Nuclear Renaissance and Non-Proliferation

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Ladies and Gentlemen,

There is presently a lot of discussion about the revival of nuclear energy. It is important to put this potential revival in perspective.
According to the latest projection released by the IAEA at the end of last year, by 2030 the production of electricity from Nuclear Power Plants (NPPs) will increase between 25% (low scenario) and as high as 90% (high scenario) as compared to 2007.
During the same period it is expected that the world consumption of electricity will increase by 85%, which means that the share of electricity produced by NPPs worldwide will at best be maintained at its present level of some 15%. Taking into account the reactors that will be decommissioned during that period the high scenario would require the construction of more than 350 NPPs over the period, which seems unlikely to happen.
Because of the relatively modest contribution of NPPs to the total electricity production in the foreseeable future, some have suggested that the benefits of the nuclear option are not worth its associated safety, security and proliferation risks. Although nuclear energy is not a panacea, I believe it can be part of the solution.

In a world that may one day resort to war in order to secure limited oil and possibly gas supplies, energy savings are clearly the priority, competitive renewable sources of energy are welcome, but it would be irresponsible to forgo any source of energy.

I won't go over, yet again, the merits of nuclear energy in reducing CO_2 emissions in the atmosphere, in achieving a necessary diversification of our sources of fuel supply, in stabilizing the cost of electricity and its positive effect on domestic employment and the balance of payment[1], etc… This is not to minimize the - mainly socio-political - challenge of safely disposing spent nuclear fuel in geological repositories (such as salt mines and deep underground clay layers). However, the alternative, with coal-fired power plants, is to capture, store and sequester forever, in geological formations, a tonnage of CO2 which is 300,000 times larger than the corresponding spent nuclear fuel.

Whether we like it or not, I think it is inescapable that, in the future, more countries will resort to nuclear power for their electricity and possibly for heating and desalination purposes.
What is important therefore is to make this expansion of nuclear energy as safe and secure as possible. This expansion will be limited for quite some time by the capacity to build quickly enough reactor vessels. This should give us time to "do" nuclear right, not under an unwarranted rush. Doing it right means, in particular, putting stronger barriers to proliferation in place before, not after, new nuclear capabilities spread.

NUCLEAR SAFETY AND GEO-POLITICS

What is of concern is that some of the States that have recently indicated interest in acquiring NPPs seem to be motivated by geo-political considerations as much as by economic or environmental factors. It is also worrisome to see some supplier states racing to offer their services to countries where starting now an electro-nuclear program does not appear to be the best or a priority option. International organizations such as the IAEA can certainly help in laying out objective, well studied criteria to judge when and where nuclear energy makes sense or not.

[1] at least in industrialized countries that have no domestic natural gas and/or oil resources.

In the short term, in order to compensate for the lack of adequate industrial infrastructure and nuclear safety culture in some recipient States, suppliers may offer BOT contracts, whereby they would build, operate and later transfer the NPP to the buyer.
That might work initially in few cases, but is it sustainable in the longer term? Are we really going to see Russian, French, American or Chinese experts assuming the responsibility of operating NPPs in Libya, Jordan, the UAE and other States?
We should always keep in mind that a severe nuclear accident anywhere in the world will have damaging consequences for the whole industry even in those countries where NPPs are operated in the safest way.

THE NON-PROLIFERATION CHALLENGE

Today I will not dwell further on these important safety aspects, but wish to focus on some of the non-proliferation challenges inevitably associated with a worldwide expansion of the peaceful use of nuclear energy.
I believe that the IAEA is in a position to provide adequate assurances that there is no diversion of nuclear material from NPPs and no undeclared nuclear material and activities in any country that does not have sensitive nuclear fuel cycle facilities and has a Comprehensive Safeguards Agreement (CSA) and a Additional Protocol (AP) in force with the Agency[2].

In contrast, **the Agency's ability to provide the necessary assurances in a country that operates sensitive nuclear fuel cycle facilities and has not ratified the AP is limited.**
It is even lower if such a country has been found to be in breach of its obligation to comply with its safeguards agreement, or is uncooperative in resolving any question or inconsistency, or refuses (or delays) access to locations (e.g. to take environmental swipes) requested by the Agency or rejects (or delays) the installation of surveillance and containment equipments including remote monitoring.

In order to address these concerns and minimize the risks, we must both discourage the spread of sensitive fuel cycle facilities and strengthen the IAEA verification authority, in particular when a State has been found to be in non-compliance with its safeguards agreement.

Sensitive fuel cycle facilities

1- There is very little economic incentive for a non-nuclear weapon State (NNWS) to domestically construct sensitive fuel cycle facilities such as uranium conversion, enrichment or reprocessing plants, because without the support of external sources, these plants cannot be economically competitive.
To further minimize any incentive to build such plants domestically, it is necessary to provide the highest possible nuclear fuel supply guarantees. Even if the nuclear fuel cycle industry is an oligopoly, it should be recalled that there is not a single example in history where a State that had a CSA in force had to close down an electrical NPP because it was denied the delivery of fresh fuel assemblies.
The concern expressed by a very small number of non-aligned countries is that the delivery of fuel assemblies to NPPs could be suspended or denied by a supplier for purely political reasons.

[2] To be more precise, these assurances would be highest in Non Nuclear Weapon States (NNWS) that do not have in place a so called "Small Quantities Protocol" and have made a legally binding commitment to provide early design information to the Agency on any new facility.

Although the likelihood that all suppliers would deny such fuel supplies is small, this concern must be addressed seriously.
It has been suggested that the solution would be to construct and operate multinational facilities, in particular enrichment plants, where the customers would also be shareholders (but without access to the technology).
Notwithstanding the merits of such a concept, it doesn't address the real issue which is the guarantee that in the end the exporting State will grant in time the necessary export license.
The ultimate guarantee against such an occurrence is for the IAEA to own a fuel reserve that would be used to provide fuel assemblies to any country that would be denied fuel delivery for purely political reasons.

An IAEA low enriched fuel reserve (sometime called a "fuel bank") should, for practical reasons, be physically located (under the form of UF6) at the sites of (all) commercial enrichment plants.
In addition, the Agency should conclude contracts with all manufacturers of fuel assemblies, whereby it would have the assurance to have access, in case of necessity, to some fabrication capacity.
Countries where the fuel bank and the fabrication plants are located would have to provide to the IAEA a generic (or a priori) export license, subject to the IAEA confirming that a number of objective and well defined safety, security and non-proliferation conditions have been met by the recipient State, and that it does not possess domestic sensitive fuel cycle facilities. It is essential that such an IAEA fuel bank be established in the near future.

Independently, suppliers of NPPs should also consider the merit of leasing the fresh fuel assemblies required for the lifetime operation of the NPPs and of taking back the spent fuel (possibly in exchange for an equivalent quantity of well conditioned high level vitrified wastes), as an incentive (if not a condition) for the recipient State not to set up domestic enrichment and reprocessing activities.

2- One of the greatest weaknesses of Comprehensive Safeguards Agreement (INFCIRC 153/corrected) is its Article 26, which provides that the Agreement is to "*remain in force as long as the State is party to the Treaty on the Non-Proliferation of Nuclear Weapons*". Nothing is said about what happens if and when the State withdraws from the Treaty.

It would be logical to forbid withdrawing countries the free use -possibly for military purposes- of material and equipment delivered to them while and because they were a Party to the NPT.

It is therefore very important to guarantee that such material and equipment remain under IAEA safeguards even if a state withdraws from the NPT or otherwise unilaterally terminates any safeguards agreement. Quite remarkably, for historical reasons, this issue is properly addressed in the Comprehensive Safeguards Agreement concluded in 1988 between Albania and the IAEA (INFCIRC 359).

This agreement contains the following provisions:

Article 11: "*Safeguards shall terminate:*

a) On nuclear material upon determination by the Agency that the material has been consumed, or has been diluted in such a way that it is no longer usable for any nuclear activity relevant from the point of view of safeguards, or has become practicably irrecoverable;
b) On any facility upon determination by the Agency that it is no longer usable for any nuclear activity relevant from the point of view of safeguards."

and Article 25(b) i, specifies that:

"*If this agreement is terminated for any reason: safeguards shall continue to apply with respect to nuclear material and facilities referred to in Article 1 which are subject to safeguards on the date of termination and any nuclear material produced, processed or used in or in connection with such nuclear material or facility after the termination of this Agreement, including subsequent generations of produced nuclear material*".

The Board of Directors of the IAEA and its General Conference should request all States with any type of safeguards agreement to include such provisions in their agreements with the IAEA.

It should become a norm that at least **all sensitive nuclear fuel cycle facilities**, even in States with CSA, be covered by a (INFCIRC/66-type) safeguards agreement that would contain the above-mentioned provisions but would normally be subsumed to the CSA and become operative only in case the State withdraws from the NPT.
The Governments of the Netherlands, Germany and Japan should lead by example, and conclude such (INFCIRC/66-type) safeguards agreements for their enrichment and reprocessing facilities.

3- The IAEA General Conference has repeatedly requested all States "*that have not yet done so to promptly sign additional protocols and to bring them into force as soon as possible*". Only 8 NPT-States with significant nuclear activities have not yet signed an AP: Algeria, Argentina, Brazil, Egypt, Iraq, Serbia, Syria and Venezuela.

In the fall of 2007, it appears that all members of the Nuclear Suppliers Group (NSG) except the US[3] had agreed that suppliers should not authorize the transfer of enrichment and reprocessing facilities unless the recipient State, inter alia, is a Party to the NPT, has ratified a CSA, is in full compliance with its safeguards agreement and complies with UNSC Resolution 1540. The NSG is also considering whether to request the recipient State to have an AP in force. This should indeed become mandatory without delay. More broadly, any new bilateral nuclear cooperation agreement should explicitly request the recipient State to have an AP in force before any delivery can take place.

Addressing cases of non-compliance

Experience with both North Korea and Iran has shown that, in order to conclude in a timely manner that there are no undeclared nuclear material or activities in a state as a whole, **after** a state has been found by the IAEA to be **deliberately in non-compliance** with its safeguards undertakings, the Agency needs verification rights extending beyond those of the Comprehensive Safeguards Agreement and Additional Protocol.

[3] Mark Hibbs – Nuclear Fuel – January 14, 2008

Acknowledging this, the Director General, in his report of 2 September 2005 to the AIEA Board of Governors (GOV/2005/67) has made very clear that "*Given Iran's past concealment efforts over many years, such transparency measures should extend beyond the formal requirements of the Safeguards Agreement and Additional Protocol and include access to individuals, documentation related to procurement, dual use equipment, certain military owned workshops and research and development locations. Without such transparency measures, the Agency's ability to […] verify the correctness and completeness of the statements made by Iran, will be restricted*"

More than two years later, the Director General reported to the IAEA Board (GOV/2007/58-November 15, 2007) that "*Bearing in mind the long history and complexity of the* [Iranian] *programme and the dual nature of enrichment technology, the Agency is not in a position, based on the information currently available to it, to draw the conclusion about the original underlying nature of parts of the programme*".
In "Agency-speak" this means that this enrichment program could have been initiated and may still be, at least in part, for military purposes.

1- Therefore, drawing the lesson from this experience it is suggested that the most effective, unbiased, and feasible way to establish a legal basis for the necessary verification measures in circumstances of non-compliance is for the UNSC to adopt (under Chapter VII of the UN Charter) a **generic** and legally binding resolution stating that if a state is reported by the IAEA to be in non-compliance**,** the following actions would result.

   - **First**, the non-compliant State would have to suspend all sensitive nuclear fuel cycle activities at least as long as the IAEA has not drawn the conclusion that the State declaration is correct and complete and that its nuclear activities (past and present) are exclusively for peaceful purposes. The non-compliant State would however have the right, under certain conditions, to continue the operation of its NPPs. One of these conditions would be to submit all nuclear facilities to INFCIRC/66-type safeguards agreements, so that they would legally remain under IAEA safeguards in case the non-compliant State withdraws from the NPT.

   - **Second**, if requested by the IAEA, the UNSC would automatically adopt a specific resolution (under Article 41 of the UN Charter) making it mandatory for the non-compliant state to provide the Agency with the necessary additional verification authority. Areas in which the verification authority should increase would include assurance of prompt access to persons, broader and prompter access to locations, in situ access to original documents and copies thereof, broader and faster access to information, and the lifting of other types of restrictions which experience has shown can be employed as obstructive tactics. Such authority would last until the Agency concludes that there is no undeclared nuclear material and activities in the State and that its declarations to the Agency are correct and complete.

2- After North Korea was found to be in non-compliance with its safeguards agreement since 1993, it withdrew from the NPT in January 2003 and tested a nuclear device in October 2006. The UNSC did not react until then. We must by all means avoid a repetition of this unfortunate chain of events.
   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 the Treaty or

their safeguards agreements "*felt free to withdraw from it, develop nuclear weapons and enjoy the fruits of their violation with impunity*"[4]

To address this issue the UNSC 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) **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 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 removed from that state under IAEA supervision and remain under Agency's Safeguards.

Enforcement

As experience has taught us, in particular in the cases of North Korea and Iran, one of the greatest difficulties in deterring states from violating their non-proliferation undertakings or from ignoring legally binding UNSC resolutions is their hope that for geostrategic or economic reasons at least one of the five veto-wielding members of the UNSC will oppose the adoption of harsh sanctions.
If a State has deliberately violated its NPT or safeguards undertakings and **thereafter** either withdraws (or threatens to withdraw) from the NPT or refuses to temporarily suspend sensitive nuclear fuel cycle activities as mandated by the UNSC (under a Chapter VII resolution), it represents a threat to international peace and security. It would seem logical and legitimate for the Security Council to agree a priori[5] that in these circumstances all military cooperation with that State would be suspended. This would constitute a strong disincentive for that State to withdraw from or remain outside the NPT, or to defy legally binding UNSC resolutions, but would in no way impact the well-being of its population.

In his New-York speech to the Council on Foreign Relations, Dr. ElBaradei said in May 2004: "*I still believe that we need to have some response mechanism by the Security Council in case of a withdrawal*", and he also referred to the French proposal to have a *"system of sanction, agreed upon in advance in the case of a country's withdrawal"*. During the 2005 NPT Review Conference this idea was supported by a number of States including from the Non-Aligned Movement.

Over the last two years the concept of generic UNSC resolutions proposed above has received a lot of support in private talks with representatives of countries not necessarily in agreement when it comes to non-proliferation issues. What is still lacking is to find a group of States willing to submit these proposals for consideration by the UNSC.
For the reasons we will now discuss, such a constructive move might become even more problematic if the US/India nuclear cooperation deal enters into force.

US NUCLEAR COOPERATION AGREEMENT WITH INDIA

There are excellent reasons and considerable merit in deepening the global partnership between the United States, Europe and India, including in areas such as developing bilateral trade and cooperation in agriculture and medical research; developing commercially viable technology for clean coal near-zero emission projects; increased cooperation in the defense area and deepening common efforts to fight against terrorism and the spread of weapons of mass destruction.

[4] NPT/CONF.2010/PC.I/WP22-3 May 2007
[5] e.g. as an addition to be included in the two generic resolutions suggested above

All this, and much more, should be possible to achieve without jeopardizing the fundamental principles that have governed the nuclear non-proliferation regime for more than three decades.

The August 2007 Agreement for Cooperation between the US and India concerning the peaceful uses of nuclear energy ("123 Agreement"), if it comes into force, would grant India all the benefits (and even more) that are specifically reserved, under Article IV of the Non-Proliferation Treaty (NPT), for non-nuclear weapon States who are parties to the Treaty, without requesting from India any commensurate counterbalancing non-proliferation and disarmament commitment, not even those requested from Nuclear Weapon States (NWSs) under the NPT.

If the U.S. Administration succeeds in curbing the NSG rules for what the U.S. have **unilaterally** defined as the "*special case*" of India, this could not only undermine the determination of many States Party to the Treaty, as well as members of the NSG, to strictly implement existing rules but also hamper any attempt to strengthen the nuclear non-proliferation regime.

The US 123 Agreement for Cooperation with India is said to be "*between two States possessing advanced nuclear technology, both Parties having the same benefits and advantages*". Is such an ambiguous qualification appropriate to create a new exception to the rules?

As Bob Einhorn wrote two years ago: "*By seeking an exception to the rules for a country with which the United States wishes to build a special friendship, the nuclear deal will reinforce the impression internationally that the U.S. approach to nonproliferation has become selective and self-serving, not consistent and principled. Rules the U.S. previously championed will be perceived as less binding and more optional. In general, the deal will send the signal that the U.S. – the country the world has always looked to as the leader in the global fight against proliferation – is now de-emphasizing nonproliferation and giving it a back seat to other foreign policy and commercial goals.*
If the U.S. is seen as changing or bending the rules when they no longer suit us, others can be expected to follow suit. Indeed, that already seems to be happening. Russia, which a year ago said it couldn't provide nuclear fuel to India's Tarapur reactors because of its Nuclear Suppliers Group obligations, recently sent a large fuel shipment to those reactors, arguing (over the objections of most NSG members) that it was entitled to do so under the NSG's "safety exception." It is highly unlikely that Russia would have played so fast and loose with the NSG's rules in the absence of the U.S.-India nuclear deal. It is also not by coincidence that, not long after the U.S.-India deal, China and Pakistan began discussing additional reactor sales. It is not clear whether they will await NSG approval for such sales or simply proceed outside the guidelines of the NSG" [6].

The US/India agreement will likely cause Pakistan to boost its own fissile material production and to seek additional nuclear help from China. Also, "*Iran has insisted that it deserves at least as generous treatment as India, since unlike India, it has no nuclear weapons and is a member of the NPT*" [7]

A criteria-based approach to non-NPT States

There is little doubt that it would be desirable to provide a country such as India with access to the safest and most efficient nuclear technology to produce electricity while protecting the environment. The only problem, but it is a major one, is that this would be contrary to both the

[6] Statement by Robert J. Einhorn, Senior Adviser, Center for Strategic and International Studies Before the Senate Foreign Relations Committee April 26, 2006.

[7] NPEC- letter of 5 April 2006 to US Senators and Congressmen.

spirit of the NPT and the NSG export guidelines, because India has not ratified the NPT and has not concluded a comprehensive safeguards agreement with the IAEA[8].

Is it therefore possible, for the NSG to elaborate a criteria-based approach (along the line suggested in March 2007 by representatives from Israel in Vienna), that would allow all non-NPT States the right to acquire NPPs while at the same time reinforcing the global non-proliferation regime?

As a matter of principle, to be compatible with the spirit of the NPT, any such compromise should formally require that non-NPT States accept at least all the obligations and responsibilities of the NWSs (and not less), and should provide less cooperation (not more) than for NNWSs parties to the NPT. The US/India Agreement would achieve just the opposite: while India would be free to further develop its nuclear weapons program[9] it would receive from the US, fuel supply assurances that have never been offered to any NNWS. Also the US would be granting India a **generic consent** to reprocess[10] nuclear material transferred pursuant to the Agreement.

The fact that a country has more than one billion inhabitants or less than ten million is clearly not a valid criterion from a non-proliferation point of view.

The NSG should therefore consider the following objective criteria in order to export nuclear material and equipment to any non-NPT State.

Minimum conditions to be fulfilled

The recipient non-NPT State:

- Must have signed and ratified the Comprehensive Test Ban Treaty (CTBT) as requested from India and Pakistan in UNSC Resolution 1172. This could be done with the understanding that if another State proceeds with a nuclear test this would constitute an event, as defined in Article IX.2 of the CTBT, justifying the withdrawal from the Treaty;
- Must agree that if it tests a nuclear device, all cooperation will be discontinued and all nuclear material, equipment, non-nuclear material or components transferred and any special fissionable material produced through their use would be removed from the country under IAEA Safeguards;
- Must adhere to a multilateral moratorium pending completion of a formal treaty banning the production of fissile material for nuclear weapons;
- Must have **all new** NPPs constructed and operated in the State subject to IAEA safeguards in perpetuity;
- Must have ratified an Additional Protocol to its safeguards agreement (as four out of five NWSs have already done);
- Must not have materially breached an IAEA safeguards agreement;

[8] At the 1995 NPT Review and Extension Conference, all NPT Parties endorsed the principle of full scope safeguards as a condition of supply.

[9] Article 4 of the 123 Agreement states "*this Agreement shall be implemented in a manner so as not to hinder or otherwise interfere with […] military nuclear facilities*".

[10] Article 6.iii of the 123 Agreement provides that "*The Parties grant each other consent to reprocess or otherwise alter in form or content nuclear material transferred pursuant to this Agreement*".

- Must adhere to the NSG export guidelines and the Missile Technology Control Regime (MTCR), and must commit not to export sensitive fuel cycle equipment and technology;
- Must implement UNSC resolution 1540;
- Must have ratified the Convention for the Suppression of Acts of Nuclear Terrorism;
- Must support and participate in the Proliferation Security Initiative (PSI)
- Must implement IAEA Safety Standards and adhere to accepted international safety norms;
- Must apply standards of physical protection based on current international guidelines[11].

The Table in Annex provides a tentative comparison of the Status of India's and Israel's non-proliferation undertakings as of January 2008. It speaks for itself.

Scope of cooperation

- Cooperation should be restricted to the construction and operation of NPPs for electricity production, the delivery of the necessary fresh fuel assemblies and the management of spent fuel and radioactive wastes;

- There would be no export of equipment, materials, or technologies related to sensitive fuel cycle facilities, including enrichment, reprocessing, and heavy water production;

- No nuclear material delivered under any cooperation agreement or derived therefrom should be reprocessed or enriched beyond 5% U-235 without the explicit prior consent of the NSG, and only in facilities placed under IAEA safeguards.

Obviously India would initially reject such a deal even if, in compensation, it would be offered a permanent seat at the UN Security Council.
But Pakistan might, one day, be ready to meet these criteria and that may well push India to follow suit.

If the NSG were to adopt such a non-discriminatory criteria-based approach for nuclear cooperation with non-NPT States, not only would the non-proliferation regime be strengthened, but one could dream of one day seeing Jordan and Israel as partners in the construction and operation of a large NPP. This would have considerable economic, security and geostrategic benefits. As Oscar Wilde once said: "*Progress is the realisation of Utopias*". The "special case" of India would make the realization of this objective even more remote.

CONCLUSIONS

Over the next 20 years a considerable number of new electrical nuclear power plants are likely to be constructed and start operation around the world.
This prospective market is already attracting competition among a few large suppliers. This healthy competition should not be done at the expense of stringent safety, security and non-proliferation standards. Recent nuclear cooperation agreements concluded by exporting countries without explicit non-proliferation conditions such as having an Additional Protocol in force are a matter of great concern. If the Nuclear Suppliers Group, under the pressure of some of its powerful members agrees to disregard its present export rules for what the US have unilaterally

[11] The minimum level of physical protection should be as set out in IAEA document INFCIRC 225/Rev.4 as it may be revised. The recipient State must have ratified the 1980 Convention on the Physical Protection of Nuclear Material (CPPNM) and any amendments thereto.

defined as the special case of India, I am afraid that the non-proliferation regime will be weakened precisely at a time when it should be strengthened.
As indicated in this paper, the international community knows what should and could be done to diminish the risk of nuclear proliferation.
If we don't act now, for sure, there will be a renaissance of nuclear weapons proliferation in the future.

As Bill Moyers wrote[12] in the context of environmental protection:

"***What we need […] is the capacity to see, to feel and then to act as if the future depended on* [us]*. Believe me, it does***".

[12] Battlefield Earth – By Bill Moyers – AlterNet – December 2004

Annex: Comparison of India's and Israel's non-proliferation undertakings – January 2008

		India	Israel
1-	a- CTBT b- Moratorium on nuclear testing	Rejected Implements unilateral moratorium	Signed Supports moratorium until CTBT enters into force
2-	FMCT (Fissile Material Cut-off Treaty)	Does not support at present	Does not support at present
3-	IAEA Additional Protocol to safeguards agreements	Not signed	Not signed
4-	Export Guidelines a- NSG b- Wassenaar arrangement c- Australia Group	 No formal acceptance[13] idem idem	 Export control legislation in conformity idem idem
5-	MTCR (Missile Technology Control Regime)	Not a formal adherent (but many dual-use items of MTCR Annex are part of national control list)	Adheres Export Control legislation in conformity
6-	UNSC Resolution 1540	Supports Has submitted required report	Supports Has submitted required report
7-	PSI (Proliferation Security Initiative)	Not a participant	Supports
8-	a- CPPNM (Convention on the Physical Protection of Nuclear Material) b- Amended in 2005	Accession in 2002 Ratified in 2007	Ratified in 2002 Not yet ratified
9-	Convention on Nuclear Terrorism	Not a participant	Signed in 2006
10-	CSI (Container Security Initiative)	Official approval deferred –Not implemented Port of Mumbai is said to be CSI-compliant	Joined in 2007 (Ashdod and Haifa)
11-	US Megaport Initiative (radiation detection)	Not implemented	Implemented in one Seaport
12-	IAEA Code of Conduct on the Safety and Security of Radioactive Sources	Supports (not endorsed)	Endorsed in March 2004
13-	US Global Threat Initiative	Does not support	Endorsed

[13] In July 2005 India harmonized its national control list to NSG Guidelines