquire sensitive single- and dual-use equipment for its nuclear weapons research and development programme. On 11 October 1991, the Security Council, in resolution 715, established a Sanctions Committee through which the Special Commission and the IAEA developed a robust early warning mechanism to flag any future sales or supplies by other States to Iraq of dual-use items that might have applications in WMD programmes.²² The monitoring system was strengthened with subsequent resolutions.²³

Iraq's AP entered into force in 2012. While the IAEA's Safeguards Statement for 2018 concludes that all declared nuclear material in Iraq remained in peaceful nuclear activities, the IAEA has not yet drawn a broader conclusion.²⁴

3.2. ROMANIA

In May 1992, Romania submitted a special report to the IAEA on the discovery of undeclared laboratory-scale research studies on certain aspects of nuclear fuel reprocessing that had been conducted in December 1985 under the previous government. Romania requested the Agency to conduct a special inspection to verify the reported activity. At the June 1992 Board meeting, the Director General reported orally that Romania had been in non-compliance with its safeguards obligations, specifically that it had conducted small-scale reprocessing

¹⁹ IAEA, 1991, "A report by the Director General on non-compliance by Iraq with its obligations under the safeguards agreement concluded with the Agency", GOV/2530, 16 July 1991.

²⁰ IAEA, 1991, "Iraq's non-compliance with its safeguards obligations, Resolution adopted by the Board of Governors on 18 July 1991", GOV/2532, 18 July 1991.

²¹ UNMOVIC replaced UNSCOM in 1999 following Security Council resolution 1284.

²² Security Council, resolution 715, 11 October 1991, <http://unscr.com/en/resolutions/doc/687>.

²³ Security Council, resolution 1051, 27 March 1996, <https://www.un.org/Depts/unmovic/documents/1051.PDF>.

²⁴ IAEA, "Safeguards Statement for 2018", June 2019, <https://www.iaea.org/sites/default/files/19/06/statement-sir-2018.pdf>.

activities without reporting either the nuclear material or the facility to the IAEA, as was required under its CSA.

The Board did not adopt a resolution on the matter. However, the Chair of the Board took note of the “Director General’s report concerning non-compliance by the former regime in Romania with certain provisions of its safeguards agreement”. Furthermore, the Board requested the Director General to report the matter to the Security Council and the General Assembly “for information purposes” only.²⁵

The IAEA has continued to conduct routine safeguards activities in Romania. The IAEA drew a broader conclusion for Romania for the first time in 2004 and has done so each year since then.²⁶

3.3. THE DEMOCRATIC PEOPLE’S REPUBLIC OF KOREA

The Democratic People’s Republic of Korea acceded to the NPT in 1985. However, it was not until 1992 that it concluded a CSA with the IAEA. Following the entry into force of the safeguards agreement, the State submitted its initial declaration on nuclear material and facilities. This initial declaration became the basis for IAEA inspections that ultimately revealed inconsistencies between the information provided by the State and IAEA verification findings related to plutonium separation activities.²⁷

During the autumn of 1992, the IAEA provided the Democratic People’s Republic of Korea with several opportunities to clarify these inconsistencies. However, the State was unable to provide satisfactory answers, which prompted the IAEA to request a special inspection. In February 1993, the Director General reported to the Board that the State had not complied with his earlier request for a special inspection to clarify inconsistencies found in its initial declaration.²⁸ The Board determined that access pursuant to the special inspection request was ‘essential and urgent’, thereby obliging the State to grant the request. However, it again did not comply with the IAEA’s request. At its 1 April 1993 meeting, the Board adopted a resolution that formally found the Democratic People’s Republic of Korea to be “in non-

²⁵ IAEA, “Record of the Meeting 783”, Board of Governors, 17 June 1992.

²⁶ See IAEA, 2005, “Safeguards Statement for 2004”, <https://www.iaea.org/sites/default/files/es2004.pdf>, p. 5. See also, IAEA, 2019, “Safeguards Statement for 2018”, June 2019, <https://www.iaea.org/sites/default/files/19/06/statement-sir-2018.pdf>.

²⁷ IAEA, 1993, “Report By the Director General of the International Atomic Energy Agency on Behalf of the Board of Governors to All Members of the Agency on the Non-compliance of the Democratic People’s Republic of Korea with the Agreement Between the IAEA and the Democratic People’s Republic of Korea for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/403) and on the Agency’s Inability to Verify the Non-diversion of Material Required to Be Safeguarded”, INFCIRC/419, 8 April 1993, <https://www.iaea.org/publications/documents/infcircs/report-director-general-international-atomic-energy-agency-behalf-board-governors-all-members-agency-non-compliance-democratic-peoples-republic-korea-agreement-between-iaea-and-democratic-peoples-republic-korea-application>, p. 3.

²⁸ See IAEA, 1993, “Report by the Director General on the implementation of the resolution adopted by the Board on 25 February 1993 (GOV/2636) and of the Agreement between the Agency and the Democratic People’s Republic of Korea for the application of safeguards in connection with the Treaty on the Non-proliferation of nuclear weapons (INFCIRC/403) - Resolution adopted by the Board on 1 April 1993”, GOV/2645, 1 April 1993.

compliance with its obligations under its Safeguards Agreement” and requested the Director General report the matter to the Security Council and General Assembly and to inform the IAEA Member States.²⁹

In March 1993, the Democratic People’s Republic of Korea announced its intention to withdraw from the NPT. However, one day before its withdrawal would have become effective, it announced that it had suspended its decision. In the spring of 1994, it started to discharge spent fuel from the 5 MWe reactor without allowing the IAEA to apply its standard verification measures. In June 1994, the Board adopted a resolution concluding that the State was widening its non-compliance “by taking actions which prevent the Agency from verifying the history of the reactor core and from ascertaining whether nuclear material from the reactor had been diverted”.³⁰

In October 1994, the Democratic People’s Republic of Korea and the United States concluded an Agreed Framework aimed at bringing the former back into compliance with its NPT safeguards obligations and establishing a verifiable freeze on its nuclear activities. Under the Agreed Framework, the IAEA was tasked with monitoring the freeze “on the DPRK’s graphite-moderated reactors and related facilities”.³¹ In addition to assigning the IAEA a direct role in monitoring the shutdown of the graphite reactor, the Agreed Framework also committed the Democratic People’s Republic of Korea to remaining in the NPT. In exchange, the United States committed “to make arrangements for the provision of a LWR generating capacity of approximately 2000 MW(e)”.³² It was anticipated that the Democratic People’s Republic of Korea would return to compliance upon the completion of a “significant portion of the LWR project ... but before delivery of key nuclear components”.³³ Anticipating a delay in the resumption of full-scale verification activities, the IAEA transmitted to the Democratic People’s Republic of Korea a detailed technical paper outlining the measures required to preserve necessary information about its nuclear activities to enable the IAEA to verify the declarations made by the DPRK.

²⁹ See IAEA, 1993, “Report By the Director General of the International Atomic Energy Agency on Behalf of the Board of Governors to All Members of the Agency on the Non-compliance of the Democratic People’s Republic of Korea with the Agreement Between the IAEA and the Democratic People’s Republic of Korea for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/403) and on the Agency’s Inability to Verify the Non-diversion of Material Required to Be Safeguarded”, INFCIRC/419, 8 April 1993, p. 1.

³⁰ IAEA, 2004, “Resolution adopted by the Board on the implementation of the agreement between the Agency and the Democratic People’s Republic of Korea for the application of safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/403)”, GOV/2742, 10 June 1994.

³¹ IAEA, 1994, “Agreed Framework of 21 October 1994 between the United States of America and the Democratic People’s Republic of Korea”, INFCIRC/457, 2 November 1994, p. 2.

³² IAEA, 2002, “Fact Sheet on DPRK Nuclear Safeguards”, <https://www.iaea.org/newscenter/mediaadvisories/fact-sheet-dprk-nuclear-safeguards>.

³³ IAEA, 1994, “Agreed Framework of 21 October 1994 between the United States of America and the Democratic People’s Republic of Korea”, INFCIRC/457, 2 November 1994, p. 4.

In October 2002, the United States confronted the Democratic People's Republic of Korea with evidence of undeclared uranium enrichment activity.³⁴ In its meeting the following month, the Board of Governors endorsed a statement by the Director General in which he expressed "deep concern" regarding reports that the State had an undeclared programme to enrich uranium. The Director General further stated that "such a programme, or any other covert nuclear activities, would constitute a violation of the DPRK's international commitments, including [its] safeguards agreement".³⁵ As a result of these developments, at the end of 2002, the State requested IAEA inspectors to leave its territory and announced its withdrawal from the NPT with effect from January 2003.

Notwithstanding the Democratic People's Republic of Korea's announcement of its withdrawal from the NPT, in February 2003 the IAEA Board adopted a resolution stating that the State was "further in non-compliance" with its safeguards agreement. The resolution also stated that the safeguards agreement "remains binding and in force" and reported the matter to the Security Council and General Assembly.³⁶ In the same year, the Democratic People's Republic of Korea, China, Japan, the Republic of Korea, the Russian Federation, and the United States began the first round of what came to be known as the 'Six-Party Talks' intended to result in the dismantlement of the Democratic People's Republic of Korea's nuclear weapons programme.

On 9 October 2006, the State conducted its first underground nuclear test. After the test, the Security Council adopted resolution 1718 imposing sanctions on it, and demanded that it "immediately retract its announcement of withdrawal" from the NPT and accept IAEA safeguards.³⁷

In 2007, as part of an agreement reached in the Six-Party Talks, the Democratic People's Republic of Korea agreed "to invite back IAEA personnel to conduct all necessary verifications as agreed".³⁸ An IAEA report issued in July 2007 described the arrangements agreed to implement the measures required.³⁹ The agreement, however, covered only the Yongbyon graphite-moderated reactor and related facilities, which, the IAEA later confirmed,

³⁴ US Department of State, 2002, "North Korean Nuclear Program", 16 October 2002, <https://2001-2009.state.gov/r/pa/prs/ps/2002/14432.htm>.

³⁵ IAEA, 2002, "Report by the Director General on the implementation of the NPT safeguards agreement between the Agency and the Democratic People's Republic of Korea, Resolution adopted by the Board on 29 November 2002", GOV/2002/60, 29 November 2002, p. 2.

³⁶ IAEA, 2003, "Report by the Director General on the Implementation of the NPT Safeguards Agreement between the Agency and the Democratic People's Republic of Korea, Resolution adopted by the Board on 12 February 2003", GOV/2003/14, 12 February 2003.

³⁷ Security Council, resolution 1718, 14 October 2006, <http://unscr.com/en/resolutions/1718>.

³⁸ IAEA, 2007, "IAEA Director General Concludes Trip to the DPRK", IAEA News, 15 March 2007, <https://www.iaea.org/newscenter/news/iaea-director-general-concludes-trip-dprk>.

³⁹ IAEA 2007, "Monitoring and Verification in the Democratic People's Republic of Korea", GOV/2007/36, 3 July 2007.

were shut down in 2007.⁴⁰ This monitoring regime did not include any verification of nuclear material.

In the autumn of 2008, the Democratic People's Republic of Korea started to impose restrictions on IAEA verification and monitoring and, by April 2009, had ceased all cooperation with the IAEA and required inspectors to leave at the earliest possible time.⁴¹ The inspectors departed on 16 April 2009; there have been no further IAEA inspections or activities in the State since then. The IAEA has, however, been monitoring the State's nuclear sites using satellite imagery and other open source information, and regularly reporting its findings to the Board of Governors. In 2017, the Secretariat formed an Executive Group and a Democratic People's Republic of Korea Team in the Department of Safeguards to monitor the developments in the State and to prepare the groundwork for future IAEA inspections.⁴²

While the Democratic People's Republic of Korea has not complied with the demands of Security Council resolution 1718, it made a broad commitment to denuclearization at the U.S-DPRK summit in Singapore in June 2018. The Democratic People's Republic of Korea has not conducted any nuclear tests and it has dismantled some of the testing infrastructure. However, in a statement at the Conference on Disarmament in January 2020, its official representative announced that it "found no reason to be unilaterally bound any longer by the commitment that the other party fails to honor."⁴³ This casts serious doubt on the immediate prospects for the Democratic People's Republic of Korea returning to the NPT and complying with its IAEA safeguards obligations.

3.4. THE ISLAMIC REPUBLIC OF IRAN

Following public reports about undeclared nuclear facilities in the Islamic Republic of Iran and IAEA investigations, in September 2002, the IAEA communicated its concerns to that government. In February 2003, an IAEA team, headed by IAEA Director General Mohamed ElBaradei, travelled to the State to discuss these concerns and to visit some of the sites.⁴⁴ As a result of this visit and the associated discussions, in March 2003 the Director General reported orally to the Board that the Secretariat had concerns about the State's compliance with its CSA obligations. This announcement was followed by detailed written reports in June

⁴⁰ IAEA, 2009, "Fact Sheet on DPRK Nuclear Safeguards", <https://www.iaea.org/newscenter/focus/dprk/fact-sheet-on-dprk-nuclear-safeguards>.

⁴¹ IAEA, 2009, "IAEA Inspectors Depart DPRK", IAEA News, 17 April 2009, <https://www.iaea.org/newscenter/pressreleases/iaea-inspectors-depart-dprk>.

⁴² IAEA, 2018, "Application of Safeguards in the Democratic People's Republic of Korea", GOV/2018/34-GC(62)/12, 20 August 2018.

⁴³ Nebehay, Stephanie. 2020. "North Korea says it is no longer bound by nuclear testing commitments", *Reuters*. January 2020. <https://globalnews.ca/news/6440894/north-korea-nuclear-talks-new-path/>.

⁴⁴ IAEA, 2003, "Iran Agrees to Provide Early Design Information of Nuclear Facilities", IAEA News, 25 February 2003, <https://www.iaea.org/newscenter/news/iran-agrees-provide-early-design-information-nuclear-facilities>.

and August of 2003.⁴⁵ These reports avoided referring to the concerns as cases of non-compliance, using formulations such as “failure to meet its obligations” and “failures to report” instead.

In September 2003 the Board expressed grave concern that, more than a year after initial IAEA inquiries to the Islamic Republic of Iran about undeclared activities, it had “still not enabled the IAEA to provide the assurances required by Member States that all nuclear material in Iran is declared and submitted to Agency safeguards and that there are no undeclared nuclear activities in [the State]”.⁴⁶ However, the Board did not conclude that the State was in non-compliance with its CSA. The Secretariat continued to report in quarterly oral and written reports on the progress in the implementation of safeguards in Iran.

Starting in late 2004, the IAEA Secretariat raised concerns about the possible military nature of some of the State’s nuclear-related activities.⁴⁷ By September 2005, the Agency concluded that it was “not yet in a position to clarify some important outstanding issues after two and a half years of intensive inspections and investigation”.⁴⁸ In a resolution adopted on 24 September 2005, the Board concluded “that Iran’s many failures and breaches of its obligations to comply with its NPT Safeguards Agreement ... constitute non-compliance in the context of Article XII.C of the Agency’s Statute”.⁴⁹ The Board, however, decided to postpone a decision on the timing and content of its report to the relevant United Nations bodies and the IAEA Member States until its next meeting.⁵⁰

In February 2006, the Board decided to report Iran’s non-compliance to the Security Council and General Assembly, further requesting the State to suspend “all enrichment-related and reprocessing activities”.⁵¹ In July 2006, the Security Council adopted resolution 1696 (2006), in which it called “upon Iran without further delay to take the steps required by the IAEA

⁴⁵ IAEA, 2003, “Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran. Report by the Director General”, GOV/2003/40, 6 June 2003, <https://www.iaea.org/sites/default/files/gov2003-40.pdf>; IAEA, 2003, “Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran. Report by the Director General”, GOV/2003/63, 26 August 2003, <https://www.iaea.org/sites/default/files/gov2003-63.pdf>.

⁴⁶ IAEA, 2003, “Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, Resolution Adopted by the Board on 12 September 2003”, GOV/2003/69, 12 September 2003, <https://www.iaea.org/sites/default/files/gov2003-69.pdf>, p 2.

⁴⁷ For example, see IAEA, 2005, “IAEA Director General Briefs Press on Iran, Egypt” IAEA News, 28 February 2005, <https://www.iaea.org/newscenter/news/iaea-director-general-briefs-press-iran-egypt>.

⁴⁸ IAEA Board of Governors, 2005, “Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran - Resolution adopted on 24 September 2005”, GOV/2005/77, 24 September 2005, <https://www.iaea.org/sites/default/files/gov2005-77.pdf>, p. 2.

⁴⁹ Article XII.C of the Agency’s Statute refers to the article that regulates compliance with safeguards obligations. See *ibid.*, p. 2.

⁵⁰ IAEA Board of Governors, 2005, “Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran - Resolution adopted on 24 September 2005”, GOV/2005/77, 24 September 2005, <https://www.iaea.org/sites/default/files/gov2005-77.pdf>.

⁵¹ IAEA Board of Governor, 2006, “Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran - Resolution adopted on 4 February 2006”, GOV/2006/14, 4 February 2006, <https://www.iaea.org/sites/default/files/gov2006-14.pdf>, p. 2.

Board of Governors ... to build confidence in the exclusively peaceful purpose of its nuclear programme and to resolve outstanding questions".⁵²

While the IAEA continued to attempt to verify the State's declarations, other parties engaged with the Islamic Republic of Iran to find a resolution to the problem of non-compliance. In July 2015, the Islamic Republic of Iran, China, France, Germany, the Russian Federation, the United Kingdom, the United States and the European Union finalized the Joint Comprehensive Plan of Action (JCPOA), which the Security Council endorsed in resolution 2231 (2015). In the JCPOA, the Islamic Republic of Iran agreed to accept specified constraints on its nuclear activities and additional verification provisions to aid the IAEA in monitoring Iranian compliance with the JCPOA and its CSA.⁵³ As part of the JCPOA, the State is currently provisionally implementing its AP.

Verification of the JCPOA relies on the IAEA, which is also the agency responsible for administering IAEA safeguards implemented under the NPT. To verify Iranian compliance with the JCPOA, the IAEA largely relies on well-established procedures that focus on nuclear materials and facilities. However, some JCPOA conditions, such as the obligation of the State not to engage in "activities which could contribute to the development of a nuclear explosive device",⁵⁴ go beyond the traditional focus on nuclear materials and, therefore, require a different verification and monitoring approach.⁵⁵ The lack of agreed procedures in this case has emerged as an issue during JCPOA implementation.⁵⁶

The current United States administration has been critical of the JCPOA, and, after unsuccessful attempts to begin a process of renegotiating it, announced its withdrawal from the agreement in May 2018.⁵⁷ After the withdrawal, the United States reimposed sanctions on the Islamic Republic of Iran.

As of early 2020, the IAEA continued to conduct verification and monitoring activities in accordance with the terms of the Islamic Republic of Iran's CSA, its AP and the JCPOA. The Safeguards Statement for 2018 reflected the IAEA's conclusion that all declared nuclear

⁵² Security Council, S/RES/1696, 31 July 2006, https://www.iaea.org/sites/default/files/unsc_res1696-2006.pdf, p. 2.

⁵³ Security Council, S/RES/2231, 20 July 2015, [https://www.undocs.org/S/RES/2231\(2015\)](https://www.undocs.org/S/RES/2231(2015)).

⁵⁴ See Section T, "Activities which could Contribute to the Design and Development of a Nuclear Explosive Device", "JCPOA Annex I – Nuclear-related measures", in Security Council, 2015, "Joint Comprehensive Plan of Action (JCPOA)", S/RES/2231, 20 July 2015, [https://undocs.org/S/RES/2231\(2015\)](https://undocs.org/S/RES/2231(2015)).

⁵⁵ For example, in 2005 the IAEA the Director General noted that "absent some nexus to nuclear material, the Agency's legal authority to pursue the verification of possible nuclear weapons related activity is limited" [emphasis added]. See IAEA, 2005, "Implementation of the NPT Safeguards Agreement in the Islamic Republic of Iran, Report by the Director General", GOV/2005/67, 2 September 2005, <https://www.iaea.org/sites/default/files/gov2005-67.pdf>.

⁵⁶ David Albright and Olli Heinonen, "Verifying Section T of the Iran Nuclear Deal", Institute for Science and International Security, 31 August 2017, <http://isis-online.org/isis-reports/detail/verifying-section-t-of-the-iran-nuclear-deal/8>.

⁵⁷ The White House, 2018, "Remarks by President Trump on the Joint Comprehensive Plan of Action", 8 May 2018, <https://www.whitehouse.gov/briefings-statements/remarks-president-trump-joint-comprehensive-plan-action/>.

material in Iran remained in peaceful uses.⁵⁸ In the assessment of the JCPOA, submitted to the Board in September 2019, the IAEA's Acting Director General stated that:

The Agency continues to verify the non-diversion of declared nuclear material at the nuclear facilities and locations outside facilities ... declared by Iran under its Safeguards Agreement. Evaluations regarding the absence of undeclared nuclear material and activities for Iran remained ongoing.⁵⁹

However, from May 2019 the Islamic Republic of Iran began to scale down the implementation of its JCPOA obligations in response to increasingly stringent United States sanctions. Specifically, this concerned the limits on the stocks of heavy water and low enriched uranium, as well as the limit on uranium enrichment and installation of additional centrifuges.⁶⁰ In January 2020, the Islamic Republic of Iran announced that it is no longer constrained by any of the limits imposed by the JCPOA on its nuclear activities.⁶¹ The three European participants of the arrangement, France, Germany and the United Kingdom, triggered the dispute resolution mechanism included in the JCPOA in an attempt to resolve the issue.⁶² In response, the Islamic Republic of Iran stated that it might consider withdrawal from the Non-proliferation Treaty.⁶³ The outcome of the dispute over the JCPOA is as yet uncertain. Nevertheless, the dispute illustrates the difficulty of ensuring full compliance with safeguards obligations in a confrontational political environment.

⁵⁸ IAEA, 2019, "Safeguards Statement for 2018", June 2019, <https://www.iaea.org/sites/default/files/19/06/statement-sir-2018.pdf>.

⁵⁹ IAEA, 2019, "Verification and Monitoring in the Islamic Republic of Iran in Light of United Nations Security Council Resolution 2231 (2015), Report by the Acting Director General", GOV/2019/32, 30 August 2019, <https://www.iaea.org/sites/default/files/19/09/gov2019-32.pdf>.

⁶⁰ IAEA, 2019, "Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015), Report by the Acting Director General", GOV/INF/2019/16, 7 November 2019, <https://www.iaea.org/sites/default/files/19/11/govinf2019-16.pdf>; IAEA, 2019, "Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015) Report by the Acting Director General", GOV/2019/55, 11 November 2019, <https://www.iaea.org/sites/default/files/19/11/gov2019-55.pdf>; IAEA, 2019, "Verification and monitoring in the Islamic Republic of Iran in light of United Nations Security Council resolution 2231 (2015), Report by the Acting Director General", GOV/INF/2019/17, 18 November 2019, <https://www.iaea.org/sites/default/files/19/11/govinf2019-17.pdf>.

⁶¹ Mehr News Agency, 2020, "Iran takes final JCPOA step, removing last limit on nuclear program", 5 January 2020, <https://en.mehrnews.com/news/154191/Iran-takes-final-JCPOA-step-removing-last-limit-on-nuclear-program>.

⁶² UK, 2020, "E3 foreign ministers' statement on the JCPoA", 14 January 2020, <https://www.gov.uk/government/news/e3-foreign-ministers-statement-on-the-jcpoa-14-january-2020>.

⁶³ See Mehr News Agency, 2020, "MP elaborated on details of plan for Iran's withdrawal from NPT", 29 January 2020, <https://en.mehrnews.com/news/155082/MP-elaborated-on-details-of-plan-for-iran-s-withdrawal-from-npt>; see also Reuters, 2018, "Iran might withdraw from NPT if nuclear deal is scrapped: senior official", 24 April 2018, <https://www.reuters.com/article/us-iran-nuclear-npt/iran-might-withdraw-from-npt-if-nuclear-deal-is-scrapped-senior-official-idUSKBN1HV0UU>.

3.5. LIBYA

On 19 December 2003, Libya announced its decision “to eliminate all materials, equipment and programmes leading to the production of internationally proscribed weapons.”⁶⁴ The Government of Libya formally communicated this decision to the IAEA’s Director General and indicated its readiness to accept IAEA inspections in order to verify its commitment. During a visit to the IAEA, Libyan representatives disclosed that Libya had been engaged in the development of a uranium enrichment capability for more than a decade. As part of its cooperation with the IAEA, Libya declared its intention to conclude an AP to its CSA and to implement provisions of the AP prior to its signature and entry into force.

In February 2004, the Director General issued the first written report to the Board on Libya’s breaches of its comprehensive safeguards obligations and the corrective actions it had undertaken.⁶⁵ In March 2004, the Board of Governors commended Libya for its active cooperation with the Agency, and decided:

under Article XII.C of the Statute, that the past failures to meet the requirements of the relevant Safeguards Agreement (INFCIRC/282) identified by the Director General constituted non-compliance, and, in accordance with Article XII.C, requested the Director General to report the matter to the Security Council for information purposes only ...⁶⁶

Separately, Libya had also reached an agreement with the United Kingdom and the United States to transfer sensitive design information, nuclear weapons-related documents and most of the previously undeclared enrichment equipment and feed materials to the United States.⁶⁷ Libya also agreed to transfer irradiated high-enriched uranium spent fuel from the IRT research reactor to the Russian Federation and redesign the reactor to use low enriched uranium fuel. The transfers took place after the Agency had completed its in-field verification activities in Libya.

In August 2008, the Secretariat issued a summary report in which it concluded that:

the Agency is able at this time to continue to provide assurances that no declared nuclear material in Libya has been diverted, and while it considers that the issues that had been reported to the Board of Governors are no longer outstanding at this stage [the Agency] will continue to implement safeguards in Libya as a routine matter and

⁶⁴ IAEA, 2004, “IAEA Verification of Libya’s Nuclear Programme”, IAEA News, 10 March 2004, <https://www.iaea.org/newscenter/news/iaea-verification-libyas-nuclear-programme>.

⁶⁵ See IAEA, 2004, “Implementation of the NPT Safeguards Agreement of the Socialist People’s Libyan Arab Jamahiriya - Report by the Director General”, GOV/2004/33, 28 May 2004, <https://fas.org/nuke/guide/libya/iaea0504.pdf>.

⁶⁶ Ibid., p. 2.

⁶⁷ See, for example, Jack Boureston and Yana Feldman, 2004, “Verifying Libya’s nuclear disarmament”, Verification Yearbook 2004, VERTIC, 2004, http://www.vertic.org/media/Archived_Publications/Yearbooks/2004/VY04_Boureston-Feldman.pdf; see also Julian Borger, 2004, “Libya’s nuclear secrets unveiled in Tennessee”, *The Guardian*, 16 March 2004.

work to reach a conclusion about the absence of undeclared nuclear material and activities in Libya.⁶⁸

In 2008, the Board adopted a resolution supporting “the continued implementation of safeguards in [Libya] as a routine matter.”⁶⁹

The Agency first drew a broader conclusion for Libya in 2008 and has continued to do so each year since then.⁷⁰

3.6. THE REPUBLIC OF KOREA

The AP to the CSA concluded between the IAEA and the Republic of Korea came into force on 19 February 2004. In August 2004, the Republic of Korea, in connection with the submission of its initial declaration pursuant to the AP, informed the Agency that it had conducted unreported laboratory-scale experiments involving the enrichment of uranium using the atomic vapour laser isotope separation process. The experiments, conducted in 2000, involved milligram quantities of uranium.

In September 2004, the Director General informed the Board in his oral statement that it was “a matter of serious concern that the conversion and enrichment of uranium and the separation of plutonium were not reported to the Agency as required by the [Republic of Korea] Safeguards Agreement”.⁷¹ However, the statement did not use the term ‘non-compliance’ in describing the situation. In November 2004, the Director General issued a written report detailing the ROK’s breaches under its CSA obligations.⁷² The report stated that, based on the verification activities carried out by the Agency, there was “no indication that the undeclared experiments have continued” but the Agency would continue to verify the “correctness and completeness of the [Republic of Korea’s] declarations pursuant to the Safeguards Agreement and Additional Protocol”.⁷³

The Board decided not to report the breaches to the Security Council. The IAEA drew a broader conclusion for the Republic of Korea for the first time in 2007 and has done so each year since then.⁷⁴

⁶⁸ IAEA, 2008, “Implementation of the NPT Safeguards Agreement in the Socialist People’s Libyan Arab Jamahiriya”, GOV/2008/39, 12 September 2008, para. 39.

⁶⁹ IAEA, 2008, “Implementation of the NPT safeguards agreement of the Socialist People’s Libyan Arab Jamahiriya, Resolution adopted by the Board of Governors on 24 September 2008”, GOV/2008/53, 24 September 2008.

⁷⁰ IAEA, 2019, “Safeguards Statement for 2018”, June 2019, <https://www.iaea.org/sites/default/files/19/06/statement-sir-2018.pdf>.

⁷¹ As cited in IAEA, 2004, “Implementation of the NPT Safeguards Agreement in the Republic of Korea - Report by the Director General”, GOV/2004/84, 11 November 2004, <https://www.iaea.org/sites/default/files/gov2004-84.pdf>, p. 2.

⁷² Ibid.

⁷³ Ibid., p. 8.

⁷⁴ IAEA, 2019, “Safeguards Statement for 2018”, June 2019, <https://www.iaea.org/sites/default/files/19/06/statement-sir-2018.pdf>.

3.7. EGYPT

In the early 1990s, the IAEA began to strengthen its safeguards system by conducting a thorough analysis of all safeguard-relevant information, including the composition of safeguarded material, its stated origin, and the designs of facilities handling safeguarded material. In 2004, in the course of such an evaluation, the IAEA found inconsistencies in the information Egypt provided to the IAEA under its CSA.⁷⁵

In February 2005, the Director General issued a written report to the Board that described the Agency's findings. The report did not use the words 'non-compliance'. However, it stated that "repeated failures by Egypt to report nuclear material and facilities to the Agency [were] a matter of concern".⁷⁶ The Board did not request the Director General to provide the report to the Security Council or General Assembly.

The Secretariat continued to report progress made in addressing its concerns in the annual Safeguards Statements. The 2008 statement concluded that "Egypt's statements are consistent with the Agency's findings and ... the issues raised in the [February 2005] report to the Board are no longer outstanding".⁷⁷ From 2008 onwards the Secretariat continued to implement safeguards in Egypt as a routine matter. As Egypt has not concluded an AP with the Agency, a broader conclusion will not be drawn; however, the Safeguards Statement for 2018 concluded that all declared nuclear material in Egypt remained in peaceful uses.

3.8. THE SYRIAN ARAB REPUBLIC

At a meeting of the Board on June 2008, the Director General orally reported that the Agency had received information claiming that an installation destroyed by Israel at Dair Alzour⁷⁸ in September 2007 had been a nuclear reactor.⁷⁹

Syria had an obligation under its CSA to report the planning and construction of any nuclear facility to the IAEA. Therefore, the Agency requested a visit to the Dair Alzour site. IAEA inspectors visited the site in June 2008 and were able to take environmental samples. In November 2008, the Secretariat submitted its first written report to the Board with findings on Dair Alzour. The inspection found "a significant number of anthropogenic natural uranium particles (i.e. produced as a result of chemical processing)" indicating the possibility of undeclared nuclear material at the site.⁸⁰ The views of the Board members on what actions should be taken remained at variance, and no resolution was adopted at that time.

⁷⁵ IAEA, 2005, "Implementation of the NPT Safeguards Agreement in the Arab Republic of Egypt - Report by the Director General", GOV/2005/9, 14 February 2005, p. 5.

⁷⁶ Ibid., p. 5.

⁷⁷ IAEA, 2009, "Safeguards Statement for 2008", June 2009, <https://www.iaea.org/sites/default/files/es2008.pdf>.

⁷⁸ Also referred to as Al Kibar.

⁷⁹ See IAEA, 2009, "Implementation of the NPT Safeguards Agreement in the Syrian Arab Republic - Report by the Director General", GOV/2009/36, 5 June 2009.

⁸⁰ Ibid, p. 1.

In June 2011, the Director General submitted to the Board a written report on the Agency's findings related to Dair Alzour.⁸¹ In his report, he noted the Secretariat's conclusion, based on all available information, that "it was very likely that a building destroyed at the Dair Alzour site was a nuclear reactor that should have been declared" by the Syrian Arab Republic pursuant to the provisions of its CSA.⁸²

On 9 June 2011 the Board adopted a resolution that found "Syria's undeclared construction of a nuclear reactor at Dair Alzour and failure to provide design information for the facility ... constitute non-compliance with its obligations under its Safeguards Agreement with the Agency."⁸³ The Board also decided to report the State's non-compliance to all members of the Agency and to the Security Council and the General Assembly.

In October 2011, the Syrian Arab Republic informed the Agency that it was prepared to provide access to the Dair Alzour site under certain conditions. However, it was not prepared to discuss inspections at other locations which the Agency considered important for an overall assessment.⁸⁴ Since then, there has been no progress on the Agency's requests for access to other sites or for clarifications with respect to the sources of uranium particles found in country. The IAEA Director General regularly raises the issue in his introductory statement to the Board of Governors, but there has been no further progress.⁸⁵

Since the Syrian Arab Republic has not concluded an AP with the Agency, the IAEA has only drawn conclusions about declared nuclear material. The Safeguards Statement for 2018 concluded that all declared nuclear material in the State remained in peaceful uses.⁸⁶

⁸¹ A 2011 report also addressed the concern about presence of particles of natural uranium at the Miniature Neutron Source Reactor in Damascus, raised by the Agency in June 2009. The report concluded that "Syria's statements concerning the origin of the anthropogenic uranium particles found at the MNSR are not inconsistent with the Agency's findings. Therefore, the matter will be addressed in the routine implementation of safeguards". See IAEA, 2011, "Implementation of the NPT Safeguards Agreement in the Syrian Arab Republic, Report by the Director General", GOV/2011/30, 24 May 2011, <https://www.iaea.org/sites/default/files/gov2011-30.pdf>.

⁸² See section on "Nuclear Verification" in IAEA, 2016, "IAEA Annual Report 2016", GC(61)/3, <https://www.iaea.org/sites/default/files/publications/reports/2016/gc61-3.pdf>, p. 16.

⁸³ IAEA, 2011, "Implementation of the NPT safeguards agreement in the Syrian Arab Republic - Resolution adopted by the Board of Governors on 9 June 2011", GOV/2011/41, 9 June 2011, <https://www.iaea.org/sites/default/files/gov2011-41.pdf>, p. 2.

⁸⁴ IAEA, 2012, "Implementation of the NPT Safeguards Agreement in the Syrian Arab Republic - Report by the Director General", GOV/2012/42, 30 August 2012, <https://www.iaea.org/sites/default/files/gov2012-42.pdf>.

⁸⁵ Cornel Feruta, 2019, "Introductory Statement to the Board of Governors", statement by Cornel Feruta, IAEA Acting Director General, 9 September 2019, <https://www.iaea.org/newscenter/statements/introductory-statement-to-the-board-of-governors-9-september-2019>.

⁸⁶ IAEA, 2019, "Safeguards Statement for 2018", June 2019, <https://www.iaea.org/sites/default/files/19/06/statement-sir-2018.pdf>.

4 LESSONS LEARNED

An overview of the cases in which the IAEA has dealt with non-compliance with States' safeguards obligations allows several conclusions to be drawn that could be used to strengthen the IAEA's response mechanism and potentially inform progress in other multilateral WMD agreements.

One of the strongest features of the IAEA mechanism is the existence of an established technical and organizational procedure that allows the Agency to evaluate information about potential non-compliance. The IAEA's independent technical expertise is particularly important as it provides a reliable basis for political decision-making. It is notable that none of the technical findings of the Secretariat in the cases considered above were openly challenged by Member States, even when States had different positions on how to deal with a specific case.

Another important element of the IAEA process is that the Agency is not tasked with determining compliance with core NPT obligations. Instead, it focuses on the specific issue of compliance with obligations under the safeguards agreements, leaving the broader question of compliance with the treaty provisions to the Security Council and to the States Parties of the NPT. At the same time, this arrangement for responding to cases of non-compliance comes with a certain cost as it relies on the will of States to come up with measures that deal with non-compliance. In the absence of coordinated action by States that are willing to take steps to resolve cases of non-compliance, the response can be slow. This was certainly the case with the first IAEA report to the Security Council on the Democratic People's Republic of Korea. In other cases, a response of the Security Council has not been forthcoming at all, as in the case of the Syrian Arab Republic.

This could lead some States to believe that the enforcement mechanisms are insufficiently strong to discourage efforts to develop a nuclear option. Such is apparent in some of the cases discussed above, in which States did not consider the risk of detection high enough to deter them from pursuing a nuclear option. Indeed, in most cases, non-compliance was not detected through in-field application of standard IAEA comprehensive safeguards procedures, with the exception of the Democratic People's Republic of Korea and Egypt. In three cases—Romania, the Republic of Korea, and Libya—States voluntarily self-reported on breaches of their CSAs. In the cases of Iraq, the Islamic Republic of Iran, and the Syrian Arab Republic, information suggesting non-compliance came from sources outside of the Agency, triggering a more robust inspection process.

However, it should be noted that the IAEA was able to act promptly on the information it was provided and incorporated that information into its safeguard compliance assessment mechanism. It is also important to emphasize that the implementation of APs significantly strengthened the ability of the IAEA to discover non-compliance. Indeed, in at least one case

discussed above, the revelation about past breaches of the CSA came in the process of submitting the information required by the AP. Yet even without the benefits of APs, the constant improvement of IAEA technical and analytical methods significantly increases the Agency's capability to discover anomalies in the implementation of safeguards.

A further point is that the IAEA's Director General and Board of Governors have some flexibility in adjudicating cases where the breaches were serious enough to be brought to the attention of the Board. Four out of the eight cases considered above were reported to the Security Council as 'non-compliance'. Two further cases, Libya and Romania, were brought to the Security Council only for its information. The remaining two, Egypt and the Republic of Korea, were not reported to the Security Council at all. This suggests that the Board and the Secretariat reserve the right to make a judgement about the seriousness of the cases they consider. The courses of action taken by the Board in individual cases could raise questions about the consistency of the Board's treatment of States. However, in all cases where the Board determined non-compliance, the conclusion was reached by an overwhelming majority.

The IAEA's mechanism for addressing non-compliance reflects a significant degree of flexibility in responses at the request of interested parties (e.g. the Agreed Framework) or by the Security Council. Some of these responses involve activities that exceed the routine implementation of CSAs or the NPT itself. While this adaptability has generally helped States deal with difficult situations, special agreements, such as the Agreed Framework (the Democratic People's Republic of Korea) or the Joint Comprehensive Plan of Action (the Islamic Republic of Iran), may be quite different from the standard IAEA comprehensive safeguards arrangements. Accordingly, the issue of compliance with special agreements can be more easily contested as it could be situated outside of the established IAEA technical and organizational procedures. The IAEA demonstrated the capability to adapt to specific verification requirements in individual cases. To implement the required verification measures, the IAEA established special teams for Iraq and, more recently, also for the Democratic People's Republic of Korea and the Islamic Republic of Iran. However, due to budgetary constraints, the Secretariat had to rely considerably on extrabudgetary funding for these activities.

One of the tools available to the Agency—the right to conduct special inspections—was used successfully only in one of these instances, in the case of Romania at its request. In the case of the Democratic People's Republic of Korea, the State did not permit the special inspection that the IAEA requested. No special inspections were requested in the other six cases. This indicates that while special inspections are a valuable verification tool, the threshold to invoke this measure may have become too high as a result of its non-use.

An analysis of the cases described above also leads to some general conclusions about the nature of activities that were in conflict with the safeguards obligations. Five out of the eight non-compliance cases have been in the Middle East region. This underlines the importance of establishing a nuclear weapon-free zone in the Middle East, especially since in four of

these cases States were engaged in the development of nuclear weapons. With the exception of the Democratic People's Republic of Korea, all cases brought to the Board involved undeclared front-end fuel cycle activities with undeclared material. The Democratic People's Republic of Korea was also involved in large-scale reprocessing activities and diverted nuclear material for nuclear weapons.

In four of the cases considered here the IAEA is unable, as of today, to establish that all nuclear material in the State remains in peaceful use. Two States, the Democratic People's Republic of Korea and the Syrian Arab Republic, remain non-compliant with their safeguards obligations as they refuse to give IAEA inspectors access to key locations. In Egypt the IAEA implements the CSA in a routine manner, but since Egypt has not concluded an AP, the Agency will not draw a broader conclusion for that State. The Islamic Republic of Iran has been implementing its AP provisionally as part of the JCPOA, but as of today the Agency has not been able to reach a broader conclusion that all material in the State remains in peaceful use. The broader conclusion has been drawn for Romania, Libya and the Republic of Korea, and work proceeds still in Iraq.

In conclusion, it should be emphasized that effective safeguards are an essential element of the nuclear non-proliferation regime. The IAEA experience in dealing with breaches of safeguards obligations or non-compliance could serve to further strengthen the non-proliferation regime and create conditions for nuclear disarmament.

APPENDIX

SUMMARY OF CASES BROUGHT TO THE ATTENTION OF THE IAEA BOARD OF GOVERNORS

	FIRST REPORT TO THE BOARD	FIRST BOARD NON-COMPLIANCE CONCLUSION	FIRST REPORT TO THE SECURITY COUNCIL	SECURITY COUNCIL RESOLUTION	CURRENT STATUS
Iraq	July 1991	July 1991	July 1991	resolution 707, August 1991	June 2007, resolution 1762, UNMOVIC terminated. IAEA CSA plus AP, but not yet a broader conclusion.
Romania	June 1992 (oral only)	June 1992 (Chair's summary)	For information only	None	No follow-up needed in 1992. Broader conclusion in 2004.
DPRK	February 1993	April 1993	April 1993	resolution 825, May 1993	The DPRK announced final withdrawal from the NPT in January 2003. The IAEA resumed monitoring of Yongbyon facilities in July 2007. The DPRK expelled the IAEA inspectors in April 2009.
Iran	March 2003	September 2005	February 2006	July 2006	Currently implements a comprehensive safeguards agreement and additional obligations under the JCPOA, resolution 2231.
Libya	February 2004	March 2004	March 2004, for information only	April 2004, Presidential statement	Broader conclusion in 2008.

ROK	September 2004	November 2004	Not reported	None	Broader conclusion in 2007.
Egypt	September 2004	February 2005 (Chair's summary)	Not reported	None	Routine implementation of CSA; no AP concluded.
Syria	June 2008 (oral only)	June 2011	June 2011	None	Since 2011, Syria has not engaged in discussions on outstanding issues related to its compliance.

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