

# Technology transfers and the Arms Trade Treaty – Issues and Perspectives

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## Introduction

The global trade in arms has evolved in the recent decades to adjust to a more demanding market characterized by growing competition and the evolution of the customers' needs. Arms transfers have become not just transfers of goods but also a mean of transmission and diffusion of military technologies. The policy guidelines governing the defense market as it exists today are not only based on the immediate needs of recipient countries, but also on a larger "defense approach" that encompasses the general policy towards that government including other arrangements (economic, political, etc.).

The purchasing of arms "*off the shelf*" is no longer a common practice as it was in the 1970s and 1980s. In the case of large arms contracts, transfers of technology often constitutes a *sine qua non* condition for the recipient State and as such are included in the tender for offers as a direct condition for obtaining contracts. In fact, a large majority of governments do not import finished weapons, but rather integrate foreign technology into equipment that will be assembled by local companies under license from the procuring State.

Defense equipment, as it is getting more and more sophisticated, may involve the technological contribution of many different States in the form of components embedded in a completed good, particularly when considering the inherent complexity of the sub-systems that are transferred. Thus, for one complete weapon systems, several different export control regimes may be applied in a single export operation.

Also, an important part of the defense market is constituted by offset arrangements: "... that obligate the arms seller to reinvest ("*offset*") arms sales proceeds in the purchasing country"<sup>1</sup>. Recipient States often require that a portion of the amount of arms contracts are reinvested by the exporting country directly in their economy and, when possible, in their defense industry. In the case of direct offsets, it is often accompanied by transfers of technology in diverse forms that could include licensing production or scientific cooperation<sup>2</sup>.

This evolution calls for robust export control frameworks. If agreements do exist to control transfers of technology in arms trade, no international regulation creates an equal level of obligation for all concerned States to regulate their transfers of technology. Careful attention has also to be given to the technological and industrial capabilities as well as know-how that the procuring State is acquiring through traditional arms trade operations.

The acquisition of technology can sometimes enable the recipient State to reach some level of independent production of arms and ammunition with the creation of a potential risk of diversion to unintended States – depending on the recipient ability to absorb knowledge this capacity could go as far as unlimited copying of a weapon system. It can also create some distortions in industrial terms or at an economical level. If licensing

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<sup>1</sup> Jurgen Brauer and J. Paul Dunne, "*Arms Trade Offsets and Development*", June 2005.

<sup>2</sup> "*Direct offsets includes goods and services directly related to the equipment the purchaser is buying (e.g., local co-production of parts of the weapon system being purchased), and indirect offsets, i.e., military or civilian goods and services unrelated to the specific defense equipment purchased.*", cf. Brauer and Dunne, op. cit.

production does not per se lead to transfers of technology or constitute such an operation it can in fact participate to giving the recipient companies capabilities to replicate or reverse-engineering complete weapon systems or sub-systems.

Different challenges thus arise for countries trying to oversee their transfers of technology, such as possible ways to control their end-use, the solving of the difficult equation between preserving national security and exporting goods, the risk of dissemination of the weapon systems to unintended recipient through the offset of production.

Yet, it has to be noted that a growing number of national laws and regulations do take into account the need to regulate and control offsets particularly when important transfer of technology or know-how are possible<sup>3</sup>.

The question of the international regulation of transfers of technology is one of the issue the discussions on the scope of the Arms Trade Treaty (ATT) has tackled with during the sessions of the Preparatory Committee for the 2012 Diplomatic Conference on an Arms Trade Treaty in July 2010 and again in February –March 2011. During these, many discussions were held on the materials and the activities to be covered by the Treaty, particularly around the notion of "transfers of conventional arms"<sup>4</sup> thus covering the inclusion of transfer of technology (ToT) in the treaty.

During the first meeting of the Group of Governmental Experts on the creation of an Arms Trade Treaty (ATT) in 2008, the national representatives « *observed that globalization had changed the dynamics of international arms trade. They noted that the types of weapon systems, equipment and their components being manufactured in cooperation, under joint ventures and licensing was increasing and that most arms-producing States were increasingly relying on technology transfers and upgrades from external sources, rather than from their own indigenous production.* »<sup>5</sup>

The issue of the inclusion of transfers of technology in the scope of a future arms transfer treaty is complex for several reasons:

- ➔ Activities like transfers of technology encompass a large spectrum of domains and procurements activities. Obtaining an international consensus on what constitutes a transfer of technology could therefore prove elusive as different countries may consider some offset as constituting limited transfers of know-how or industrial skill rather than transfers of technology.
- ➔ Export control regimes and national laws and regulations have created a large spectrum of processes to check the end-use made of the transferred technology or to ensure that it is not retransfer to unintended recipient. It appears clearly that an international framework on transfers of technology would have to take into account

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<sup>3</sup> For instance China did include transfers of technology when strengthening its export control regulations in 2002. India also included deemed exports (intangible transfers) in the scope of its control recently.

<sup>4</sup> United Nations General Assembly, “*Towards an arms trade treaty: establishing common international standards for the import, export and transfer of conventional arms*”, Resolution A/RES/61/89, adopted 18 December 2006.

Available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N06/499/77/PDF/N0649977.pdf?OpenElement>

<sup>5</sup> Group of Governmental Experts, “*Report of the Group of Governmental Experts to examine the feasibility, scope and draft parameters for a comprehensive, legally binding instrument establishing common international standards for the import, export and transfer of conventional arms*”, UN General Assembly, 26 August 2008, paragraph 12.

Available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N08/491/10/PDF/N0849110.pdf?OpenElement>

the need to create some common obligation on post-export mechanisms related to such operations.

- ➔ The question remains highly sensitive to importing governments, particularly among developing countries for which the transfers of technology have become a competitive argument and to some extent provides a means to continue developing their defense economy and capabilities. This explains the reluctance of some countries to have the creation of a mechanism that would limit their capability to gain access to needed know-how meant to improve their own industrial defense base.
- ⇒ Finally, it appears necessary to have some kind of universalization of minimal national export control frameworks on transfers of technology. This could include *a minima* (without being limited to)<sup>6</sup>: A definition of what constitutes a transfer of technology and the conditions under which it occurs.
- ⇒ The description of the technological domains that are to be subjected to control and conversely the description of technology, knowledge and know-how that are not under control.

In order to try to bring answers to the question of how to address the transfer of defense technology in a future Arms Transfer Treaty, the paper focuses on three key issues:

- ➔ What are technology transfers and why do they matter in the context of arms sales?
- ➔ How are transfer of technology addressed in the existing regimes and instruments?
- ➔ What is the status of discussions in the Arms Trade Treaty concerning transfer of technology?
- ➔ What could be proposed to encompass the issue of transfers of technology in a future Arms Trade Treaty?

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<sup>6</sup> Wassenaar Arrangement, “*Best practices for implementing Intangible Transfer of Technology Controls, Agreed at the 2006 Plenary*”, 2006.  
Available at [http://www.wassenaar.org/guidelines/docs/ITT\\_Best\\_Practices\\_for\\_public\\_statement.pdf](http://www.wassenaar.org/guidelines/docs/ITT_Best_Practices_for_public_statement.pdf)

## What are technology transfers and why do they matter in the context of arms sales?

Transfers of technology in the armament domain occurs generally when an exporter country sells to a recipient know-how or knowledge that could be used to independently develop or design military equipment or components and/or weapon systems. That definition while simple has the merit of showing that transfers of technology do encompass a very wide spectrum of exports or cooperation between countries.

Recognizing the inherent complexity of transfers of technology is probably the first major step one has to take in order to design some sort of guidelines for their control. Interestingly, the Wassenaar Arrangement provides a definition which actually takes into account some of the complexity of the activity by making a difference between transfers of data and transfers of knowledge. The Arrangement states that:

*“Technology [is the] Specific information necessary for the “development,” “production” or “use” of a product. The information takes the form of technical data or technical assistance.”<sup>7</sup>*

It then goes on by defining these last two items:

*“1. ‘Technical data’ may take forms such as blueprints, plans, diagrams, models, formulae, tables, engineering designs and specifications, manuals and instructions written or recorded on other media or devices such as disk, tape, read-only memories.*

*2. ‘Technical assistance’ may take forms such as instruction, skills, training, working knowledge, consulting services. ‘Technical assistance’ may involve transfer of ‘technical data.’”*

This definition makes it easier to grab the complexity of the idea of these transfers in the arms trade context. In fact it shows that transfers of technology:

- ➔ Can take the form of the tangible or intangible movement of know-how, knowledge or technical capabilities. Tangible operations include the transfer of any technology by tangible means or in a material form; i.e. papers, blue prints, training documents, etc. Intangible on the other hands refers to the transfer of technology through intangible means: electronic communications, fax, oral instruction or training...

Intangible technology transfer can take two principle forms:

- ⇒ the transfer of knowledge as technical assistance: instruction, training or consulting can be passed through electronic communication means or in person;
  - ⇒ The transfer of technical data (blueprint, diagram, schematic) or technical software including source-codes in a non-physical form.
- ➔ Can happen under a lot of situations from very specific instances (during a discussion between experts or a scientific seminar) to vaguer contexts (a technical cooperation or a joint venture<sup>8</sup> situation);

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<sup>7</sup> Ibid.



- ➔ And can last from minutes to years.

Most if not all export control regimes (e.g.: the Missile Technology Control Regime, the Nuclear Supplier Group or the Australian Group) use more or less the same definition as the Wassenaar Arrangement for technology<sup>9</sup> – and therefore for transfers of technology.

At this point, one has to make a difference between transfers of technology proper and activities that could indirectly create some technological know-how to be acquired by the user. Some weapon systems transfers are accompanied by agreement between the selling company and the procuring State according to which the latter has to develop industrial and production activities or cooperation with local industries. Similarly, other arms trade agreements will be accompanied by the transfer of licensing rights for the production of some sub-systems or components by local subsidiaries or companies from the recipient State.

Although these activities could have grave security consequences, they should probably not be regarded as *direct* transfers of technology *per se* as they usually do not create (and are not meant to create) the capability to re-develop or improve the implied components or sub-systems. Technical assistance, for instance in the form of maintenance for the transferred weapon systems or platforms, also have to be differentiated from transfers of technology as it does not cover explicitly – that might be an unwanted side effect nonetheless – the fact that the recipients are given access to relevant know-how or technical knowledge. Yet, the Wassenaar Agreement includes them under transfers of technology to cover the underlying possibility of acquisition of knowledge by the recipients through it.

Different operations and rights could conversely be directly attached to transfers of technology (or goods/systems) in any of its forms:

- ➔ The right to exploit the transferred technologies for national purposes which encompass the possibility of creating components or sub-systems for different weapons or platforms than those they were originally designed for.
- ➔ The right to maintain a given technology is attached to the possibility for the recipient to intervene/maintain a given sub-system in a transferred system.
- ➔ The possibility to develop a technology can take the form of technical or scientific cooperation in case of Joint Ventures for instance.
- ➔ The intellectual property of a given good, component, system or technology can also be transferred which gives the right of copying or deriving other items from the given technology.

Yet, transfers of technology do play a growing role in the development of the international trade in arms particularly through offsets.

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<sup>8</sup> Joint Ventures is a business agreement under which two or more companies develop together a new entity by sharing assets but also revenues and expenses. Joint Venture can last for the duration of the development of a system or longer as needed.

<sup>9</sup> See for instance Missile Technology Control Regime, “*The Technical Annex*”, 13 April 2011, pp. 13-14. Available at <http://www.mtcr.info/english/annex.html>

Offset are commercial operations under which the exporting State compensates the buyer (company or State) by offering it some industrial or financial advantages related to the trade<sup>10</sup>. Offsets can be basically divided between direct and indirect operations. Direct offsets involve compensation that is directly related to the sell, such as the production under license of some part of the transferred equipment and, in some cases, transfers of technology. Indirect offsets relates to compensation that are not directly related to the sell, such as the procurement of raw material from the buying State.

Indeed, emerging countries that still are dependent on the procurement of weapon systems from abroad for their national security are increasingly asking for the suppliers to provide industrial return for contract in the form of direct economic investment such as local joint or licensed production and even sub-contractor production. But in a growing number of cases, emerging countries governments are trying to attach technologies transfers to arms trade under various forms: development cooperation, Joint Ventures (JV) or even Foreign Direct Investments (FDI) – although technically speaking these are not meant as direct transfers of technology in fact they create the possibility for the recipient to grab technical knowledge and thus improve its technological capability to some extent –, training or funded national research, etc.

Other weapon systems and military equipment buyers seem to be less demanding for transfers of technology but are rather looking for indirect offsets that reduce the global price of the items they are providing abroad.

India is one of the first emergent countries to have devised an offset policy with the stated purposes to augment the ability of the national's defense industry and scientific base to meet domestic requirements in a timely and cost-effective manner. The completion of the 2004 stated objective to create a defense industry sector capable of meeting the aim of a 70% self reliance in defense systems<sup>11</sup> relies heavily on the use of systematic offset as a mean to develop the efficiency of the defense sector<sup>12</sup>. In order to achieve the objective, the Government modified in 2006 its *Defense Procurement Procedure* (DPP) to make it compulsory for operation above 66 million dollars to have offset for an amount of at least 30% of the total contract value. In parallel, India made it possible for foreign companies to invest in the local industry base through direct participation or Joint Venture. Indeed, since 2001, the Indian Government made it possible for foreign-owned companies to invest up to 26% of a defense enterprise and is considering making it possible to go up to 49% for Joint Ventures<sup>13</sup>. Encouraging direct foreign investment is one of the key to attracting technologies to the country and thus enabling the local defense industrial base to augment the technology level of national programs.

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<sup>10</sup> [http://en.wikipedia.org/wiki/Offset\\_agreement](http://en.wikipedia.org/wiki/Offset_agreement)

<sup>11</sup> Guy Anderson, “*India's Defense Industry*”, RUSI Defense System, February 2010.

<sup>12</sup> Confederation of Indian Industry, “*Opportunities in the Indian Defense Sector: An overview*”, 2010, p. 4.

<sup>13</sup> Guy Anderson, “*India's Defense Industry*”, RUSI Defense System, February 2010.

Other emergent countries, such as Brazil, also require suppliers to transfer technology in order to win contracts. Commenting on recent arms transfer – as well as future prospect especially concerning important weapon systems and platforms – the Brazilian ministry of defense stated that:

*"Our current priority is Brazil's technological empowerment in the defense area, especially in the cyber, space and nuclear areas. The first consequence of this policy is the end of bargain acquisitions. Every relevant acquisition, from now on, must include technology transfer and partnership with Brazilian companies."*<sup>14</sup>

If the statement focuses on activities pertaining to high technology they do apply more broadly to all military related acquisitions, also to conventional weapon systems. For instance, Brazil has asked for transfers of technology in relation to their procurement of new fighters and requires transfers of technology for every upfront procurement of major weapon systems or platforms.<sup>15</sup>

The importance of technology transfers in the context of arms trade must not hide the fact that, to a very large extent, these types of activity's net result in terms of real access to critical technologies are very difficult to measure and often quite limited in scope. The difference between the export of material – which could actually lead to reverse-engineering and thus to some kind of technology transfer – is clearly that the efficiency (and risks associated with) of the transfer largely depends on two factors:

- ➔ ***The capability of the recipient country to absorb knowledge in specific technical areas or of a given technical level.*** Known examples – for instance, Japan, Taiwan, Singapore, and India – show that the buyer's level of technical knowledge and scientific mastery on a given subject will have a very important impact on that "absorption" ability<sup>16</sup>. The Indian case shows that the absence of technological focus which directed its offset policy prior to 2001 did actually not serve the purpose of increasing self reliance but on the contrary raise to some extent the dependence of the defense sector on international procurement. The fact that the Indian defense industry remains very bureaucratic in essence without a real opening to the national private sector does actually hurt now the possibility to advance rapidly in the self reliance objective or in the Indian attempts to close the technological gap with developed countries<sup>17</sup>. On the other hand, when the Government chose to have suppliers cooperate with local defense companies in niche areas it did provide exploitable technological return to the country. It has also to be noted that even though intangible transfers of technology will have some impact on the ability or technological level of the recipient it will not in itself be sufficient for the company or State to absorb new or complex technologies but rather could provide some level of support for an effort in that direction or complement other initiatives to obtain know-how, skills or knowledge.
  
- ➔ ***The willingness of suppliers to provide state-of-the-art technologies*** on complex systems or system of systems is also something that could impede the ability of the

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<sup>14</sup> Defense News, "Brazil Seeks Arms, Technology Transfer", April 13, 2009.

<sup>15</sup> Ibid.

<sup>16</sup> Jurgen Brauer and J. Paul Dunne, "Arms Trade Offsets and Development", June 2005, p. 12.

<sup>17</sup> Laxman K. Behera, "Indian Defense Industry Poised to Grow", IDSA Comments, November 10<sup>th</sup>, 2009.

recipient companies or nations to actually use the transfer in a strategy of technological gap-closing. Even when considering direct-industrial offsets, such as licensed production or co-production, most suppliers choose to transfer capabilities for components of limited sensitiveness or early technologies in order to limit the risk of creating a new competitor and more generally of fueling competition. Even for the most demanding technological cooperation such as those going on in Joint Ventures' (JV) shared developments, access to each-other state-of-the-art technologies is often segregated from one another and shared information are always very controlled by the involved companies.

The real-life effects of transfers of technology on a country industrial base are even more difficult to measure when one factors in all the elements that could actually make all technical exchanges between the supplier and the recipient a lot more difficult and impede the recipient's efforts to absorb the new technology. Differences in program organization, in project leadership and even cultural or institutional divergences can actually severely hamper the efficiency of technical cooperation. Not to mention possible limits attached to any exchange of information or data by export control officials from both countries<sup>18</sup>.

One also has to consider the sheer diversity of form of technology transfers ranging from intangible mail exchanges in companies that are working together on complex projects to more elaborate shared computer systems, software and networks used in Joint Ventures to facilitate the cooperative development of products. To take a real life example, the A-400M project brings together dozens of companies providing anything from small components to complex systems under a single industrial management but several countries, which requires identical computer tools and sharing of information between all involved parties. That complexity also explains why not all transfers of technology have an equivalent influence on the capacity of the recipient to absorb the knowledge or information that can be passed through the different channels of cooperation and exchange between companies or people.

In that respect, the ongoing increase in intangible transfers – mainly due to the ever widening use of electronic communications, the ease of international travels and the fact that defense companies more easily implant subsidiaries in customer countries – represents a key issue in terms of control as it facilitates the transfer of know-how and makes control more challenging for the exporter country. Indeed, controls are based on the fact that the goods (even in the form of documents) do pass through national boundaries and therefore can be submitted to some form of physical control by national authorities. The absence of the border crossing aspect of the transfer puts a premium in the existence (and control) of internal industry compliance programs, and international cooperation including intelligence sharing on transfer of concern, harmonized control procedures and list of goods, coordinated control efforts, common training, interoperability, etc.

The possibility of transferring critical software, information or otherwise nationally export-controlled code-sources through the Internet (or other electronic means of communication) poses a palpable problem to export control authorities. This has been

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<sup>18</sup> Yuzo Murayama, “*Studies on U.S.-Japan Military Technology Relations: Reviewing Japanese-Language Sources for Technology Transfers, Military Technology Frictions and The Defense Industry*”, Working Paper No.6. <http://www.gwu.edu/~nsarchiv/japan/usjwp..htm> Accessed June 2011.

recognized by most export-control regimes including the Wassenaar Arrangement<sup>19</sup>. The emerging trend of International sharing of data and calculation resources in a cooperative manner, through cloud computing for instance, poses an even more important challenge in terms of export control. More importantly, with the internationalization of defense companies there will be increasingly intense and daily transfers of technology (knowledge, support...) between co-workers within companies. This will be true inside a national branch but also between subsidiaries and will take place through internal computer networks<sup>20</sup>. Moreover, the migration of Research and Development (R&D) centers to countries with less stringent legal constraints, adapted fiscal policies, modern infrastructures or simply with an ample, more available and less expensive work force potential is also a trend encouraged by globalization and the rapid flow of data made possible by modern communications technologies. Companies can also call upon foreign specialists to come work on subsidiaries or in Headquarters with minimum regards for security issues related to possible transfers of knowledge or know-how. Keeping track of information or data exchanges between individuals inside multinational companies tends to become a daunting task that can only be realistically accomplished by internal control branches under the effective supervision of national export control authorities.

It is also critical to note that the accelerating pace of the international diffusion of technological innovation tends to reduce the domain of military specific technologies for which more stringent export rules can be applied making them *de facto* easier to control by national authorities. The blurred distinctions that exist between military only technologies and dual-use ones – and the fact that different national agencies are usually in charge of the two application review processes<sup>21</sup> – also serves some companies or exporters that will try to get approval by applying for export license to the agency most likely to approve it. The divergence between a dual-use and military-only technology export licensing process has been identified by governments as one of the major flaws their export control systems suffer from. In April 2010, the Obama Administration proposed in the “4 singles” initiative to put the goods and technologies subjected to export control in a single list with different tiers of control and to put the licensing processes under the supervision of a single agency<sup>22</sup>.

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<sup>19</sup> Patricia Muldonian, US Department of Commerce, “*Wassenaar and its role in strengthening International Security: Intangible Transfers of Controlled Dual-Use Technology and Software in The Wassenaar Arrangement*”, Favorita Papers, January 2005, p. 40.

<sup>20</sup> In a sense, the virtual segregation (and the proper security of the thus created sub-groups) of the company’s network into multiple private networks will prove one of the means to ensure protection of export controlled technologies. Interview by Bruno Gruselle, 2009. See also, E.M. Graham, “*Direct investment and the future agenda of the World Trade Organization*”, Conference Draft, 24 June 1996, Institute for International Economics, p. 206.

<sup>21</sup> In the US, the State Department is in charge of military goods while the Department of Commerce deals with dual-use. In France, for example, the « Secrétariat Général de la Défense et de la Sécurité Nationale » reviews military exports licenses while the « Ministère de l’Industrie » is in charge of dual-use goods and technologies.

<sup>22</sup> <http://www.defenseindustrydaily.com/usa-moves-to-reform-arms-export-regulation-process-04665/>

## How are the ToT addressed in the existing regimes and instruments?

Technology transfers play an increasing role not only in arms trade but more generally in the development of weapon systems for national purposes or in the context of offsets or cooperative agreements. To a large extent, technology transfers take the form of daily technical exchanges between companies or subsidiaries in a more or less cooperative manner (JV, foreign investments, delocalization of industrial/R&D processes) and between co-workers through the company's networks or cooperative computer tools. The control of these transfers has become as difficult as it is necessary and will require improved cooperation from the companies but also between the national authorities of the countries that are involved.

It is therefore crucial to note that the verification of the end-use and non-diversion of technologies transferred in relation of arms trade agreement do require colossal means both human and technical.

Transfers of technology are discussed in a number of existing multilateral and export control regimes, highlighting the need to closely monitor these transfers but also the possibility of setting common rules as to what should be control. Obviously the operations covered by technological transfers have a high sensitivity at economical, industrial and military levels. The risks of proliferation also have to be taken into account when a system technological make-up is transferred.

We will consider briefly the following: the Wassenaar Arrangement, the Code of Conduct of the European Union, which became a common position in 2008, the instruments of the OSCE, and some other instruments. Finally, given its importance as a country with the largest and most complicated transfer control system, we will also look at the United States. We will see how these different instruments deal with transfers of technology and what can be inferred from that in the negotiation of a future Arms Trade Treaty.

### ***The Wassenaar Arrangement provides a corner stone definition of Technology Transfer***

The Wassenaar Arrangement on Export Controls for Conventional Arms and goods and dual-use technologies addresses technologies in the lists of equipment (Munitions List and Dual-Use List) to be covered by the control, and the information exchange between the participating States.

Technologies are included in the Munitions List, as the 22nd class of materials.

« [...] »

*ML22. "Technology" as follows:*

*a. "Technology", other than specified in ML22.b, which is "required" for the "development", "production" or "use" of items specified by the Munitions List;*



b. "Technology" as follows:

1. "Technology" "required" for the design of, the assembly of components into, and the operation, maintenance and repair of, complete production installations for items specified by the Munitions List, even if the components of such production installations are not specified;
2. "Technology" "required" for the "development" and "production" of small arms, even if used to produce reproductions of antique small arms;
3. "Technology" "required" for the "development", "production" or "use" of toxicological agents, related equipment or components, specified by ML7.a. to ML7.g.;
4. "Technology" "required" for the "development", "production" or "use" of "biopolymers" or cultures of specific cells, specified by ML7.h.;
5. "Technology" "required" exclusively for the incorporation of "biocatalysts", specified by ML7.i.1., into military carrier substances or military material.

Note 1 "Technology" "required" for the "development", "production" or "use" of items specified by the Munitions List remains under control even when applicable to any item not specified by the Munitions List.

Note 2 ML22 does not apply to:

- a. "Technology" that is the minimum necessary for the installation, operation, maintenance (checking) and repair, of those items which are not controlled or whose export has been authorised;
- b. "Technology" that is "in the public domain", "basic scientific research" or the minimum necessary information for patent applications;
- c. "Technology" for magnetic induction for continuous propulsion of civil transport devices."<sup>23</sup>

The Wassenaar Arrangement establishes a very broad definition of technology and associated transfers, from the licensed production to the incorporation of biocatalysts in the list, for example.

The idea underlying the list is to cover all technical and industrial steps required for the creation of a weapon system from development to use. By doing that, Wassenaar do take an all-encompassing approach of the transfers of technology that covers scientific endeavor as well as industrial cooperation or licensing agreements. This definition, being rather comprehensive, is relevant for export control purposes, where the receiving States have to be considered as benefiting to the same the degree of capacity and industrial potential as the exporters, whatever their actual degree of technological maturity is.

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<sup>23</sup> Wassenaar Arrangement, "The Munitions List", December 2010.  
Available at <http://www.wassenaar.org/controllists/index.html>

## ***The European Union Common Position on Arms Exports***

**The Council Common Position defining common rules governing the control of exports of military technology and equipment (2008/944/CFSP)** was adopted in 2008<sup>24</sup>, and is a revision of the 1998 Code of Conduct of the EU arms exports. The Code of conduct is a key element of the EU system of export control. This revision includes the extension of controls to brokering, transit transaction and intangible transfers of technology.

The Code is set to create some degree of coherence to the export control mechanisms set by all European Member States thus avoiding undercut practices that could actually lead one partner to agree to a transfer of technology or goods not agreed upon by another partner.

The technology is a part of the Munitions List<sup>25</sup>. Thus the transfers must be authorized after considering the eight criteria established by the Code of Conduct<sup>26</sup>. Identically to the list established by the Wassenaar Arrangement, technology is the 22nd class and is defined as:

*"Specific information necessary for the "development", "production" or "use" of a product. The information takes the form of technical data or technical assistance.*

### *Technical Notes*

- 1. 'Technical data' may take forms such as blueprints, plans, diagrams, models, formulae, tables, engineering designs and specifications, manuals and instructions written or recorded on other media or devices such as disk, tape, read-only memories.*
- 2. 'Technical assistance' may take forms such as instruction, skills, training, working knowledge, consulting services. 'Technical assistance' may involve transfer of 'technical data'.*<sup>27</sup>

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<sup>24</sup> **The Council of the European Union**, “*Council Common Position defining common rules governing control of exports of military technology and equipment*”, 2008/944/CFSP, 8 December 2008.

<sup>25</sup> The Council of the European Union, “*Equipment covered by the Council common position 2008/944/CFSP defining common rules governing the control of exports of military technology and equipment*”, 21 February 2011 (updates the previous version of the Munitions List adopted by the Council in February 2010 (2011/C 86/01).

Available at <http://consilium.europa.eu/eeas/foreign-policy/non-proliferation,-disarmament-and-export-control-/security-related-export-controls-ii.aspx?lang=en>

<sup>26</sup> 1) Respect for international commitments;  
2) Respect of human rights in the country of final destination;  
3) The internal situation of the country of final destination;  
4) Preservation of regional peace, security and stability;  
5) The national security of the Member States and of territories whose external relations are the responsibility of a Member State, as well as that of friendly and allied countries;  
6) The buyer country's behavior with regard to the international community, in particular its attitude to terrorism, the nature of its alliances and respect for international law;  
7) The existence of a risk that the equipment will be diverted within the buyer country or re-exported under undesirable conditions; and  
8) The compatibility of the arms exports with the technical and economic capacity of the recipient country.

<sup>27</sup> The Council of the European Union, “*Equipment covered by the Council common position 2008/944/CFSP defining common rules governing the control of exports of military technology and equipment*”, 21 February



Being a part of the Munitions List, military technology transfers are considered as the transfers of finished equipment. The EU 2008 Common Position emphasizes the importance of monitoring compliance of the end use, particularly important in terms of transfers of technology.

The User's Guide devotes a part to the post-export verifications system<sup>28</sup>. The document gives guidelines on how to follow the Common Position agreed on in 2008 on export control of military goods. It particularly insists on the practices in licensing, offers guidance on the application of the 8 criteria set by the position and on best practices on export control.

Transfers of technology are a growing concern for European Union countries as they try to deal with the verification of end-uses and tries to avoid technologies from being diverted to other use than the stated ones – one has in mind the use of chemical or biological technologies for the making of weapons. To some extent, post-export verification also has to deal with the re-transfer of weapon systems or sub-systems that can be produced from the transferred technology. This requires of course very stringent arrangements to be agreed upon by both the procuring and recipient States when the export is negotiated.

### ***The OSCE Documents give a very narrow definition centered on production capabilities***

The Organization for Security and Cooperation in Europe (OSCE)<sup>29</sup>, has adopted various instruments applying to the export of conventional arms, which specifically address the issue of technology.

For instance, the OSCE Document on Small Arms and Light Weapons<sup>30</sup> applies to transfers of technology for the design, production of small arms and light weapons. The OSCE Principles on export controls on man-portable air defense systems (MANPADS)<sup>31</sup>, adopted in 2004, cover issues related to the transfers of “Production Capacities”. According to these principles, the transfer should be permitted only when there is an end-user certificate, prohibiting re-export without the consent of the exporting State. Indeed, paragraph 1.2 of the 2004 decision on MANPADS states that “*The scope of export regulation and associated controls includes research, design, development, engineering, manufacture, production, assembly, testing, repair, maintenance, servicing,*

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**2011 (updates the previous version of the Munitions List adopted by the Council in February 2010 (2011/C 86/01).**

<sup>28</sup> The **User's Guide**, drawn up and regularly updated by the Working Party on Conventional Arms Exports, serves as guidance to assist Member States in implementing the Common Position (cf. Article 13 of the Common Position). Available at <http://consilium.europa.eu/eeas/foreign-policy/non-proliferation,-disarmament-and-export-control-/security-related-export-controls-ii.aspx?lang=en>

<sup>29</sup> The OSCE is a regional security organization with 56 participating Member States from Europe, Central Asia and North America. This includes all EU Member States, Switzerland, Norway, Canada, United States, Russian Federation and many former CIS States. [www.osce.org](http://www.osce.org)

<sup>30</sup> Organization for Security and Cooperation in Europe, “*Document on Small Arms and Light Weapons, adopted at the 308th Plenary Meeting of the OSCE Forum for Security Co-operation*”, 24 November 2000. Available at [www.osce.org/fsc/20783](http://www.osce.org/fsc/20783)

<sup>31</sup> OSCE “*Principles for export controls of man-portable air defense systems (MANPADS)*”, Decision N° 3/04, 26 May 2004. Available at [www.osce.org/fsc/32593](http://www.osce.org/fsc/32593)

*modification, upgrade, modernization, operation, use, replacement or refurbishment, demilitarization, and destruction of MANPADS; technical data, software, technical assistance, demonstration, and training associated with these functions”*

Although the question of the transfers of means of production covers offshore licensing production capabilities, they cannot as we have seen be assimilated completely to transfers of technology. Nonetheless, considering the growing possibility that major defense players may actually provide offsets by delocalizing at least part of the production capability to customer countries, it seems important to create a set of minimal common rules to avoid this transfers from being diverted from their stated uses.

### ***Other international and regional instruments propose various definitions of the transfer of technology***

For the most part, the other international and regional instruments do not cover the transfers of technology per se.

The UN “Programme of Action to Prevent, Combat and Eradicate the Illicit Trade in Small Arms and Light Weapons in All Its Aspects”<sup>32</sup> (PoA) addresses briefly the issue of international transfers. However, in its scope it does not cover technology.

The UN Protocol Against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition<sup>33</sup> - the Firearms Protocol, also does not apply to technology and their transfers.

The existing instruments in Africa including the 2006 Economic Community of West African States (ECOWAS) Convention on Small Arms and Light Weapons, Their Ammunition and Other Related Materials and the 2004 Nairobi Protocol for Prevention, Control and Reduction of Small Arms and Light Weapons in the Great Lakes Region and the Horn of Africa do not address directly the issue of transfers of technology.

For the most part, the issue is dealt with by international instruments that cover complex weapon systems rather than light weapons, firearms or MANPADS. This can be explained by the fact that transfers of technology often apply to large arms export contract and usually rather covers dual technologies rather than core defense know-how. Moreover, the transfer of complex weapon systems mostly accompanies the export of military platforms (fighters, bombers, UAVs, ships...): in effect, this means that smaller contracts – such as those constituted by the export of light weaponry – usually do not qualify for offsets and/or technological transfers.

### ***National laws and regulations: the example of the United States “International in Arms Regulations” (ITAR)***

At a national level, some States have developed mechanisms governing transfers of technology for defense goods. One of the main examples is the United States which have one of the most demanding export control system, including programs meant to verify end-use of transferred goods, systems and technologies post export.

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<sup>32</sup> Available at <http://www.poa-iss.org/PoA/PoA.aspx>

<sup>33</sup> Available at <http://www.poa-iss.org/FirearmsProtocol/FirearmsProtocol.aspx>

Indeed, The United States maintains one of the strictest legislative framework in the international community<sup>34</sup>. The U.S. export control regime is governed by two instruments: the Export Administration Act (1979) and the Arms Export Control Act (1976).

*“The Arms Export Control Act (AECA) is implemented by the International Traffic in Arms Regulations (ITAR, which are frequently updated in order to reflect new balance in international security and defense, as well as change in military technologies. The United States Munitions List (USML) encompasses technologies, components and services that are subject to export controls under the AECA”.*<sup>35</sup>

ITAR regulations cover very broad aspects of arms transfers in terms of technology and information. The latest are part of the definition of equipment and do not appear as such in the list of “defense articles” or “defense services”. The USML contains 21 categories of defense items<sup>36</sup>. The elements of this list are largely determined by those defined in the lists of multilateral instruments, including Wassenaar Arrangement but also such export control group as the Missile Technology Control Regime. The ITAR cover technologies in the form of: information, technical data or assistance.

*“Technical data covers any information required during the life cycle of the item for the design, development, production, manufacture, assembly, operation, repair, testing, maintenance or modification of defense articles”.*<sup>37</sup>

The U.S. laws and regulations affect a large number of States around the world, since many facilities are equipped with U.S. components and technologies and that a growing number of weapon systems and platforms do encompass US military technologies. They are therefore subject to the application of the strict regulations laid down by ITAR as well as end-use verification programs.

The U.S. Administration has started an in-depth review of its two main lists of equipment (both the *Munition List* and the *Commerce Control List (CCL)* which covers dual-use items). It wishes to revise its export control policy based on the critical sensibility of exported systems and technical goods<sup>38</sup>.

Technology has in fact become a key issue in the context of the US export policy which tries – through the ongoing revision – to unify the Administration’s approach of the many export operations that has to be controlled either by the Commerce department

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<sup>34</sup> Jean-François Daguzan, « *Le contrôle des technologies et la vérification dans la perspective du 11 septembre* », Fondation pour la Recherche Stratégique, 2003.

<sup>35</sup> Fondation pour la Recherche Stratégique, « *Export Control Handbook for Space Sector SMEs* », 2010, p. 20.

<sup>36</sup> The United States Department of State, “*International Traffic in Arms Regulations, Part 121.1 General, the United States Munitions List*”, 1 April 2010.

<sup>37</sup> The United States Department of State, “*International Traffic in Arms Regulations, Part 120.10, Purpose and Definitions*”, 1 April 2010.

<sup>38</sup> President Obama’s Speech, March 2010 at a US Export-Import Bank Conference: « *The Administration’s reform program will enhance national security by focusing on the enforcement of strict controls around the export of the most critical technologies and products, while strengthening the competitiveness of key manufacturing industries in the US by streamlining the regulations that apply to their exports.* »

(dual use) or the State department (military). At the rate at which licensing operations for weapon systems and dual use goods are growing in the United States, both services risk to be overwhelmed at a time when transfers of technology have become more important creating new risks for the country and its allies.

A Government Accountability Office's report (GAO) of February 2011 on "deemed export"<sup>39</sup> points out to the growing risk of foreign nationals working in the United States gaining access to technologies having military as well as civilian application (dual-use). The GAO stressed that in the 2004 to 2009 period of time, "*the United States issued about 1.05 million specialty occupation visas in high-technology fields to foreign nationals from 13 countries of concern to work in the United States*".

Since 2001, the United States Department of Commerce's licensing officers have seen their annual workload grow by more than 60%. The yearly growth in license applications since 2003 has risen to a steady annual 10% according to Administration officials<sup>40</sup>. In parallel, Technical Assistance Agreements and Foreign Manufacturing Licenses have grown to a total value in the order of magnitude equal to that of all hardware licenses<sup>41</sup>. The role of dual-use technology is even more significant in transfers related to arms trade precisely because offset policy often dictates the creation of joint ventures or cooperative developments in scientific domains related to the main weapon systems' export operations.

The United States are one of the country which developed mechanisms to carry on post-export verification: the "Blue Lantern" program. It is meant to both bolster pre-export verification on end-use and potential end-users but also gives the capability to the State Department to conduct post-export verification on the end-use of given items in the US list of arms submitted to export.<sup>42</sup> Dozens of countries worldwide are thus subject to inspection performed by US embassy personnel under jurisdiction from host countries' authorities. A watch list of suspicious end-user or transit companies is kept by US authorities.

The US blue lantern program spans on worldwide transfers and thus the end-use of literally thousands of components and associated technologies complicating excessively post-export control operations. Moreover, one must keep in mind the fact that some transfers are not directly related to the exported goods, systems or equipments making post-sell verification even more difficult or diplomatically complex. For instance, sub-systems or components can be integrated in complete weapon systems and then re-exported to a third user by the recipient government or company.

The growing concern in Washington over possible use of transferred technology for proliferation purposes or against its forces or those of its allies by rogue countries or organizations will indeed create growing pressure for some level of control to be

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<sup>39</sup> Deemed export is a US licensing process created to deal with possible transfers of controlled technology or source code to foreign nationals in the United States. Government Accountability Office, "*Deemed Export: Improvements needed to prevent unauthorized technology releases to foreign Nationals in the United States*", February 4, 2011.

<sup>40</sup> <http://www.defenseindustrydaily.com/usa-moves-to-reform-arms-export-regulation-process-04665/>

<sup>41</sup> Pierre Chao, "*Towards a US export control and technology transfer system for the 21<sup>st</sup> century*", Center for Strategic and International Studies, May 15, 2008.

<sup>42</sup> Just Stitzel, "*Blue Lantern Program*", Eighth International Export Control Conference Bucharest, 6-8 March 2007.

applied on tangible and intangible transfers to developing States. But, this could actually be dealt in detail within like-minded arrangements such as Wassenaar or through bilateral negotiation with client countries or allies. As its official position shows by not including formally the transfers of technology in the scope of controlled operations or materials<sup>43</sup>, Washington may in fact be a little reluctant to create *ex nihilo* a very high standard international norm when it feels that the control of transfers of technology is still pretty much limited compared to their own standard or at least lacking in some countries. Washington probably also believes that existing tools such as export control groups are in fact efficient in creating a common and strong tools for control in technology exporting countries. On the other hand, as it requires a strong international consensus on all aspects of the ATT to create some equal level of obligation for all exporting States, the United States apparently agree in principle on creating some minimal requirement on transfers of technology.

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<sup>43</sup> US Department of State, “*The Arms Trade Treaty Policy Issues for the United States Summary Report*”, June 21, 2010, p. 5.

## Transfer of technology and the Arms Trade Treaty discussions

The discussions during the meetings of the Preparatory Committee show that the inclusion of transfers of technology in the scope of an ATT is one of the most sensitive and controversial issues. There are many reasons, such as the great complexity of the concept itself, meaning the transfers of technology in arms. (See Part 1. of the study). The Chairman's draft paper, dated July 14, 2011, particularly provides guidance on what these transfers could cover under a future Arms Trade Treaty.

### ***Transfers of technology could be addressed in the controlled operations or in the list of materials covered by a future ATT***

Following the adoption of the first General Assembly resolution on the future Arms Trade Treaty in 2006<sup>44</sup>, 98 States have sent their points of view on the subject to the Secretary General. 37 States mentioned technologies related to production capabilities in their response. Only 15 States have mentioned technologies in relation with the scope of an ATT. Out of these 15, only 11 made specific references to transfers of technology. 51 States seem to support the inclusion of technologies in a future Arms Trade Treaty, particularly considering the inclusion of "*manufacturing technology, technology or technological development*".<sup>45</sup>

The Chairman's latest paper<sup>46</sup> maintains a double reference to the transfers of technology when addressing the scope of the Treaty.

Technology could become a part of the 12 categories of materials to be covered by a future Arms Trade Treaty but transfers of technology could also be one of the activities to be covered by an international regulation according to the Chairman's latest draft paper of July 2011.

*“For the purpose of this treaty, conventional arms shall include any items fall within the following categories:*

...

*l. Technology and Equipment specially and exclusively designed and used to develop, manufacture, or maintain any of the categories in subparagraphs (a)-(k).*

*II. The international transactions or activities covered by this Treaty include those listed below and defined in Annex A.*

...

*f. Technology transfer.*

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United Nations General Assembly, “Towards an arms trade treaty: establishing common international standards for the import, export and transfer of conventional arms”, Resolution A/RES/61/89, adopted 18 December 2006.

Available at <http://daccess-dds-ny.un.org/doc/UNDOC/GEN/N06/499/77/PDF/N0649977.pdf?OpenElement>

<sup>45</sup> Sarah Parker, “Implications of States’ Views on an Arms Trade Treaty”, UNIDIR, January 2008, p. 15

Sarah Parker, “Analysis of States’ Views on an Arms Trade Treaty”, UNIDIR, October 2007, p. 6

<sup>46</sup> Roberto Garcia Moritán, Chair of the Preparatory Committee of the Conference on the Arms Trade Treaty, “Informal draft paper on Arms Trade Treaty implementation”, July 2011 (latest version).. Available at <http://www.adh-geneve.ch/RULAC/pdf/Implementation-11-July-2011.pdf>



*Annex A Transactions or activities to be covered by the Treaty:*

*For the purpose of this Treaty, the following transactions or activities shall be covered by States in their national legislation and regulations:*

...

*d. Technology transfer: the export, by tangible or intangible means, of information which is required for the design, development, production, manufacture, assembly, operation, repair, testing, maintenance or modification of conventional weapons.”*

This is a relatively broad definition of technology and associated transfers whether taking the form of tangible or intangible operations. But the dual-use goods do not seem to be covered as stated in paragraph 1 of I. Only technology which has a military use would fall within the scope of a future Arms Trade Treaty: weapon systems, military platforms and ammunitions should be covered by the future treaty.

One could consider this definition of technology transfer as too brief for effective implementation but it also provides a broad base on which further developments are possible. Some experts have commented that the inclusion of transfers of technology in the scope of the future treaty is precisely necessary because it would fall short of its primary objective without such inclusion: *“without adequate integration of categories for military significant parts and components, and for technology and equipment, the Arms Trade Treaty would be incomplete. The current formulation in the most recent Chairman’s text from March 3 ties the control of parts and components, as well as for technology and equipment, to what has been “specially and exclusively designed” for the previous subcategories in the treaty text. This suggests a promising way forward”*<sup>47</sup>.

Why include technology in the materials and in the activities? Questioned by a number of delegations, including the European Union<sup>48</sup>, the double reference was explained by the Chairman as covering the dual nature of technology. The inclusion of transfers of technology in the range of activities that should be covered by a future Arms Trade Treaty could be justified by the essentially intangible nature of technology. On the other hand, one could argue that the inclusion of technology in the list of materials to be covered could be justified when one considers the possible uses of technologies for pre-production (research, design, development, testing) of defense equipment and weapon systems.

### **States continue to have Diverging Positions**

The political and diplomatic differences between the States are fuelled in particular by the various industrial considerations, economic interests and national security concerns. It is difficult to establish a general, simple and strict separation between different States, emerging exporters, importers and exporters in developed countries as they have

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<sup>47</sup> Anne-Charlotte Merell-Wetterwik, *“Possible Scope of the Future ATT and the Implications of the Different Options”*, UNIDIR, 2011, p. 13.

<sup>48</sup> « *We consider these activities as already covered by the reference to “technology and equipment, designed and used to develop, manufacture, or maintain military systems listed in the scope of an ATT” that you propose in your paper*”, Statement of the European Union, 28 February 2011.

different approaches to their market developments as well as different customer's countries, allies and export control rules and regulations to apply to technology transfers. The discussions during the sessions of the Preparatory Committee seem however to reveal some basic trends, illustrating the positions of most emerging markets of developed countries in terms of technology transfer.

A large majority of the developing countries, particularly the emerging ones, opposed the inclusion of transfers of technology clauses in the scope of a future Arms Trade Treaty during the discussions of the preparatory committee. At that time, their position encompassed both the materials and the activities that would be covered by the future regulations.

According to Indonesia, « *the inclusion of « technology transfer » and « manufacture under foreign license » are signals that the Arms Trade Treaty could be misused as a tool to impede transfer of technology of conventional arms to developing countries We believe that such a condition will not give incentives to developing countries to join ATT. »*<sup>49</sup>

Brazil noted that « *In the context of a possible Arms Trade Treaty scope, the informal paper also introduces other categories such as “parts and components” (roman II letter L) and “technology and equipment”(roman II letter m). In Brazil’s view, these categories should not be included in an ATT. It is a clear concern to us that any future controls do not affect or hinder the licit transfer of dual use goods and technologies, posing therefore serious obstacles to countries’ technological development, in particular developing countries.*»<sup>50</sup>

India stressed that, “*technology transfers should not be included in the scope of the treaty because implementation would be difficult and subject to interpretation*”<sup>51</sup>.

Finally, Egypt, without directly opposing the inclusion of transfers of technology in the scope of a future treaty, considered that « *Technology transfer should be rather encouraged under an Arms Trade Treaty instead of restricting it. This element belongs in the Chair’s paper on International Cooperation.*»<sup>52</sup>

According to these States the submission of a clause regarding transfers of technology to the regulations set up by a future Arms Trade Treaty would discriminate against the countries seeking to develop their own defense capacities.

The diplomatic positions they took during the preparatory committee meetings can be more broadly explained by their defense policy and the extent they depend on transfer of technology for the development of their industrial and scientific capabilities. They consider that regulations that could in anyway impede transfers of technology at an

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<sup>49</sup> The Government of Indonesia, “*Statement, at the second session of the preparatory committee for the United Nations Conference on an Arms Trade Treaty*”, 28 February 2011.  
Available at <http://www.un.org/disarmament/convarms/ATTPrepCom/Statements.html>.

<sup>50</sup> The Government of Brazil, “*Statement, at the second session of the preparatory committee for the United Nations Conference on an Arms Trade Treaty*”, 28 February 2011.  
Available at <http://www.un.org/disarmament/convarms/ATTPrepCom/Statements.html>

<sup>51</sup> ATT Monitor, Vol. 1 n°2, March 2011, p.3.

<sup>52</sup> The Government of Egypt, “*Statement, at the second session of the preparatory committee for the United Nations Conference on an Arms Trade Treaty*”, 28 February 2011.  
Available at <http://www.un.org/disarmament/convarms/ATTPrepCom/Statements.html>.



international level would be an infringement upon their economic development in general but would also affect the development of their defense technological and industrial bases. These countries consider the arms industry as an accelerator of economic development in terms of industrialization, job creation for the local population and local expertise. Indeed, as some experts have observed: “*The dominant economic motivation [of developing States] will be to use arms production as a leading sector in economic development.*”<sup>53</sup>

It has to be noted that none of these State are able at the moment to support a completely independent defense technological and industrial base that would meet all of its military and security needs. Therefore they still rely on export and transfers of technology to respond to their perceived security needs. However, some States more significantly depend on the access to foreign military or dual-use technology than other, although for some amongst them the situation is rapidly evolving as their dependence is diminishing. Emphasizing their desire to gain independence in terms of defense capabilities, a vast majority of emerging countries seek to develop transfers of technology and, in some cases, to obtain offsets directly related to the acquisition of a weapon systems or platform. (See Part I.)

The examples of Brazil and India are indeed revealing<sup>54</sup>. The requirement for transfers of technology has become a fundamental component of the defense contracts signed by Brazil<sup>55</sup> as it is showed by recent negotiations around the procurement of fighter aircrafts or other important weapons platforms. Arab States – especially countries in the Gulf region – also are in a situation to ask for important (or at least growing) transfers of technology as offsets for their large weapon systems procurements and in perfect adherence with their rapidly evolving defense policy.

For these emerging global and regional powers, the desire for economic development and the establishment of a defense technological and industrial base seems to go hand in hand with the desire to become a regional power, and to increase their own network of influence at an international as well as regional level. The fact that both India and Brazil do require offset – and have generalized the demand for transfers of technology when procuring weapon systems – can probably be directly correlated with a rapidly developing local defense industry and a publically notorious defense development policy.

Some developing States, such as the People’s Republic of China, are also aiming at becoming exporters of weapon systems and could in fact become net exporters of some niche capabilities, weapon systems, components or sub-systems. However very few States are now in a position to seriously compete with major players on the arms export market.

For a lot of reasons, the United States have taken a very reserved position on the inclusion of transfers of technology in the scope of a future Arms Trade Treaty. In particular, Washington considers that there are excessive difficulties in establishing of

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<sup>53</sup> Keith Krause, “*Arms and the State, patterns of military production and trade*”, 1992, p. 28.

<sup>54</sup> The European Commission, « *Study on the Impact of Emerging Defense Markets and Competitors on the Competitiveness of the European Defense Sector* », Final Report, February 2010.

<sup>55</sup> Defense News, « *Brazil seeks Arms, Technology Transfers* », 2009.

an international and universally agreed upon definition of transfers of technology. Switzerland, Japan or Israel have raised similar concerns on the very same issue.

On the other hand, the European Union supports the introduction of technology in the scope of a future Arms Trade Treaty. It « *considers technology transfer and production under license as an important issue.* »<sup>56</sup>. New Zealand also believes that the Arms Trade Treaty “*must reflect the current reality of the international trade in conventional arms and should be broad in scope covering not just weapons platforms and systems, but also their ammunition and components, as well as related manufacturing technology*”. Yet it considers that the inclusion of dual-use items in the scope of the treaty may prove difficult to implement practically.<sup>57</sup>

Canada is another supporter of the principle of the inclusion of technology in the scope of a future treaty but underlines that “*their inclusion in an ATT could require the development of detailed control lists to allow states full knowledge of what is to be controlled*”.<sup>58</sup>

Finally, non-governmental organizations have also been playing a very active role in campaigning for the inclusion of transfers of technology in a future Arms Trade Treaty. Among them, the Control Arms coalition – which brings together various international associations and actors of the civil society at a global level – supports the inclusion of technology transfers in the scope of the future treaty.

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<sup>56</sup> The delegation of the European Union, “*Statement, at the second session of the preparatory committee for the United Nations Conference on an Arms Trade Treaty*”, 28 February 2011.  
Available at <http://www.un.org/disarmament/convarms/ATTPrepCom/Statements.html>

<sup>57</sup> The delegation of New Zealand, “*Statement*”, 13 July 2010.  
Available at <http://www.un.org/disarmament/convarms/ATTPrepCom/Documents/Statements-MS/2010-07-13/13072010-NewZealand-E.pdf>

<sup>58</sup> The delegation of Canada, « *Statement at the Arms Treaty Prepcom* », 14 July 2011.  
Available at <http://www.un.org/disarmament/convarms/ATTPrepCom/Documents/Statements-MS/PrepCom3/2011-July-14/2011-07-14-Canada-EL.pdf>

## Conclusion

The fact that technology can take different forms – tangible and intangible, scientific cooperation, joint venture developments, exchange of know-how or equipment, etc.. – that (1) creates different situations in their transfer and (2) do not have equal consequences in terms of proliferation and diversion risks on the long term, imposes to pause and reflect on how to deal with their transfer and export within the scope of a future Arms Trade Treaty.

A double difficulty arises in connection with the inclusion of technologies in the scope of the Treaty: not only the delimitation of the definition of technology but also, and more importantly, the control of the end use of this technology by the recipient State are particularly difficult to measure. The question of how to verify in real-life situation the non-diversion of the transferred technology (or the equipment, weapon systems and such resulting from its application) also has to be considered.

Transfers of technology would require a control and verification of a different nature than the one that could be set up for transfers of conventional equipment, weapons or platforms. Such a control could consist for instance of introducing additional criteria, in taking into account the capacity of the recipient State to assist in controlling the end-use of the technologies – the companies concerned must also be able to control and manage information and technology transfers and be accounted for any retransfer or unlawful use of the said technologies –. The exporting State should be able to articulate efficient post-transfer and end-use requirements and ensure that the recipient is in fact willing and able to follow them. A future Arms Trade Treaty could indeed create obligations for both exporting and importing countries on these issues but would be incapable of verifying that they are in fact followed or even efficient. The final responsibility should lie in both procuring and recipient countries.

The question remains “*Is it possible for an universal Arms Trade Treaty to impose such a stringent control mechanism?*”. If the political answer is yes, as the necessity for some sort of universally applying control on the transfers of technology has to be reached in order to address key security issues, it is doubtful that this would be a practical and efficient solution or even one that would be politically acceptable. Given the position of most if not all developing countries one can only imagine that addressing the question would require some watered-down consensus.

Yet, as the need to take into account transfers of technology will remain a high priority issue – and possibly a growing problem – in relation to transfers of weapon systems and military equipment, there is value in trying to take steps to include them in a future Arms Trade Treaty. First of all, a consensus has to be reached on a commonly shared definition of what transfers of technology are, and the different forms they can take. This can probably be achieved by pressing on the work already done by the chair on the question by trying to use definitions put forward by existing export control regimes and even by trying to separate technologies of interest in the framework of arms transfers and technologies that have little impact on the capacity of recipients to duplicate the equipment or weapon systems. Furthermore, based on that definition it could prove useful to put forward wording that would create a common/universal – yet minimal – level of control at least on some of the operations considered as transfers of technology.

There would be some value for instance in controlling the transfers of production capabilities that do not always lead to transfers of technology per se but can have a destabilizing role nonetheless.

Working the way towards establishing some base ground rule on transfers of technology in the context of a future Arms Trade Treaty will undoubtedly require the drawing of a list of what countries will have to control and possibly a list of what should not be controlled. As Wassenaar does, it would indeed be useful to consider how to exclude “*Technology*” that is “*in the public domain*” because of the large commercial spectrum of items that would be included otherwise. To some extent, discussions should at minimal be held among experts to see how dual-use technology should be covered or not covered by the Treaty.

Another possible option would be the establishment of a working group of experts that could further work on ways of efficiently including transfers of technology in future evolutions of the treaty. Although this solution may not convince actors which are fiercely arguing for the immediate inclusion of transfers of technology in the scope of the treaty it could provide a dispassionate solution to a question that is very sensitive in nature for most States.