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**Nuclear Disarmament and Nonproliferation –  
The Future of the NPT**

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**The Future of the NPT:  
Should It be Enhanced, Changed or Replaced?**

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**1. Introduction**

Should the Nuclear Non-Proliferation Treaty (NPT) be enhanced, changed or replaced? My short answer is that **it should neither be changed nor replaced, but rather fully implemented and enforced.** Although this paper will focus on IAEA safeguards related to Article III of the NPT, it is important that all its articles are fully respected, in particular Article IV dealing with the development of nuclear energy for peaceful purposes, and Article VI concerning nuclear disarmament.

As IAEA Director General Mohamed ElBaradei put it last September, “states should expand and strengthen the Agency’s verification mandate. Robust verification and transparency are a prerequisite for nuclear disarmament and other arms control measures.”<sup>2</sup> Such a verification system will only be effective if:

- The International Atomic Energy Agency (IAEA) Secretariat can promptly detect undeclared nuclear material and activities;
- Cases of non-compliance with safeguards agreements are duly reported by the IAEA Secretariat to the Board of Governors and by the latter to the UN Security Council (UNSC);
- The UNSC acts effectively and without delay when a non-compliant state fails to fully and proactively cooperate with the IAEA and to take the corrective actions required by the Board.

We know from experience that measures must urgently be adopted to improve these three steps. This can be done to a large extent without modifying the NPT or existing safeguards agreements. As we shall see, one main challenge is making the three steps as immune as possible from commercial and extraneous political considerations.

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<sup>2</sup> “Looking to the Future,” Statement by Mohamed ElBaradei, IAEA General Conference, September 14, 2009, <http://www.iaea.org/NewsCenter/Statements/2009/ebsp2009n011.html>

## **2. Detecting Undeclared Nuclear Material and Activities**

We will consider here the following points: the necessity for states to have an Additional Protocol in force and to provide early design information; the merits of special inspections when requests for voluntary access are denied; and the need for IAEA member states to systematically provide relevant information to the Secretariat.

### **The Additional Protocol**

As has been made abundantly clear on many occasions by the IAEA Director General, “*without the measures provided for in the Model Additional Protocol<sup>3</sup> being implemented, the Agency is not able to provide credible assurance of the absence of undeclared nuclear material and activities for the State as a whole.*”<sup>4</sup>

Over the last ten years, the IAEA General Conference has adopted resolutions requesting “*all concerned States and all Parties to safeguards agreements which have not yet done so to sign additional protocol promptly,*” and since September 2004 added the request “*to bring them into force as soon as possible, in conformity with their national legislation.*”<sup>5</sup>

As of August 2009, six non-nuclear-weapon states (NNWSs) with significant nuclear activities have not yet signed the Additional Protocol (AP): Algeria, Argentina, Brazil, Egypt, Syria, and Venezuela.<sup>6</sup> Of these states, only Brazil and Argentina are operating sensitive fuel cycle facilities, in particular uranium enrichment plants. It is generally understood that Argentina is ready to sign the AP as soon as Brazil would accede to the protocol, but for obvious reasons (including the difficulty it could pose to ABACC, the Brazilian-Argentine Agency of Nuclear Materials Accounting and Control) Argentina does not wish to sign it alone.

It therefore seems particularly relevant, in the framework of this Conference here in Rio, to try to understand why Brazil has so far refused to sign (and ratify) the AP, and to expose why this policy is weakening the global nonproliferation regime.

Although Brazil undertook nuclear weapons research in the 1980s, since the early 1990s Brazil has unequivocally committed itself to the peaceful development of nuclear energy. It has signed the Quadripartite Agreement with Argentina, the IAEA, and ABACC in December 1991; brought into force the Treaty of Tlatelolco on May 30, 1993; joined the Nuclear Suppliers Group (NSG) in April 1996; and signed and ratified both the NPT<sup>7</sup> and the Comprehensive Test Ban Treaty (CTBT) in 1998.

Speaking of the NSG, it is remarkable that, of its 45 members, Brazil is reportedly the only state opposed to new export guidelines that require recipient states to ratify an AP to their safeguards agreement with the IAEA for the export of any sensitive nuclear equipment,

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<sup>3</sup> IAEA INFCIRC/540 (Corrected).

<sup>4</sup> See the Safeguards Implementation Report for 2008, § 19 GOV/2009/24.

<sup>5</sup> IAEA GC (48)/RES/14, September 24, 2004.

<sup>6</sup> Ten NNWSs with significant nuclear activities have signed but not ratified the AP: Belarus, Colombia, Iran, Iraq, Malaysia, Mexico, Morocco, the Philippines, Thailand, and Vietnam. In addition, four non-NPT states have not concluded an AP: India, Israel, Pakistan, and the DPRK.

<sup>7</sup> Three years after Argentina.

technology and material.<sup>8</sup> Brazil's intransigent position on the AP weakens the nonproliferation regime as a whole because the IAEA is not able to provide credible assurance of the absence of undeclared nuclear material and activities in states without an AP in force. At the same time, Brazil indirectly supports Iran (the only other NNWS operating a centrifuge enrichment plant without having ratified the AP), which has been found to be in non-compliance with its safeguards agreement and refuses to comply with both IAEA Board and UNSC resolutions requiring, in particular, that Iran implement the AP.

No one is disputing Brazil's right to develop its peaceful nuclear program, including fuel cycle activities, or its right to construct a nuclear propulsion submarine<sup>9</sup> subject to appropriate safeguards agreements with the IAEA.

So, is Brazil resisting the conclusion of an AP for technical or political reasons, or both?

### Technical Reasons

1. In April 2004 it was reported that Brazil refused to allow IAEA inspectors full access to the newly developed Resende enrichment facility, citing the need to protect proprietary technical information.<sup>10</sup> Although it appears that "by the end of November 2004, Brasilia reached a compromise agreement with the IAEA,"<sup>11</sup> it is not clear whether this "compromise" is totally satisfying IAEA requirements, nor whether it has been fully implemented. It is also not clear if IAEA inspectors have the necessary access to the cascades of the small Aramar enrichment plant operated by the Brazilian Navy. Could it be that Brazil refuses to ratify the AP in order to protect commercial secrets as has often been claimed? Normally all the sensitive parts of a centrifuge are hidden inside its casing. It is difficult to understand what makes Brazil's centrifuge enrichment facilities so different from similar plants developed and operated in Japan, Germany and the Netherlands which have ratified the AP and placed all their nuclear facilities under IAEA safeguards.

Article 7 of the AP is very clear about the rights of states to request "managed access" arrangements to, inter alia, protect proprietary or commercially sensitive information. To my knowledge, IAEA inspectors have never leaked proprietary technical information about centrifuges or other items.

It has also been speculated that Brazil might reject the AP out of fear that the IAEA could find potentially embarrassing similarities of its centrifuges with early European designs. In my opinion, this is not persuasive because Brazilian safeguards experts know full well that the IAEA Secretariat would have no reason to release such information.<sup>12</sup>

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<sup>8</sup> Mark Hibbs, "Concerns about AP Block NSG Consensus on Trade Rules," *NuclearFuel*, January 26, 2009. I have been told that South Africa may have also raised objections to such export conditions, a reversal from its previous position.

<sup>9</sup> Some experts have questioned the need (not the right) to develop such a nuclear submarine but France is clearly helping Brazil in achieving that goal as indicated in "Brazil and France Sign Big Arms Deal," *Latin American Herald Tribune*, September 8, 2009, <http://www.laht.com/article.asp?ArticleId=343225&CategoryId=14090>

<sup>10</sup> Peter Slevin, "Brazil Shielding Uranium Facility," *The Washington Post*, April 4, 2004, A01.

<sup>11</sup> Joseph Cirincione, Jon Wolfsthal, and Miriam Rajkumar, *Deadly Arsenals: Nuclear, Biological, and Chemical Threats*, Second Edition (Washington, DC: Carnegie Endowment for International Peace, 2005), p. 399.

<sup>12</sup> Such information could be necessary to properly inform the IAEA Board of Governors only in the unlikely event Brazil would deliberately violate its safeguards obligations and does not cooperate with the Agency.

2. Could it be that Brazil refuses to ratify the AP out of fear that the Agency might find and release confidential information related to possible nuclear weapons development undertaken before Brazil joined the NPT in 1998? One has to recall that this has not proven to be a problem in the case of South Africa, which manufactured nuclear weapons before joining the NPT in 1991. Nor has it been a problem in the case of Canada, which participated in the Manhattan Project during World War II. The Agency is only interested in confirming that there are **presently** no undeclared nuclear material and activities in Brazil. Full transparency and proactive cooperation with the Agency is what is required to quickly reach such a conclusion once the AP is in force.

### Political Reasons

1. Brazil has expressed its frustration for what it perceives as an imbalanced implementation of the three pillars of the NPT: nuclear disarmament, nonproliferation, and the peaceful use of nuclear energy. In his written remarks addressed to the participants of the Carnegie International Nonproliferation Conference in April 2009,<sup>13</sup> Foreign Minister Celso Amorim made clear Brazil's frustration that "great emphasis was given to nonproliferation. But nuclear disarmament has received little attention." In all fairness, one has to acknowledge that under President Obama the situation is improving. Moreover, when Brazil was the last major state to ratify the NPT in 1998 it was fully aware of its inherent imbalance.<sup>14</sup> I fully agree with Minister Amorim that "it is urgent that the CTBT enter into force,"<sup>15</sup> but I doubt that Brazil's refusal to conclude the AP is the best way to achieve the necessary progress in nuclear disarmament. On the contrary, I think that Brazil, as any other great power, should lead the world by example, rather than by holding the nonproliferation regime hostage.
2. Brazil rightfully insists that nuclear disarmament is a priority and has been critical of the double standard between nuclear "haves" and "have-nots." It is therefore very unfortunate and largely inconsistent with its stated priorities that Brazil voted (caving in to U.S. pressure as so many other states did) for the NSG "Indian exception" which required the unanimity of NSG members. By curbing its rules for satisfying what the U.S. has unilaterally defined as the "special case" of India, the NSG has granted India all the benefits (and more) that are specifically granted, under Article IV of the NPT, to NNWSs which are parties to the Treaty, without requesting from India any commensurate counterbalancing disarmament commitment (such as ratifying the CTBT), not even those required from nuclear-weapon states (NWSs) under the NPT.

It is hard to believe that Brazil, as a most responsible state, could now possibly use the NSG Indian exception as an excuse for not concluding an AP with the IAEA. This position would provide states such as Iran (found to be in "violation of its safeguards

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<sup>13</sup> Celso Amorim, "Menaces and Promises-Nuclear Weapons, Nuclear Disarmament and the Peaceful Uses of Nuclear Energy," attached to a letter addressed to Jessica Matthews, President of Carnegie Endowment for International Peace.

<sup>14</sup> At that time Brazil was also well aware that the IAEA Board of Governors had approved the Model Protocol Additional (INFCIRC/540 corrected).

<sup>15</sup> As I made abundantly clear in my testimony before the U.S. House of Representatives in June 2007. See "International Perspectives on Strengthening the Nonproliferation Regime," June 27, 2007, <http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=20186&prog=zgp&proj=znpp> and, "Saving the NPT and the Nonproliferation Regime in an Era of Nuclear Renaissance," July, 25, 2008, <http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=20321&prog=zgp&proj=znpp>

agreement”<sup>16</sup>) and Syria (which “severely impeded” Agency’s verification activities by “not providing sufficient access to information, locations, equipment or materials”<sup>17</sup>) with a pretext for not implementing the AP, thereby further eroding the effectiveness of the nonproliferation regime.

The above discussion shows how useful it would be for Brazil to clearly explain what benefit it gains from not concluding the AP and from blocking the NSG from making the AP an export condition for sensitive nuclear fuel cycle-related activities.

### **Special Inspection**

The IAEA has the legal authority, under Comprehensive Safeguards Agreements (CSA), “to conduct special inspections insofar as these relate to the verification of the existence or non-existence of undeclared activities.”<sup>18</sup>

As colleagues and I have recently noted, “Special inspections ought to be a key element of the IAEA’s verification regime but they are not. According to public records, this provision has only been invoked in two cases. In 1992 Romania actually asked to be inspected to build confidence that it had abandoned the Ceausescu regime’s nuclear weapons programme. A year later, the IAEA asked for a special inspection in North Korea. North Korea refused, touching off a crisis that left the IAEA hesitant to ask for this access elsewhere—including in additional cases in which it was certainly deserved.”<sup>19</sup>

In November 2008 the IAEA reported<sup>20</sup> that Syria had denied the Agency access to three locations, as well as to relevant documentation and information. This noncooperation prevented the Agency from fulfilling its verification responsibilities, including the determination of the origin of manmade uranium particles found at the Dair Alzour site bombed by Israel in September 2007. The report further raised suspicion of large-scale concealment activities based on analysis of satellite imagery.

In its February, June and August 2009 reports,<sup>21</sup> the IAEA complained that Syria continues to deny access required by the Agency. It indicated no progress in determining whether the building destroyed by the Israeli raid was a nuclear facility under construction. The origin of the manmade uranium particles also remains in question.

“Syria is the textbook definition of a case in which a special inspection is merited. If the IAEA fails to ask for one<sup>22</sup>, it will hand future states suspected of non-compliance an extraordinarily powerful precedent to use in opposing a special inspection request. IAEA officials regularly complain about their lack of legal authority—and rightly so. But, in this

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<sup>16</sup> “Looking to the Future,” Statement by Mohamed ElBaradei, IAEA General Conference, September 14, 2009, <http://www.iaea.org/NewsCenter/Statements/2009/ebsp2009n011.html>

<sup>17</sup> IAEA GOV/2009/56 § 4.

<sup>18</sup> IAEA, “Strengthening of Agency Safeguards: Special Inspections,” November 12, 1991, GOV/2554 Attachment 1, para. 4.

<sup>19</sup> James M. Acton, Mark Fitzpatrick, and Pierre Goldschmidt, “The IAEA Should Call for a Special Inspection in Syria,” Carnegie Proliferation Analysis, February 26, 2009,

<http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=22791&prog=zgp&proj=znpp>

<sup>20</sup> IAEA GOV/2008/60, <http://www.carnegieendowment.org/static/npp/reports/gov2008-60.pdf>.

<sup>21</sup> IAEA GOV/2009/9, GOV/2009/36 and GOV/2009/56.

<http://www.carnegieendowment.org/npp/publications/index.cfm?fa=view&id=22428&prog=zgp&proj=zme.znpp>

<sup>22</sup> The longer a special inspection request is delayed the more ineffective it becomes since it provides Syria more time to take possible deception measures.

instance, they will have only themselves to blame if they let the authority that they do have atrophy.”<sup>23</sup>

### **Provision of “Helpful” Information**

In order to promptly uncover undeclared nuclear activities, it is necessary for the IAEA Secretariat to be fully and systematically informed about international transfers of nuclear material and equipment as well as illicit procurement attempts.

Therefore, as recommended by the Secretariat, the Board of Governors should “*request all States to provide to the Agency relevant information on exports of specified equipment and non-nuclear material, procurement enquiries, export denials, and relevant information from commercial suppliers in order to improve the Agency’s ability to detect possible undeclared nuclear activities.*”<sup>24</sup>

For the same reason, the Board should also request all member states to provide, on a quarterly basis, information regarding each *import* of specified equipment and non-nuclear material listed in Annex II of the AP. Providing such information is presently not obligatory and, even under the terms of the AP, requires a specific request from the Agency to a particular state.

The Board should approve and publish a list of information that member states are expected to communicate to the Agency in accordance with Article VIII.A of the IAEA Statute which states that “*Each member should make available such information as would, in the judgment of the member, be helpful to the Agency.*”

In the meantime, and as a first step, the IAEA Director General should issue an Information Circular to all member states drawing their attention to the fact that providing such information is most valuable for the Agency to fulfill its mandate and that the Secretariat expects all member states to do so on a quarterly basis.

### **Small Quantities Protocols**

In May 2005 the Director General brought to the Board’s attention<sup>25</sup> shortcomings in the Agency’s ability to provide safeguards assurances in states with “small quantities protocols” (SQPs), which have the effect of holding in abeyance the implementation of most of the safeguards measures provided for in Part II of Comprehensive Safeguards Agreements.<sup>26</sup>

It stresses that even “*APs do not provide for the right of the Agency to verify, if needed, that a State qualifies, or continues to qualify, for an SQP.*”

Therefore, in September 2005, the Board decided that, in order to enable the timely conclusion of the Subsidiary Arrangements provided for in Article 38 of the safeguards agreement, all states having an SQP in force “*shall notify to the Agency as soon as the decision to construct or authorize construction of a facility has been taken.*”

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<sup>23</sup> See footnote 18.

<sup>24</sup> IAEA Secretariat’s Note 45, August 2006.

<sup>25</sup> IAEA GOV/2005/33.

<sup>26</sup> INFCIRC/153 (corrected).

The Director General should include in the Information Circular mentioned above, a request, under Article VIII. A of the Statute, that any member state concluding a nuclear cooperation or delivery agreement with a SQP state, immediately inform the IAEA Secretariat of its content and nature.

### **Early Design Information**

A little noticed but most important provision of Comprehensive Safeguards Agreements is the obligation for the state to provide the IAEA with early design information on all existing and new nuclear facilities, as specified in the “Subsidiary Arrangements.”

The 1976 version of the Subsidiary Arrangements General Part “Code 3.1” stipulated that states should provide the Agency with a completed Design Information Questionnaire for new facilities “*no later than 180 days before the facility is scheduled to receive nuclear material for the first time.*” After the discovery of Iraq’s undeclared nuclear program in 1991, this language was revised and instead recommended that states submit completed questionnaires for new facilities “*based on preliminary construction plans as early as possible, and...not later than 180 days prior to the start of construction.*”

In February 2003, Iran became the last state with significant nuclear activities to adopt the revised version of Code 3.1 through an exchange of letters with the IAEA, which is standard procedure. However, in March 2007 Iran informed the Agency that it had “suspended” the implementation of the new Code 3.1 and reverted to the 1976 version. The Agency immediately asked Iran to reconsider its decision, explaining that “*In accordance with Article 39 of Iran’s Safeguards Agreement, agreed Subsidiary Arrangements cannot be modified unilaterally.*”<sup>27</sup>

Since then, the Director General has reported four times, since December 2007, that Iran has refused to provide the Agency with the requested preliminary design information for the nuclear power plant Iran is to build in Darkhovin.

To make things worse, contrary to Article 48 of its safeguards agreement, between October 2008 and August 2009 Iran refused to allow the Agency to carry out the scheduled Design Information Verification (DIV) at the heavy water research reactor (IR-40) under construction in Arak.<sup>28</sup> The Agency has made very clear that its “*right to carry out DIV is a continuing right*”<sup>29</sup>

The obligation to provide design information as specified in the Subsidiary Arrangements General Part is an integral part of CSAs. Iran’s unilateral decision to suspend its implementation constitutes a breach of its safeguards agreement. One has to realize that without the obligation to provide early design information, Iran could construct an undeclared enrichment facility (as it recently did again near Qom) and hot cells suitable for reprocessing activities without having to inform the Agency more than six months before nuclear material is introduced in the facility. Six months is not enough time for the IAEA to design and implement an effective safeguards approach on any kind of facility—let alone such sensitive ones.

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<sup>27</sup> IAEA GOV/2007/22, para.14, <http://www.iaea.org/Publications/Documents/Board/2007/gov2007-22.pdf>

<sup>28</sup> The Director General reported on August 28, 2009, that Iran had finally allowed access to the reactor but that “Iran still needs to provide updated and more detailed design information”, IAEA GOV/2009/55, § 11.

<sup>29</sup> IAEA GOV/2008/59, § 9.

The IAEA Board of Governors should adopt a resolution declaring that if a state deliberately denies inspectors access to facilities as provided under Article 48 of its safeguards agreement and/or Code 3.1 of its Subsidiary Arrangements, it constitutes a case of non-compliance under Article XII.C of the IAEA Statute. It is not sufficient to say that *“Iran’s refusal to grant access to carry out DIV is inconsistent with its obligations under its Safeguards Agreement”* as was stated by the head of the IAEA Legal Office in March 2009.<sup>30</sup>

The Agency should not be complacent toward states that are violating their obligations if it wants to avoid signalling to potential cheaters that doing so will have no consequences. With this concern in mind, it is of great importance to promptly expose and respond to cases of non-compliance.

### **3. Reporting Non-Compliance**

According to the IAEA Statute (Article XII.C), reporting a state to the UNSC for non-compliance with its safeguards undertakings can be seen as a process comprising the following steps, the last three of which can be taken in sequence or simultaneously:

Step 1: Agency’s inspectors, in practice through the Deputy Director General for Safeguards, report any cases of non-compliance to the Director General;

Step 2: The Director General transmits the report of non-compliance to the Board of Governors;

Step 3: The Board makes a formal finding of non-compliance;

Step 4: The Board calls upon the state in question *“to remedy forthwith any non-compliance which it finds to have occurred”*;

Step 5: The Board reports the cases of non-compliance to the Security Council and General Assembly of the United Nations.

Since there is no official definition of what constitutes “non-compliance,”<sup>31</sup> it is essential to agree on a non-exhaustive list of failures and breaches of safeguards undertakings that individually or in combination constitute, for the IAEA Secretariat, clear and factual cases of non-compliance. Some of those cases are described in the IAEA Safeguards Glossary.<sup>32</sup>

The Secretariat should adopt as a guideline the position stated by Director General ElBaradei in November 2002: *“I believe that while differing circumstances may necessitate asymmetric responses, in the case of non-compliance with non-proliferation obligations, for the*

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<sup>30</sup> Statement by Legal Adviser to the IAEA Board of Governors, March 2009, available at:

<http://www.armscontrolwonk.com/2218/iaea-legal-adviser-on-arak-darkhovin>

<sup>31</sup> This question has already been well analyzed by John Carlson in the Australian Safeguards and Non-Proliferation Annual Report for 2003-2004.

<sup>32</sup> See “IAEA Safeguards Glossary,” Section 2.2(d), International Nuclear Verification Series No. 3, 2001, <http://www-pub.iaea.org/MTCD/publications/PDF/nvs-3-cd/Start.pdf>

*credibility of the regime, the approach in all cases should be one and the same: zero tolerance.*”<sup>33</sup>

By reporting that Iran (and later Libya<sup>34</sup>) was “*in breach of its obligation to comply with the provision of the Safeguards Agreements*” instead of using the word “non-compliance”, the Director General deliberately left to the Board the sole responsibility of making the formal finding of non-compliance (i.e., Step 3). Unfortunately, this may have contributed to the politicization of the issue and, from 2003 onwards, to the collapse of the widely praised “Vienna spirit” of consensus that prevailed at the IAEA during the 1990s.

Unlike the Board of Governors, the IAEA Secretariat is expected to act as a technical and totally apolitical body in order to maintain its reputation of objectivity and impartiality.

It will be one of the main tasks of the new Director General to restore member states’ confidence that the IAEA Secretariat will promptly, fully, and factually report on safeguards non-compliance in accordance with the Agency’s Statute.

#### **4. Responding to Non-Compliance and Withdrawal**

A state found to be in non-compliance by the Board of Governors has to be referred to the UNSC. The Board is not obliged to make this report immediately if it wishes to give the non-compliant state sufficient time to implement the necessary corrective actions. If the non-compliant state fully and proactively cooperates with the Agency, the Board will refer the case to the Security Council *for information purposes only* while likely praising the state for its constructive attitude (as it did in the case of Libya). If, on the contrary, the non-compliant state uses delaying and deception tactics and does not provide prompt access to locations, equipment, documents and relevant persons, the Agency may need to request from the UNSC legally-binding<sup>35</sup> (but temporary) expanded verification rights.

As exemplified by the cases of North Korea and Iran, one of the greatest difficulties in deterring states from violating their nonproliferation undertakings and from ignoring legally-binding UNSC resolutions is their hope that for geopolitical or economic reasons at least one of the five veto-wielding members of the UNSC will oppose the adoption of effective sanctions.

To guarantee a timely UNSC reaction in cases of non-compliance with Comprehensive Safeguards Agreements, and to increase the likelihood of negative consequences if the state does not comply with UNSC and IAEA resolutions, the Security Council should adopt a generic (i.e. not state specific) resolution, under Chapter VII of the UN Charter, based on the model contained in Annex I of a recent Carnegie Paper on “Concrete Steps to Improve the Nonproliferation Regime.”<sup>36</sup> In order to give the IAEA the verification tools it need in case a noncompliant state does not adequately cooperate with the Agency to resolve pending issues, this resolution provides that *upon request by the Agency*, the UNSC would automatically

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<sup>33</sup> Carnegie International Nonproliferation Conference, Washington DC, November 14, 2002

<sup>34</sup> Libya admitted in 2003 that its previously undeclared nuclear activities were part of a nuclear weapons program. This represented an undisputable case of non-compliance.

<sup>35</sup> IAEA Board of Governors’ resolutions are not legally binding.

<sup>36</sup> Pierre Goldschmidt, “Concrete Steps to Improve the Nonproliferation Regime,” Carnegie Paper No. 100, April 2009, <http://www.carnegieendowment.org/publications/index.cfm?fa=view&id=22943&prog=zgp&proj=znpp>

adopt a *specific* resolution under Chapter VII requiring that state to grant to the Agency extended access rights, set out in the Temporary Complementary Protocol (TCP)<sup>37</sup>. These rights would be *terminated* as soon as the Agency's Secretariat and the Board of Governors have drawn the conclusion that there are no undeclared nuclear material and activities in the state and that its declarations to the IAEA are correct and complete.

Under the multi-stage process foreseen in this UNSC generic resolution, if the Director General of the IAEA were unable to report within 60 days of the adoption of the state-specific resolution that the noncompliant state is fully implementing the TCP, the UNSC shall adopt a second specific resolution requiring the state to immediately suspend all uranium and plutonium conversion and enrichment-related activities as well as all reprocessing-related activities.

If the noncompliant state further refused to fully implement the relevant UNSC resolutions, the Security Council shall adopt a third Chapter VII resolution calling on all states to forthwith suspend the supply of any military equipment and cooperation with the noncompliant state as long as it remains in noncompliance with Security Council and IAEA resolutions. It is indeed logical and legitimate for the Security Council to agree *a priori* that in these circumstances all military cooperation with that state would be suspended. This should constitute a strong disincentive for states to defy legally binding UNSC resolutions, but would in no way impact the wellbeing of ordinary citizens.

Another particularly threatening case for international peace and security is the withdrawal from the NPT of a non-nuclear-weapon state that has been found by the IAEA to be in non-compliance with its safeguards agreement. As has been stressed on many occasions, the great benefit that the NPT brings to the international community would be dangerously eroded if countries violating their safeguards agreements and/or the NPT felt free to withdraw from it, develop nuclear weapons, and enjoy the fruits of their violation with impunity.

To address this issue the Security Council should adopt (under Chapter VII of the UN Charter) another generic and legally-binding resolution, stating that if a state withdraws from the NPT (an undisputed right under its Article X.1) *after* being found by the IAEA to be in non-compliance with its safeguards undertakings, then such withdrawal constitutes a threat to international peace and security, as defined under Article 39 of the UN Charter. This generic resolution<sup>38</sup> should also provide that, under these circumstances, all materials and equipment made available to such a state or resulting from the assistance provided to it under a Comprehensive Safeguards Agreement would have to be forthwith frozen and removed from that state under IAEA supervision and remain under Agency safeguards. If the state still refuses to comply, then all military cooperation with that state would be suspended.

## **5. Conclusion**

Brazil is seeking a permanent seat on the UN Security Council and has received support from Russia, France, and the United Kingdom. There are strong indications that the U.S. is also willing to support Brazil's inclusion, albeit without a veto right. Brazil can count on the support of many other states such as Indonesia, South Africa and, of course, the other members of the Group of Four (Germany, India and Japan).

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<sup>37</sup> See in Annex I of the paper referred to in the above footnote.

<sup>38</sup> See the proposed model resolution in Annex II of the paper referred to in footnote 35.

As stated by *The Economist* last August, before Rio de Janeiro was selected to host the 2016 Olympic Games, “Brazil is now on every list of the half-dozen or so new places that matter in the 21<sup>st</sup> century. It seems no international gathering, be it to discuss financial reform or climate change, is complete without Lula...Admirably for a would-be great power, Brazil has renounced nuclear weapons. Less admirably for a country that defends the Nuclear Non-proliferation Treaty, it has refused to sign an improved safeguards protocol, denying international inspectors full access to its civilian nuclear facilities.”<sup>39</sup>

Since then, a PhD thesis by Brazilian nuclear physicist Dalton Ellery Girao Barroso on the “Numerical simulation of thermonuclear detonations in hybrid means of fission-fusion imploded by radiation,” undertaken under the aegis of the Military Engineering Institute (IME) of the Army, has attracted much attention. The IAEA has expressed concerns about the nature of that thesis and the proliferation risk associated with its publication.<sup>40</sup> What I also find worrisome are the statements made thereafter by high-ranking Brazilian officials, including members of parliament.<sup>41</sup>

According to the *Jornal do Brasil*, Eurico Figueiredo, coordinator of the Center for Strategic Studies at the Universidade Federal Fluminense, believes that Brazil “*should begin to discuss whether or not to join the group of nations that have nuclear arsenals*”<sup>42</sup> and “*Rep. Jair Bolsonaro (PP-RJ) thinks that Congress should give political support for the military to develop the military arsenals, as do countries like Pakistan.*”<sup>43</sup>

To claim that manufacturing nuclear weapons is prohibited in Brazil’s Constitution will not be sufficient in reassuring the international community.

As a great nation and a key member of the IAEA, Brazil should lead by example and comply with IAEA General Conference resolutions. Hopefully, Brazil will sign and ratify the Additional Protocol to its Safeguards Agreement before the opening of the 2010 NPT Review Conference.

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<sup>39</sup> “Latin America’s New Alliances: Whose Side is Brazil On?” *The Economist*, August 13, 2009, [http://www.economist.com/opinion/displayStory.cfm?story\\_id=14214011](http://www.economist.com/opinion/displayStory.cfm?story_id=14214011)

<sup>40</sup> This concern is all the more understandable in light of an interview with *Jornal do Brasil* in which Barroso said that the conclusion of his research helps Brazil advance in the mastery of nuclear explosives.

<sup>41</sup> *Jornal do Brasil* has reported that in a book written in 2006, the Secretary General of the Foreign Ministry, Samuel Pinheiro Guimarães “advocated, although in a discrete manner, that the country join the club of nations possessing the technology of atomic bombs.” According to the same journal, former Minister Alberto Mendes Cardoso confirmed that “Brazil has already mastered the knowledge and, if it wanted, could manage the technology to build the nuclear bomb.” Professor of IME Rex Nazareth Alves also confirmed “that the country has already mastered the knowledge and technology needed to manufacture the atomic bomb.”

<sup>42</sup> “Knowledge of the Atomic Bomb is Essential, Says Expert,” Agency Brazil, September 9, 2009.

<sup>43</sup> “Congress Wants to Hear Physicist and IAEA,” Vasconcedo Quadros, *Jornal do Brasil*, September 9, 2009.