



Constraints Imposed on International Nuclear Trade by Nuclear Export Control Regimes

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International Trade Principle

Principle : International trade exchanges should flow as smoothly, predictably and freely as possible

Within the guidelines defined by WTO (GATT agreement)

Derogation : Strictly defined and exceptional

Based on

1. Quota (steel, cereals, textiles)
2. Health protection (food and mouth disease, influenza)
3. Protection of cultural goods (national treasure)
4. International Security (trade embargos)

- Chapter VII of the UN Charter

Article XX of the GATT Agreement

General Exceptions : (...) nothing in this

Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures

(a) necessary to protect public **morals**; (...)

Export denials based national policy ?

(b) necessary to protect human, animal or plant life or **health**; (...)

Safety concerns ?

(d) necessary to secure **compliance** with laws or regulations which are not inconsistent with the provisions of this Agreement, (...)

Implementation of NPT commitments ?

(g) relating to the conservation of **exhaustible** natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption;

Controlling exports of nuclear fuel ?

(...)

Such measures should be *not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail*

Article XXI of the GATT Agreement

Security Exceptions : Nothing in this Agreement shall be construed

- (a) to require any contracting party to furnish any **information** the **disclosure** of which it considers contrary to its essential security interests; or
- (c) to prevent any contracting party from taking any action in pursuance of its **obligations under the United Nations Charter** for the maintenance of international peace and security.

United Nations Charter

Article 39

The **Security Council** shall determine the existence of any threat to the peace, breach of the peace, or act of aggression and shall make recommendations, or decide what **measures** shall be taken in accordance with Articles 41 and 42, to maintain or restore international peace and security.

Article 40

The Security Council may decide **what measures** not involving the use of armed force are to be employed to give effect to its decisions, and it may call upon the Members of the United Nations to apply such measures. These may include complete or **partial interruption of economic relations** and of rail, sea, air, postal, telegraphic, radio, and other means of communication, and the severance of diplomatic relations.

Embargoes decided by the UN Security Council

List of states under UNSCR embargoes : Libya, Belarus, Former Yugoslav Republic of Macedonia, Bosnia and Herzegovina, Moldova, Burma Myanmar (Burma), Democratic Republic of Congo, Serbia and Montenegro, Côte d'Ivoire, Sierra Leone, Croatia, Somalia, Haiti, Sudan, Iran, Syria, Iraq, Terrorist groups (foreign terrorist organisations), Ivory Coast, Democratic People's Republic of Korea (North Korea), Uzbekistan, Lebanon, Yugoslavia (Serbia and Montenegro), Liberia, Zimbabwe, Al Qaeda, Usama bin Laden and Taliban

Items covered by UN embargoes could be rather different:

- embargo on arms and related material
- ban on exports of equipment for internal repression
- ban on provision of certain services
- restrictions on admission
- freezing of funds and economic resources of certain persons who constitute a threat to the peace and national reconciliation process
- import ban on diamonds

Some embargoes could be decided unilaterally by States or group of States

UE : China, USA, Iran (nuclear) :

Article XXI of the GATT Agreement

Security Exceptions : Nothing in this Agreement shall be construed

- (b) to prevent any contracting party from taking any action which it considers necessary for the protection of its essential security interests
- (i) **relating to fissionable materials or the materials from which they are derived;**
 - (ii) relating to the traffic in **arms**, ammunition and implements of war and to such traffic in other goods and materials as is carried on directly or indirectly for the purpose of supplying a military establishment;
 - (iii) taken in time of war or other **emergency** in international relations; or

Article XXI interpretation ?

- Allow States to adopt restrictive measures : **national** export control provisions
Emerging **national standards** in spite of international standards
- Protection of State **essential security interests**
Often raise tension between States but usually resolved by international pressure and diplomacy not through WTO bodies
Cuban Liberty and Solidarity Act, Iran and Libya Sanction Acts
- No WTO Dispute Panel have had to formally consider a case relating to **nuclear trade** p11

Possible interpretations

Minimum : exempts only “national security essential interests” related restrictions

Nuclear trade could be restricted for “non proliferation concerns”

Maximum : exempts all nuclear trade restrictions

Nuclear trade could be limited to ensure/ protect national energy needs

Raise the definition of **conditions of supply** and the necessity to define international standards p12

International Nuclear Trade Exchanges

Principle

The trade principle is overturned

- Principle : Prohibition
- Trade : Exception

All nuclear transfers are submitted to (export) authorisation

- Might even lead to prohibition for specific technologies : suppliers “should restrain themselves” to transfers some “sensitive technologies”

Why is it so ?

Nuclear trade is ... Victim of the Original Sin

First development of nuclear applications were devoted to the elaboration of an **explosive device**

WWII, Hiroshima and Nagasaki

Consequence: nuclear first considered as **military** technology rather than an energy with large **peaceful** applications

1946 : US imposed a trade prohibition on all nuclear technologies

Adoption in July 1946 of the Atomic Energy Act (McMahon Act) establishing a program to **restrict the dissemination of information** inside and outside the country

Motivation : if potential peaceful applications of nuclear physic could be developed, it **could not be split** from military one

Nevertheless US prohibition regime appeared rapidly to be :

1. **Ineffective to counter nuclear weapons proliferation**

Its principal political competitor and allies have succeeded to elaborate and test a nuclear explosive device (USSR 49, UK 52)

2. **Politically damageable**

Soviet Union was developing large peaceful application of a nuclear research program and was **ready to share** it with its allies and with any potential allies

3. **Commercially damageable**

Conditions of supply required by States developing their civil nuclear programs were less constraining than the one imposed to US industries.

Production of isotopes for medical use

1953: US reversed its policy by initiating a sharing policy

Principle : International exchanges of nuclear technologies are possible **IF** and **ONLY** fissile materials produced or transferred are under adequate safeguards

Atoms for Peace Plan presented by the President Dwight D. Eisenhower in December 1953:

Open access to (US) peaceful nuclear applications in exchange of the submission by the end user of adequate **safeguards** assumed by the supplier State or by an international organisation

Between 1956 and 1962, Atom for Peace Plan provided research reactors, training and fissile material to 26 countries.

Difficulties raised by the new sharing policy initiated by Atoms for Peace

Absence of common guidelines and conditions of supply required by the different suppliers

- On **safeguards**
- On **criteria**
- On the **list** of goods and technologies

Therefore India, Israel, China,... were supplied by different suppliers under different conditions of supply

Balancing the sharing policy by multilateral export control regime

Avoiding that US technologies could be transferred directly or indirectly to a **Warsaw Pact Member** or an another US sensitive country, such as **China**

The establishment of a **multilateral export control regime** was suggested to **NATO** members

- The Coordinating Committee for Multilateral Export Controls (**COCOM**) was created in 1950
- Principle was to ban the export of **sensitive** items, mostly military related ones, to Warsaw Pact countries and China
- **Derogation** would have to be authorised by **consensus** of all participating States

Development of International Nuclear Export Control Regime(s) : Analyse by the evolution of lists of controlled items

Three **principles** to understand the non-understandable:

- Heterogeneous system established by successive layers
- A regime is never abolished, a new one is usually added
- From technical commitment to political one

Once upon a time ... the COCOM

Adopted the so called “strategic list” which included a **list of nuclear items** submitted to export authorisation

Covered material, equipment and technology “**especially designed**” or “**designed**” for the use of nuclear energy

Nevertheless China (the wolf) succeeded to build a weapon

The house of sticks : NPT and Zangger Committee

Adopted a list of nuclear materials, equipments and technologies (especially designed for) that the export will **trigger** a requirement by the supplier of **safeguards**

But India, Israel succeeded to build weapons

The house of bricks : the Nuclear Suppliers Group

Discovering the **Iraqi nuclear weapons research program** at the end of the first Gulf War

Adoption of new list of items : “**dual-use items**”

Equipment, material and technology which have **both** nuclear and non-nuclear applications and could make a significant contribution to an unsafeguarded nuclear fuel cycle or nuclear explosive.

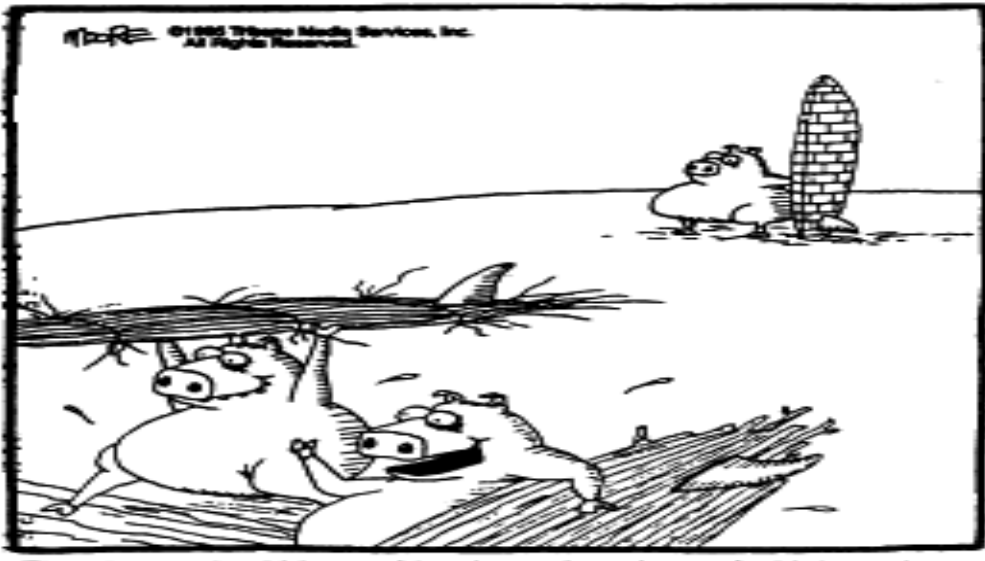
The list was adopted by NSG in 1992 and by Wassenaar in 1996

But new non-proliferation concerns have been raised since the adoption of dual-use list by the NSG:

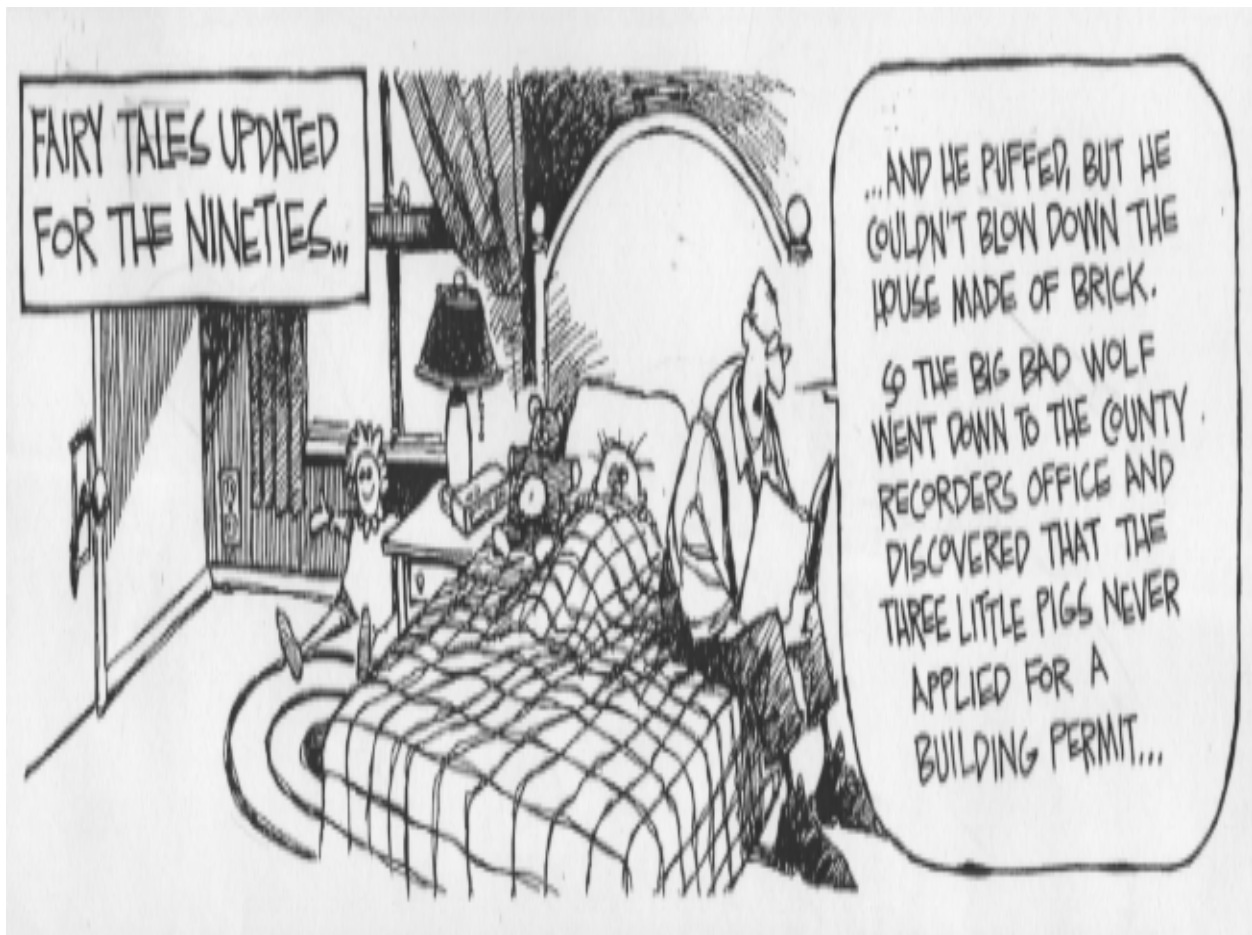
And if principles on which nuclear export control regimes were based are not adequate to fight the nuclear weapons proliferation?

IN THE BLEACHERS

By Steve Moore



The pig watched his two friends run into the surf with boards made of straw and sticks. Later however, his smug sense of security - along with his board of bricks - vanished in about 40 feet of water.



The Future : Controlling **not** listed items

Regimes based on lists have showed their limits :

1. Delays necessary for updating the list

List often below the last level of technology development

- Between **6 and 12 months** to obtain a consensus and a few more to implement it at the national level
- International adopted lists of controlled items have to be **inserted** into national export control regulations
 - » Most of international export control regime are not legally binding

2. Inadequacy of technical parameters

Could be countered by importing items which have technical parameters just **below** the one of the controlled items

- The upgrading could be operated with more or less success by the recipient in function of its level of technology development

How ? via catch-all clauses

Principle : focusing on the **final/potential** end users more than on item itself

- In its common application, the item does not present an high proliferation risk but in certain cases it could contribute to a WMD program.
- Requiring an authorisation for all exports will be useless due to the number of transactions
- Export authorisation will be required only on case by case and for dedicated end users

Catch-all clause is essentially implemented by National Authorities

Two levels:

Catch-all I authorisation for the transfer of non-listed items when the exporter is **informed** by its competent national authorities that the items in question may be intended, in their entirety or part, for use in connection with nuclear weapons research program

Catch-all II and III require that if the **exporter is aware** or **has ground for suspecting** that non-listed items are intended to contribute to nuclear weapons activities; it must notify its authorities which **will decide whether or not** it is expedient to make the export concerned subject to authorisation

Elements of an Export Control Regime

Preliminary Remarks:

1. Nuclear Export Control Regime is largely rules by **informal regulation** (soft law)

- One/two formal international acts : NPT, UNSCR1540
- Several informal acts : Zangger Committee, NSG, Wassenaar Arrangement

Difficulty: Political commitment usually requires the adoption of national regulation instruments to implement it. Always a risk of an incomplete implementation or an “à la carte” implementation

2. Nuclear Export Control Regime : **Mix** of International, Regional and National legislations and bodies

- NPT, European Regulations, National Regulations and sometimes Sub-national Regulations
- IAEA, European Commission, National Agencies,...

An Export Control Regime should normally integrate three elements:

1. an **authorisation** system to analyse the export/transit/import application
2. a **control** and **verification** system to verify the end users and the use of the items transferred
3. **sanctions** to penalise infringements

What do we have ?

- **Treaty on the Non-Proliferation of Nuclear Weapons**
Corner stone of the regime
- **UNSC 1540**
Called for the establishment of an efficient national export control regime
- **Nuclear Suppliers Group (NSG):**
 - Guidelines for Nuclear Transfers ([INFCIRC 254/Rev.8/Part.1](#))
 - Guidelines for Transfers of Nuclear-Related Dual-Use Equipment, Materials, Software, and Related Technology ([INFCIRC 254/Rev.7/Part.2](#))
- **Zangger Committee**
Guidelines for nuclear transfers (Trigger List :INFCIRC 209/Rev.2)
- **Wassenaar Arrangement**
 - Guidelines and procedures
 - List of Dual-Use Goods and Technologies
- **Missile Technology Control Regime (MTCR)** and International Code of Conduct against Ballistic Missile Proliferation

1. Export control commitments required by the NPT

Export of nuclear equipment and technology is essentially **concerned by one provision (Article III . 2) :**

NPT Parties take the commitment not to **provide:**

- (a) **source** or special fissionable material, or
- (b) **equipment** or material especially designed or prepared for the processing, use or production of special fissionable material,

to **any non-nuclear-weapon State** for peaceful purposes, unless the source or special fissionable material shall be subject to the **safeguards** required by this Article

What does it mean ?

Article III.2 sets **two principles** to be implemented by the supplier State :

1. To control the transfer to **NNWS** (as defined by Article IX.3) of a **non-defined list** of items
2. To submit the export of nuclear items to the condition that fissile materials being used in the facilities where the items will be transferred will be submitted to **safeguards**

To clarify those commitments some States parties established an informal instrument known as **Zangger Committee** (1978)

- Adopted a **list** of materials, equipments and technologies (INFCIRC 209)
- Defined that **IAEA safeguards** required by Article III of the NPT are those defined by the INFCIRC/153 also called Comprehensive Safeguards

2. Commitments imposed by the Nuclear Suppliers Group

Most important **informal instrument** regarding the control of nuclear transfers

Included all majors suppliers except India and Pakistan

Not an international nuclear export control regime but established **common understanding** of export control principles that each participating State shall introduce into its national export control regime.

NSG Field of Implementation

Two lists of controlled items

1. Items that are especially **designed or prepared for nuclear use** (trigger list):
 - Nuclear **material**;
 - Nuclear reactors and equipment therefore;
 - Non-nuclear material for **reactors**;
 - Plant and equipment for the reprocessing, enrichment and conversion of nuclear material and for fuel fabrication and heavy water production; and
 - **Technology** associated with each of the abovementioned items;

2. Nuclear related dual-use items and technologies (items that can make a major **contribution** to an unsafeguarded nuclear fuel cycle or **nuclear explosive activity**, but which have as well **non-nuclear uses** in chemical industry for instance)

6 categories

- Industrial equipment
- Materials
- Uranium isotope separation equipment and components
- **Heavy water** production plant related equipment
- Test and measurement equipment for the development of nuclear explosive devices
- Components for nuclear explosive devices

One Catch-all

Includes only the principle established by the Guidelines and concerns items in connection with a nuclear explosive activity

NSG Export Authorisation

Principle : all items of the trigger and dual-use lists should be submitted to a **national export authorisation**.

Exception for “sensitive items” defined as “items usable for nuclear weapons”

- Transfers are not prohibited but suppliers are **invited** to “restrain” their transfers

- If enrichment or reprocessing facilities

Suppliers should encourage recipients to accept, as an alternative to national plants, supplier involvement and/or other appropriate **multinational participation** in resulting facilities

Proposal still under discussion to **ban** such transfers and limit the possession of enrichment and reprocessing facilities to the present “technology holders” (with full scale and functioning facilities)

NSG Export authorisation criteria

Criteria for nuclear items (trigger list) :

1. The non-proliferation principle

Suppliers should authorise the transfer only **when they are satisfied** that it would not contribute to the proliferation of nuclear **weapons** or any other nuclear explosive **devices** or to an act of nuclear **terrorism**

Principle largely criticised by non participating States due to its “**subjective**” aspect

2. Restrain the transfert of items :

If there are potential risks of retransfert due to the **failure** by the Recipient State to develop and maintain appropriate, effective national export and transshipment controls as identified by UNSCR 1540

NSG criteria for transfers of dual-use items

- Party to the **Nuclear Non-Proliferation Treaty (NPT)** or to a similar international legally binding nuclear non-proliferation agreement, and has an **IAEA safeguards agreement in force** applicable to all its peaceful nuclear activities;
- Recipient **not party to the NPT and has facilities** subject or not to IAEA safeguards;
- Items transferred are **appropriate for the stated end-use** and whether that stated end-use is appropriate for the end user;
- Items **linked** to reprocessing or enrichment facility;
- Policy of the recipient State** supports nuclear non-proliferation and whether the recipient State is in compliance with its international obligations in the field of non-proliferation;

- Recipients have been engaged in **clandestine** or illegal procurement activities;
- Transfer has not been authorised to the end user or whether the end user has **diverted** for purposes inconsistent with the Guidelines any transfer **previously** authorised
- Risk of diversion to acts of nuclear **terrorism**
- Risks of retransfer due to the failure by the Recipient State to develop and maintain appropriate, effective national exports and transshipment controls as identified by UNSCR 1540**

Conditions to authorise the transfer (trigger list)

1. End user State should have brought into force an agreement with the IAEA requiring the application of **CSA**

Three exceptions:

- **Safety clause** : transfers to a non-nuclear-weapon State when they are deemed essential for the safe operation of existing facilities and only if safeguards are applied to those facilities

Before granting such authorisation suppliers should inform and, if appropriate, consult in the event that they intend to authorise or to deny such transfers.

Used twice by Russia in 2001 and 2006

- **Grandfather clause** commitments of the suppliers linked to contracts signed before its NSG membership

The Indian exception: *when the exception denies the rules*

Established formally by INFCIRC/734(corrected)

The decision adopted at the extraordinary plenary of September 6 authorises NSG Participating States to export to India **trigger list and dual-use** items

At each plenary Participating States have to **notify approved transfers** to India of trigger list items (not dual-use)

Participating States **could** also inform the others Participating States of their **bilateral nuclear cooperation agreements** concluded with India

Presently the following States have concluded nuclear agreements with India: US, France, Russia, Canada and Kazakhstan

In exchange of an access to nuclear technology, India commits itself to

- **Separate** civilian nuclear facilities from military one
- Conclude a **CSA** (including the additional protocol) with the IAEA for the application of safeguards to civilian nuclear facilities
- **Refraining** for transfers of enrichment and reprocessing technologies to States that do not have them and supporting international efforts to limit their spread
- Instituting a national **export control system** capable of effectively controlling transfers of multilaterally controlled nuclear and nuclear related items
- **Harmonising** its exports control regime with the guidelines of the NSG (including adhering to the guidelines)
- Continuing its unilateral **moratorium** on nuclear testing and its readiness to work towards the conclusion of an FMCT

2. Submission of **government-to-government assurances** requiring similar export condition of supply :

- In case of **retransfers** of the items originally exported
- **Contamination** principle : transfer of items derived from facilities originally transferred, or with the help of equipment or technology originally transferred by the supplier

Mechanism similar but not equivalent to the US *De Minimis* Clause

3. Submission of **government-to-government assurances** that the prior consent of the supplier will be required :

- In case of transfers or retransfers of items to States which do not require **CSA** as a condition of supply
- In case of transfers or retransfers of items related to **enrichment, reprocessing, heavy water production** or material usable for nuclear **weapons**
- For enrichment facility, or any facility based on such technology the design or the operation for the **production of greater than 20% enriched uranium**

Conditions for authorisation of the transfer (dual-use)

- A statement from the end user specifying the **uses** and **end-use** location of the proposed transfers
- An assurance explicitly stating that the proposed transfer or any replica thereof will not be used in **any nuclear explosive active** or **unsafeguarded** nuclear fuel cycle activity
- An assurance that the **prior consent** of the supplier will be required before transferring any dual-use items to a State not adhering to the Guidelines

Sanctions

Consultation mechanism between Participating States in case of doubt on violation of the supplier/recipient understanding of the Guidelines

Explosion of a nuclear device, illegal termination or violation of IAEA safeguards,...

Possibilities to **suspend** transfers of trigger list items to States in breach of their safeguards obligations

The suspension could be decided from the first IAEA investigation in case of suspicion of serious breaches of safeguards obligations