The 'Landscape' of Nuclear Safeguards: a Comparative Analysis of the International and Regional Systems

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Abstract:

The notion of 'nuclear non-proliferation' is twofold. It refers to: (a) reduction of the number of existing arsenals (disarm or vertical non-proliferation), and (b) containment of the number of States that possess nuclear weapons or the control of non-state actors who can use such weapons (horizontal non-proliferation).
Different sources of the law exist at the international and regional level for addressing the issue.
At the international law level, the main legal text for addressing the issue, both on the side of vertical and horizontal non-proliferation, is the international Treaty on the Non-Proliferation of Nuclear Weapons (NPT). For the implementation of the principles contained in the NPT, a 'nuclear safeguards' system has been created, and the International Atomic Energy Agency (IAEA) has been assigned the role of the nuclear 'watchdog' for the NPT.
At the regional level, with respect to horizontal non-proliferation, there are bilateral or multilateral agreements that ban weapons of mass destruction in certain areas (Nuclear-Weapon-Free Zones, NWFZ, treaties), and denuclearization treaties. They contain norms about verification and compliance, and some of them institute a specific agency that complements the IAEA.
Along with IAEA system of safeguards and NWFZ bodies, there are regional safeguards bodies: (a) the European Atomic Energy Community (EURATOM) model is the cornerstone of no-proliferation of nuclear material in the EU, while (b) the Brazilian-Argentine Agency for Accounting for and Control of Nuclear Materials (ABACC) has the function to control nuclear activities developed in Brazil and Argentina.
Therefore, this study aims at critically and comparatively analysing the different safeguards systems adopted at the international and regional level.

INTRODUCTION.

Nuclear weapons are one of the most destructive weapons of mass destruction, whose use by States or non-State. Therefore, nuclear proliferation poses a severe threat to the international community, and the role of the law in this area is crucial.
The notion of 'nuclear non-proliferation' is twofold. It refers to: (a) States that possess nuclear weapons and are aiming at increasing their stockpiles or improving technical sophistication or developing new weapons (disarm or vertical non-proliferation), and (b) State or no State entities that do not have but are acquiring nuclear weapons, or developing the capability and materials for producing them (horizontal non-proliferation) (Sidel and Levy 2007).
Currently, the States possessing nuclear weapons are five: the United States, Russia, the United Kingdom, China and France. Then, there are other four having a latent weapons capability: India and Pakistan (since they conducted explosive tests of nuclear weapons in 1998), the Democratic People's Republic of Korea (which announced in 2006 that it had the capability to construct nuclear weapons, but in 2007 it agreed to permanent disabling of a

nuclear reactor complex at Yongbyon), and Israel (which is thought to possess arsenals, but has never confirmed nor denied).
Other "suspected" States are: Egypt, Libya, Iran, Iraq, Myanmar, and Syria.
Considering the sources of the law regulating this issue at the international and regional level, it is possible to observe two main frameworks:

	INTERNATIONAL LAW	REGIONAL LAW
HORIZONTAL/VERTICAL PROLIFERATION	Treaty on the Non-Proliferation of Nuclear Weapons (NPT)	- bilateral or multilateral agreements that ban weapons of mass destruction in certain areas (Nuclear Free Weapons Zones) - Limited Test Ban Treaty - Seabed Treaty - Antarctic Treaty - Outer Space Treaty - Moon Agreement

A central issue for the overall international security architecture is to ensure the respect and compliance of these agreements. Indeed, States that adhere to an international treaty or a regional agreement shall respect the fundamental principle of "*pacta sunt servanda*". At the same time, for the implementation of the principles and obligations embedded in these agreements it is essential to set up a verification and safeguards system.
As affirmed by Tariq Rauf, "*verification should detect evidence of any violations. [...] Second, the verification system should deter violations of the treaty. Third, the verification system should help build confidence in the viability of the treaty through conclusions that the States parties are complying with limits and obligations in the treaty*" (Rauf 2015).
Safeguards provisions are established at the international and regional level. Thus, this paper aims at critically and comparatively analysing the different safeguards systems adopted.

1. INTERNATIONAL LAW: THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS (NPT) AND THE IAEA SAFEGUARDS SYSTEM

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT), signed in 1968,[1] and entered into force in 1970, is the "cornerstone of the nuclear non proliferation regime" (Persbo 2012, 2). It is the result of a 'bargain' among nuclear weapon and non-nuclear weapon States, since non-nuclear weapon States undertake not to build or acquire nuclear weapons, while nuclear weapons States agree to pursue negotiations on nuclear disarmament. Thus, the Treaty aims at preventing the spread of nuclear weapons and weapons technology, and promoting cooperation in the peaceful uses of nuclear energy, thereby seeking to achieve complete nuclear disarmament.
For the verification and implementation of the principles contained in the NPT, a 'nuclear safeguards' system has been created, and the International Atomic Energy Agency (IAEA) has been assigned the role of the nuclear 'watchdog' for the NPT.
The IAEA has been established in 1957 to help nations develop nuclear energy for peaceful purposes, and control, after the signing of the NPT, the States' behavior in honoring their commitments under the treaty. It reports to both the United Nations General Assembly and the Security Council.

[1] The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was opened for signature in 1968, and entered into force in 1970. On 11 May 1995, the Treaty was extended indefinitely.

The IAEA defines nuclear safeguards as "*technical means used to verify that a State's nuclear activities are in conformity with the undertakings that the State has given about the nature and scope of these activities*" (IAEA 1998, p. 32).
The sources for such safeguards system are (Murakami 2012):
- IAEA Statute;
- Comprehensive State Agreements (CSAs);
- Additional Protocols.

The safeguards systems entails that the IAEA works as a "clearing house" that collects information given by States or requested, where admitted, at its own initiative, and it also undertakes inspections and safeguards activities (as verification mechanisms), in order to ensure that fissionable materials, services, equipment, facilities, and information are not used for military purposes. According to its Statute, the IAEA checks specialized equipment, inventories and facilities, requires the maintenance of records and asks for reports.
It can also send inspectors, who are designated in accordance with the State concerned. The inspections act as an alert system or early warning system or as a "burglar alarm" (Persbo 2012, 7), that is to say that the IAEA does not stop a behavior, but it tries to convince the violator to engage in diplomacy or calls upon for the exercise of force and interventions against the violator. All NPT non-weapons states must accept these full-scope safeguards. It is necessary that each State Party to the NPT concludes, within 18 months of the beginning of the negotiations for adhering to the NPT, a "comprehensive safeguards agreement" with the IAEA to facilitate verification by the Agency of the State's compliance with its treaty obligations. Under Comprehensive Safeguards Agreements (CSAs), the Agency has both the right and the obligation to verify the correctness and completeness of States' declarations, so that there is credible assurance of the non-diversion of nuclear material from declared activities. However, the IAEA does not verify compliance to Art. I or II or the NPT but only the compliance with the technical objective established in the CSAs.
There are three types of inspections:
- ad hoc inspections to verify the completeness of the State's initial report, and the nuclear material involved in international transfers;
- routine inspections[2] to verify the state of accounting reports and semi-annual statements of book inventories. i.e. to check that locations, identity, quantity and composition of safeguarded materials are consistent with these reports;
- special inspections in addition to the routine ones, after the State submitting a special report (which must be verified through special inspection), or when the IAEA considers that the information given by the State is not adequate, or there is the suspicion of undeclared activities. Usually this is the last resort before the issue is raised to the UNSC.

Since the IAEA could traditionally inspect only facilities that have been declared by States, at the end of 1993, the Agency embarked on a broad development programme (Programme 93+2) to further strengthen safeguards implementation under CSAs by enhancing the Agency's ability to consider a State as a whole, included undeclared activities. The Board affirmed that it was necessary to verify not only that State declarations of nuclear material subject to safeguards are 'correct' (i.e. they accurately describe the types and quantities of the State's declared nuclear material holdings), but that they are also 'complete' (i.e. that they include all material that should have been declared).
This process brought to the adoption, in 1997, of the Model Additional Protocol to Safeguards Agreements to supplement full-scope safeguards (Meier 2000). It serves as a basis for individual additional protocols to safeguards agreements.

[2] See paragraph 72 of INFCIRC/153.

On the basis of this Additional Protocol, the IAEA could receive more information on nuclear and nuclear-related activities, and nuclear-related imports and exports; IAEA inspectors could have a broader right of access to locations and to collection of samples; and the States could follow IAEA procedures. Indeed, the detection of undeclared nuclear material and activities in a State required different tools from those needed for the timely detection of the diversion of declared nuclear material, such as the evaluation of the State's entire nuclear fuel cycle capabilities (i.e. the State 'as a whole') in addition to individual facilities.

On the basis of Additional Protocol, a new category of inspection has been added: "complementary access".[3] In addition to locations associated with State declarations under an AP, the IAEA may also request complementary access to any location in the State.[4]

At the same time of the adoption of Model Additional Protocols, the revision of the existing safeguard system started, and it led to the enhancement of the Agency's evaluation of information from the States' declarations; the increase of unannounced inspections; the use of remote monitoring, and more power for IAEA's inspectors.

The integration between the additional measures to the existing safeguards and the additional protocols has brought to Integrated Safeguards system[5], adopted in 2002, with the purpose of easing the verification burden by using remote sensing devices and automated systems for data evaluation, and strengthening the effectiveness of the safeguard system. A "State-level concept (SLC)" was introduced[6], taking State-specific factors into account, and considering a State's nuclear and nuclear-related activities and capabilities as a whole, within the scope of the State's safeguards agreement[7]. Indeed, this Integrated System applies only to States where the IAEA has reached a conclusion on the whole of activities conducted within the State (declared and undeclared).

The States, thus, accept safeguards on all source or special fissionable material in all peaceful nuclear activities within its territory, under its jurisdiction or carried out under its control anywhere, for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices.[8] For its part, the IAEA has the corresponding right and obligation to ensure that safeguards are applied in accordance with the Agency's safeguards system.[9]

In general, the IAEA's inspectors, who determine whether there is compliance with the CSA by the State, are part of the Secretariat, which is the technical body of the agency. The Secretariat reports the non-compliance to the Director General, who has to transmit to the Board of Governors all non-compliance reports.

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[3] INFCIRC/540, Article 5.

[4] INFCIRC/540, Article 4.

[5] IAEA, Board of Governors, The conceptual framework for integrated safeguards, Report by the Director General GOV/2002/8, 2002.

[6] This model was introduced by the IAEA Board of Governors in the Safeguards Implementation Report (SIR) in 2004.

[7] It should be noted that on 12 August 2013, the IAEA's Director General submitted to the Board of Governors a report entitled "The Conceptualization and Development of Safeguards Implementation at the State Level" (GOV/2013/38). After a consultation process, the "Supplementary Document to the Report on The Conceptualization and Development of Safeguards Implementation at the State Level" of 13 August 2014, GOV/2014/41 has been released. The latter specifies that the safeguards agreement and, where applicable, the Additional Protocol concluded between the Agency and a State govern the safeguards implementation by the Agency for that State. It can be read: "*The implementation does not entail the introduction of any additional rights or obligations on the part of either States or the Agency, nor any modification in the interpretation of existing rights and obligations under safeguards agreements and, where applicable, APs*." (p 13).

[8] Paragraph 1, INFCIRC/153/Corr.

[9] IAEA: Guidance for States Implementing Comprehensive Safeguards Agreements and Additional Protocols, (IAEA Services Series 21), pp. 1-2.

The IAEA Board of Governors, which is a political body, must decide if the safeguards breaches and failures reported by the Secretariat constitute non-compliance under the statute and, if so, when they must be reported to the UN Security Council (whose role is defined by Chapter 7 of the UN Charter). The Board usually calls upon the State to intervene and, when there is no remedy for non-compliance, it reports to UNSC (art. XII IAEA Statute).

2. REGIONAL LAW: SAFEGUARDS SYSTEMS WITHIN THE NUCLEAR-WEAPON-FREE-ZONE TREATIES (NWFZs)

Additional or complementary to IAEA safeguards, there are the safeguards provided by regional nuclear weapons free-zone treaties (NWFZ). NWFZ treaties constitute a regional system for the establishment of norms of nonproliferation in certain areas.

The bilateral or multilateral agreements that create Nuclear Free Weapons Zones (NWFZ treaties) are the following: Tlatelolco,[10] Raratonga,[11] Semipalatinsk,[12] Bangkok[13], and Pelindaba Treaty.[14]

These treaties find their legal basis in Article VII of NTP, which states: "*Nothing in this Treaty affects the right of any group of States to conclude regional treaties in order to assure the total absence of nuclear weapons in their respective territories*".

The UN General Assembly has defined a Nuclear-Weapon-Free Zone as *"...any zone recognized as such by the General Assembly of the United Nations, which any group of States, in the free exercises of their sovereignty, has established by virtue of a treaty or convention whereby: (a) The statute of total absence of nuclear weapons to which the zone shall be subject, including the procedure for the delimitation of the zone, is defined; (b) An international system of verification and control is established to guarantee compliance with the obligations deriving from that statute*"[15].

NWFZ treaties both contain norms about verification, relying primarily on IAEA Safeguards, and almost all of them create specific regional authorities to complement the IAEA (except Semipalatinsk Treaty).

For instance: (a) the Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL) works for the implementation of Tlatelolco Treaty, (b) the African Commission on Nuclear Energy relates to Pelindaba Treaty (it can request a special inspection to the IAEA, and send some members of its team to be part of the group of inspectors), (c) a Consultative Committee of the Parties is appointed in the context of Raratonga Treaty, in order to appoint a team for conducting a special inspection, or conduct

[10] The Treaty of Tlatelolco is the conventional name given to the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean. It was adopted on 14February 1967 and entered into force on 22 April 1968.

[11] The Treaty of Rarotonga is the common name for the South Pacific Nuclear Free Zone Treaty. It was adopted on 6 August 1985.

[12] The Treaty of Semipalatinsk, or Treaty of Semey is the common name for the Treaty on the Central Asian Nuclear-Weapon-Free Zone. It was signed on 8 September 2006 and entered into force on 21 March 2009.

[13] The Treaty of Bankok is the common name for the Treaty on the Southeast Asia Nuclear-Weapon-Free Zone. It was adopted on 15 December 1995 and entered into force on 27 March 1997.

[14] The Treaty of Pelindaba is the common name for the African Nuclear-Weapon-Free Zone Treaty. It was adopted on 11 April 1996, but is not entered into force yet.

[15] Resolution 3472 B (1975). It could be noted that through Resolution adopted by the General Assembly on 3 December 2012 A/RES/67/28, a nuclear-weapon-free zone in the region of the Middle East has been established. (67th Session). Moreover, Mongolia's self-declared nuclear-weapon-free status has been recognized by UN General Assembly Resolution 55/33S.

its own inspections, and (d) a Commission for the Southeast Asia Nuclear-weapons-free Zone for the implementation of Bangkok Treaty.

2.7.1 TLATELOLCO TREATY AND OPANAL

The Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL) is an intergovernmental agency created to ensure that the obligations under Tlatelolco treaty are respected. It convokes periodic meetings and supervises the respect of the Control System.
There are three bodies within OPANAL:
- the General Conference which establishes the procedures for ensuring the adherence to the Control System; elects the main bodies; establishing agreements, and approving the budget;
- the Council which meets regularly, and aims at guaranteeing the working of the Control System, according to the General Conference's decisions; and
- the Secretariat, which is the chief administrative office of the Agency.

OPANAL recognizes the IAEA as the only Agency capable of carrying on inspections and responsible for the application of the Control System. In case of non compliance, the IAEA refers to the UNSC.

2.7.2 PELINDABA TREATY AND AFRICAN COMMISSION ON NUCLEAR ENERGY

The African Commission on Nuclear Energy (AFCONE), established within the framework of the Pelindaba Treaty (art. 12), started working in 2011.
Its mission consists of monitoring the compliance by the State Parties with their non-proliferation obligations (AFCONE is a compliance mechanism); ensuring nuclear and radiation safety and security; increasing partnership and technical cooperation; and promoting peaceful use of nuclear science and technology in various fields (also through regional and sub-regional programmes for cooperation), including health, agriculture, industry and energy.
There is a Secretariat, headed by an Executive Secretary, who is in charge of the day-to-day activities of the Commission.
AFCONE is financed by States Parties assessed contributions, as well as grants from international partners.

2.7.3 RARATONGA TREATY AND CONSULTATIVE COMMITTEE OF THE PARTIES

The Treaty on the South Pacific Nuclear-Weapon-Free Zone (SPNWFZ) prohibits the testing, manufacturing, acquiring, and stationing of nuclear explosive devices on any member's territory. The treaty requires all parties to apply International Atomic Energy Agency safeguards to all their peaceful nuclear activities States should provide reports and exchanging information applying IAEA safeguards.
Protocol I calls on each Party with respect to the territories situated within the SPNFZ for which it is internationally responsible, to apply the prohibitions of the Treaty. Protocol II calls on the NWS not to use or threaten to use nuclear explosive devices against any Party to the Treaty or against each other's territories located within the zone.
Protocol III calls on the NWS not to test nuclear explosive devices within the zone established by the Treaty.
The Director of South Pacific Bureau of Economic Co-operation (SPEC) receives from any Party reports concerning the security of the Treaty. He also calls for a meeting of the Consultative Committee to discuss an issue, if a State requests so because it cannot reach the conclusion as regards the non compliance of another State.

The Consultative Committee will be composed of one representative from each Party. The Committee is informed for cases of non compliance and it can also conduct special inspections though a three-member team.
The inspectors will report their findings and conclusions to the Consultative Committee, which will in turn report to the South Pacific Forum. If Consultative Committee feels that one Party is violating the Treaty, this Party and the complainant will meet at the South Pacific Forum.

2.7.4 BANGKOK TREATY AND COMMISSION FOR THE SOUTHEAST ASIA NWFZ

The Treaty on the Southeast Asian Nuclear-Weapon-Free-Zone prohibits the development, manufacture, acquisition, or testing of nuclear weapons anywhere within the region. It also prohibits the transport of nuclear weapons through the region, as well as the dumping at sea, discharging into the atmosphere, or burying on land of any radioactive material or waste.
The treaty requires all parties to apply International Atomic Energy Agency safeguards to all their peaceful nuclear activities.
State Parties can make visits over transport means carrying nuclear items for verification purposes.
Moreover, the Treaty has established a Commission for the Southeast Asia Nuclear-weapons-free Zone to oversee the implementation of this treaty and ensure compliance with its provisions. The treaty also gives each State Party the right to ask another State Party for clarification in case of doubt.
Only after a State has unsuccessfully taken all steps necessary to bring itself into full compliance with the treaty, the commission shall decide on any measure it deems appropriate to cope with the situation, including the submission of the matter to the IAEA and, where the situation might endanger international peace and security, the Security Council and the General Assembly of the United Nations.
The Bangkok Treaty does not have any designated Secretariat, given the informal style of ASEAN, but the Commission at the level of Foreign Ministers and the working group of Senior Officials will work to promote the full implementation of the zone.

2.7.5 SEMIPALATINSK TREATY

The Treaty on a Nuclear-Weapon-Free Zone in Central Asia (CANWFZ) provides that Central Asian states undertake not to research, develop, manufacture, stockpile, acquire, possess, or have any control over any nuclear weapon or other nuclear explosive device, not to seek or receive assistance in any of the above, or assist in or encourage such actions. It affirms that each Party undertakes to use for exclusively peaceful purposes the nuclear material and facilities within its territory, and has to conclude with the IAEA and bring into force an agreement in order to apply IAEA Safeguards (art. 8). The review of compliance with the Treaty is done through annual Consultative Meetings (art. 10). Therefore, the safeguard system is entirely assigned to the IAEA. This Treaty does not provide for the establishment of an organization/commission to oversee implementation and compliance/verification.

3. DENUCLEARIZATION TREATIES

At the international regional law level, there are other treaties dealing with denuclearization of certain areas: the Limited Test Ban Treaty,[16] the Seabed Treaty,[17] Antarctic Treaty,[18] Outer Space Treaty[19], and Moon Agreement.[20]

3.1. THE LIMITED TEST BAN TREATY

This Treaty requires Parties to prohibit, prevent, and abstain from carrying out nuclear weapons tests or any other nuclear explosions in the atmosphere, in outer space, under water, or in any other environment; to refrain from causing, encouraging, or in any way participating in the carrying out of any nuclear weapon test explosion. It does not contain any verification method. However, it makes reference in its art. II to the meeting of the Parties for modifying the treaty or decide amendments. It could be thought that a similar meeting is gathered for verification purposes; yet, there is nothing explicit about it. Furthermore, it is understood that each party may ensure verification though its technical means.

3.2 THE SEABED TREATY

The Seabed Treaty is a multilateral agreement between the United States, Russia, the UK and 91 other countries, which is aimed at banning the emplacement of nuclear weapons on the ocean floor beyond a 12-mile (22.2 km) coastal zone.
It contains a verification mechanism in its Article III, where it is provided that "each State Party to the Treaty shall have the right to verify through observations the activities of other States Parties" as for the respect of the 12-mile coastal zone.
If there is a doubt about a State's activities, it shall be consulted, and if needed, appropriate procedures for verification, including inspection of objects, structures, installations or other facilities shall be provided between States in cooperation at the end of the procedures, a verification report is enacted.
If the State responsible for the activities giving rise to doubts is not identifiable, inquiries can be conducted among the States.
If doubts remain, the issue can be brought to the Security Council, which may take action in accordance with the UN Charter.

3.3 ANTARTIC TREATY

The Antarctic Treaty provides that Antarctica shall be used for peaceful purposes only (Art. I). Military activity, such as weapons testing, is prohibited but military personnel and equipment may be used for scientific research or any other peaceful purpose. None can claim territorial sovereignty in Antarctica (art. IV).

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[16] The Limited Test Ban Treaty was adopted on 5 August 1963 and entered into force on 10 October 1963.
[17] The Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and Ocean Floor and in the Subsoil Thereof (Seabed Treaty) was adopted on 11 February 1971 and entered into force on 18 May 1972.
[18] Antarctic Treaty was signed on 1 December 1959, and entered into force on 23 June 1961.
[19] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies was opened for signature on 27 January 1967, and entered into force: 10 October 1967
[20] Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. Opened for signature at New York: 18 December 1979, and entered into force: 11 July 1984.

In order to promote the objectives and ensure the observance of the provisions of the Treaty, each Party has the right to designate national observers that carry out inspections. The access is guaranteed at any time and in any location of Antarctica (art. VII). Moreover, each Party shall give notice in advance of all expeditions, stations, military personnel and equipment sent to Antarctica.
Representatives of the Contracting Parties shall meet regularly for providing governments with measures that aim at the facilitation of the exercise of the rights of inspection (art. IX).

3.4 OUTER SPACE TREATY

This treaty forms the basis of international space law.
It states that the Parties are prevented from placing weapons of mass destruction in orbit of Earth, installing them on the Moon or any other celestial body, or to otherwise station them in outer space. It exclusively limits the use of the Moon and other celestial bodies to peaceful purposes (art. IV). However, conventional weapons are not prohibited in orbit.
Moreover, outer space is not subject to claims of sovereignty (art. II), as it has to be considered as the common heritage of mankind.
On the basis of Art. XII, "all stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity". In the hypothesis of visit, the States shall give notice of the visit and provide precautions for safety reasons. No other provisions are given.

3.5 MOON AGREEMENT

This agreement ensures that the jurisdiction of all celestial bodies is placed upon the international community, as it is common heritage of mankind (art. 11).
The Moon should be used for the benefit of all state, and no military bases can be located nor weapon testing can be conducted upon it. The use of force or hostile action is prohibited.
All the activities should be notified to the Secretary General, and resources should be available to the whole international community. Each State Party may assure itself that the activities of other States Parties in the exploration and use of the Moon are compatible with the provisions of this Agreement. Therefore, space vehicles, equipment, facilities, stations, and installations on the Moon shall be open to other States Parties. Notice of visit should be given to States as well.
In case of non compliance, a State can require consultations by the other State and seek a mutually acceptable resolution of any controversy. The UN Secretary-General shall be informed of the results of the consultations (art. 14 and 15).

4. OTHER REGIONAL BODIES

Other two regional safeguards systems are the ones of Euratom (European Atomic Energy Community, as distinct from the EU) and ABACC, the Brazilian-Argentine Agency for Accounting for and Control of Nuclear Materials.

4.1 EURATOM

Euratom safeguards pre-date the NPT, and were established under the Euratom treaty in 1957. They are aimed at ensuring that nuclear materials were not diverted from their declared

peaceful use (Kilb 2013). The Euratom Treaty only applies to the civil use of nuclear power: military use is excluded from its scope.
It does not contain a non-proliferation norm, but insists on transparency: it states that if a State intends to use materials for military purpose, it has to declare it clearly.
In its chapter 7, entitled "Safeguards", it is affirmed that the Commission sends inspectors to nuclear operators working in the Member States with a supervision purpose, and it can also issue some sanctions upon them that are, in order of importance: a warning, the withdrawal of financial benefits, the total or partial withdrawal of source materials or special special fissile meterials (art. 83). Therefore, the Commission has a direct power towards operators. Inspections are less than within IAEA and there is not a separate Euratom safeguards organizations, as it is up to the EU Commission to conduct them. If there is opposition to the inspection, the President of the EU Court of Justice (ECJ) has three days for deciding on the issue and ordering the compulsory inspection (art. 81).
The Commission may give directives to States as well, and if the State does not comply, the matter is referred to the ECJ (art. 82), which can also impose a fine or penalty payment for the violation of norms.
The nuclear operators have to declare their installations (art. 78) and keep the records of their activities (art. 79)[21].
Euratom has signed international agreements with the IAEA and Member States, as well as with third countries (NNWS and NWS).
As for the relationship with the IAEA, it is provided that, in order not to duplicate work, the IAEA will make full use of Euratom safeguards, i.e. by receiving information, by carrying out common inspections, etc.

4.2 THE ABAAC

The ABACC has been established under the Bilateral Agreement between Brazil and Argentina covering the Exclusively Peaceful Use of Nuclear Energy[22] (Marzo 2004). The ABACC has to administer and apply the Common System for Accounting and Control of Nuclear Materials (SCCC) to all nuclear materials in the activities of Brazil and Argentina, ensuring that materials are used for a peaceful purpose, and prohibiting and preventing the promotion or authorization of testing, use, manufacture, production or acquisition of nuclear weapons, and storage, receipt, installation, deployment or possession of nuclear weapons. The SCCC is a set of procedures to detect whether the nuclear materials in all their activities have been diverted to uses not authorized.
Grounded on the Bilateral Agreement, in 1994 Brazil, Argentina, the ABACC and the IAEA signed a Quadripartite Agreement, and then in 1995 Argentina joined the NPT, while Brazil did it in 1998.
Such Quadripartite Agreement[23] stated that the ABAAC and the IAEA shall conduct independent but also mutual and joint inspections, and cooperate in the safeguards purposes. IAEA has been authorised to apply full safeguards in Argentina and Brazil. If a country is found to be in non compliance, the IAEA refers the case to the UNSC.
The IAEA verifies the SCCC and the ABACC maintains a panel of inspectors sent from national authorities.
Brazil and Argentina send their own reports to ABAAC.
The ABAAC conducts four types of inspections:

[21] Regulation (EURATOM) 302/2005 specifies the duties upon nuclear operators towards the Commission. The Commission can enact Particular Safeguards Provisions for the single operator.
[22] INFCIRC/395. IAEA, Vienna. November 1991.
[23] INFCIRC/435. IAEA, March 1994.

- visits, which verify the information on the facility design;
- routine inspection, which verify conformity between the reports and records;
- ad hoc inspections, which verify the information contained in the initial report;
- special inspections for the verification of the information contained in special reports (when information obtained in routine inspections are not sufficient or suspected).

Inspections are usually performed in a cross national basis: Argentina sends inspectors to Brazil, and vice versa. The list of inspectors is approved by the ABAAC Commission.

ABAAC inspectors can audit documents, identify items, measure nuclear material, and obtain samples of materials. ABAAC sends the final report, after each inspection, to the national authority of the country.

ABAAC is composed of: (a) a Commission for the monitoring of the functioning of the SCCC, and supervising the Secretariat; (b) the Secretariat (Secretary and Deputy Secretary), having the role to implement directives and instructions given by the Commission, and perform necessary activities for the implementation of the SCCC; to designate the inspectors, and receive their reports, to inform the Commission immediately of any discrepancy in the records of either of the Parties which emerges from the evaluation of the inspections results.

CONCLUSIONS.

The IAEA is the central system of safeguards at international level, it has been implemented through the years, and the fact that the cases of known non compliance have been only a few demonstrates that the system is effective. Along with IAEA, regional systems are equally important to implement IAEA's activities. If there is cooperation between regional bodies and the IAEA, the security can be enforced, provided that there are no useless duplications between the IAEA and regional bodies, and there is a mutual relationship (Carlson 2011).

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