

# EXPORTS OF DUAL-USE CHEMICALS TO SYRIA: AN ASSESSMENT OF EUROPEAN UNION EXPORT CONTROLS

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## I. INTRODUCTION

In the 1980s the use of chemical weapons by Iraq was facilitated by the diversion to military use of chemicals and equipment ostensibly acquired for civilian purposes. In most cases these chemicals were not acquired through trafficking but were instead bought on the open market. It was clear that international efforts to impede the proliferation of chemical and biological weapons had to take account of the risk of such diversion.

The annual value of global sales by the chemical industry approaches €3 trillion, and the commercial activities of this sector are indispensable to maintaining and improving the quality of everyday life of people all over the world.<sup>1</sup> Export controls were seen as a mechanism that could place a barrier in the path of proliferators, while allowing the trade in chemicals for peaceful purposes to continue to develop and expand.<sup>2</sup>

The need to combine trade facilitation and chemical weapon disarmament was reflected in the 1993 Chemical Weapons Convention (CWC). Article XI of the Convention, which addresses economic and technological development, states that the provisions of the CWC 'shall be implemented in a manner which avoids hampering the economic or technological development of States Parties, and international cooperation in the field of chemical activities for purposes not prohibited under this Convention'.

<sup>1</sup> European Chemical Industry Council, 'The European chemical industry in worldwide perspective', [n.d.], <<http://www.cefic.org/Documents/FactsAndFigures/2012/Chemicals-Industry-Profile/Facts-and-Figures-2012-Chapter-Chemicals-Industry-Profile.pdf>>.

<sup>2</sup> Bauer, S., 'WMD-related dual-use trade control offences in the European Union: penalties and prosecutions', EU Non-Proliferation Consortium, Non-proliferation Papers no. 30, July 2013, <<http://www.sipri.org/research/disarmament/eu-consortium/publications/nonproliferation-paper-30>>.

## SUMMARY

In 2013 it was confirmed that European companies have exported a number of different chemicals to Syria with the full knowledge and consent of their responsible national authorities. Public attention was drawn to this information after the Syrian Government was accused of illegally using chemical weapons in attacks that killed large numbers of civilians.

There are inherent difficulties in controlling the international transfer of chemicals. The European Union (EU) has a system for controlling exports of so-called dual-use chemicals (chemicals that have civilian uses but that could also contribute to weapon programmes). The system is based on EU law that is binding on all member states. Studying this system can help to explain how chemical transfers to Syria could take place.

After dual-use goods have left the EU it is difficult, if not impossible, to supervise their use, and the law requires prior authorization from responsible national authorities before controlled items are exported from the EU. Authorization is only to be given in cases where the national authorities believe the proliferation risk associated with a given commercial transaction lies within acceptable parameters.

## ABOUT THE AUTHOR

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This explicitly includes ‘the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention’.<sup>3</sup>

Export controls are not intended to restrict international transfers of industrial chemicals. Rather, they are intended to ensure that such transfers do not contribute to chemical weapon programmes by making certain chemical transactions contingent on a proliferation risk assessment and authorization by responsible national authorities prior to export. This authorization is normally given in the form of an export licence. There are various types of export licence, adapted to different types of transaction and different levels of potential proliferation risk.

Restrictive measures of different kinds (often referred to as sanctions) are different from export controls. An export licensing system allows a designated national authority to decide whether or not a particular transaction should be allowed to proceed and, if not, provides the legal powers to prevent it. A restrictive trade measure is a prior decision that certain commercial transactions will be prohibited for as long as the measures are in force.

In order to reduce the risk that legitimate commercial trade will contribute to the proliferation of nuclear, biological or chemical weapons the European Union (EU) has developed an export control system applied to dual-use items—items that were not specially designed or developed for military use, but that can have military applications. The vast majority of dual-use exports pose either a very small or no proliferation risk, and an export that is subject to licensing will rarely be blocked. Furthermore, an export that is subject to restrictive trade measures will always be blocked provided that the national authorities are aware of it and have effective enforcement measures in place.

While it was not until 2013 that Syria confirmed that it possesses chemical weapons, the existence of such an arsenal had long been suspected.<sup>4</sup> In

those circumstances, how could a proliferation risk assessment have concluded that Syria was a safe market in which European chemical companies could do business?

## II. THE LEGAL FRAMEWORK

In all cases the responsibility to decide whether or not given chemical transfers should be approved rests with an individual country. However, in taking national decisions EU member states must consider the wider international framework of rules that apply to international transfers of dual-use chemicals. This framework is made up of a number of different but inter-related elements including (a) the obligations accepted by states when they join the CWC; (b) the obligations created by EU export control law; (c) the need to respect authoritative guidelines adopted in solidarity with partners in informal groupings that are incorporated into EU export control law; and (d) the obligations created by EU laws introducing restrictive measures of different kinds on relations with Syria.

### The Chemical Weapons Convention

Under the CWC, parties promise not to assist, encourage or induce, in any way, anyone to engage in any activity prohibited by the Convention.<sup>5</sup> However, the CWC does not provide any guidance to states about how they should comply in detail with this obligation. The CWC requires all states parties to adopt the necessary national measures to implement the CWC, but it does not prescribe in detail what such measures should include.

Given the differences between states’ legal systems and the differences in size and composition of their chemical industries, a fully harmonized approach to national implementation would be difficult to design. However, states parties have given a general undertaking that they will enact the laws needed to prohibit natural and legal persons from undertaking any activity prohibited under the CWC in any place under their jurisdiction or by their citizens anywhere in the world. This should certainly include laws

<sup>3</sup> Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention, CWC), opened for signature 13 Jan. 1993, entered into force 29 Apr. 1997, <<http://www.opcw.org/chemical-weapons-convention/>>.

<sup>4</sup> Elleman, M., Esfandiary, D. and Hokayem, E., ‘Syria’s proliferation challenge and the European Union’s response’, EU Non-Proliferation Consortium, Non-proliferation Papers no. 20, July 2012, <<http://www.sipri.org/research/disarmament/eu-consortium/publications/nonproliferation-paper-20>>.

<sup>5</sup> Chemical Weapons Convention (note 3), Article I. As of 1 Jan. 2013, the CWC had 188 states parties. Eight UN member states were not parties: Angola, Egypt, Israel, North Korea, Myanmar, Somalia, South Sudan and Syria. Somalia and Syria both became parties to the CWC in 2013.

establishing export controls for items relevant to the convention.

As noted above, the CWC is not intended to impede the peaceful use of chemicals. In fact, states parties promise not to ‘maintain among themselves any restrictions, including those in any international agreements, incompatible with the obligations undertaken under this Convention, which would restrict or impede trade and the development and promotion of scientific and technological knowledge in the field of chemistry for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes’. To that end, the parties promise to ‘review their existing national regulations in the field of trade in chemicals in order to render them consistent with the object and purpose of this Convention’.<sup>6</sup> However, the parts of the CWC that emphasize promoting and facilitating international cooperation among chemical industries also make it clear that these objectives are subject to the provisions of the Convention, notably the commitment to the permanent elimination of chemical weapons.

An annex to the Convention identifies chemicals of particular interest and relevance to the purposes of the CWC and contains specific provisions related to their transfer, including to non-state parties. The chemicals are divided into three lists (called ‘schedules’) according to their sensitivity. The three schedules attached to the CWC include groups of chemicals. All chemicals that can be created by all possible combinations of chemicals that fall within the groups are considered as listed in the respective schedule, unless they are explicitly exempted. The schedules cover a relatively small share of the total number of toxic chemicals and their immediate precursors (chemicals that can be used in the manufacturing process to make other, more sensitive, chemicals). However, the schedules nevertheless include many thousands of chemicals.

Schedule 1 lists six groups of chemicals that would have no, or only very limited, peaceful uses as well as two other precursor chemicals.<sup>7</sup> Schedule 2 contains several groups of chemicals, including one that is open-ended—containing all chemicals, ‘except for those listed in Schedule 1, containing a phosphorus atom to which is bonded one methyl, ethyl or propyl (normal

or iso) group but not further carbon atoms’.<sup>8</sup> Schedule 3 lists 4 toxic chemicals and 13 of their immediate precursors.<sup>9</sup>

Schedule 1 chemicals (the most sensitive) should not be transferred to any other country except under very tightly controlled conditions, and the transfer of both Schedule 1 and Schedule 2 chemicals to non-state parties is prohibited. Schedule 3 contains chemicals that are produced in large commercial quantities for purposes not prohibited under the CWC, but which have either been produced, stockpiled or used as a chemical weapon in the past, or else constitute precursors to such chemicals. Phosgene is an example of a Schedule 3 chemical that is produced in large amounts (many millions of tonnes per year) and used in many industrial applications such as the manufacture of plastics, polyurethane, pesticides, dyes and pharmaceuticals.

Before Schedule 3 chemicals are transferred to CWC non-state parties, the responsible national authorities in the exporting state should obtain documents for each transfer containing specific information including a statement that they will only be used for purposes not prohibited under the CWC, and that they will not be re-transferred; details of the type and quantity of chemicals being transferred; the stated end-use in the importing country; and the name and address of the end-user.

### The Australia Group

The Australia Group (AG) is a forum in which 41 participating states exchange information about current and expected chemical transfers of potential proliferation concern. The AG has developed guidelines that participating states have agreed to apply through their national legal and administrative systems when deciding whether or not to approve an application for an export licence.<sup>10</sup>

The guidelines apply to applications when the item to be exported is included on one of a series of control lists agreed by AG participating states. The common control lists include one on chemical weapons precursors and

<sup>8</sup> Chemical Weapons Convention (note 3), Annex on Chemicals, Schedule 2.

<sup>9</sup> Chemical Weapons Convention (note 3), Annex on Chemicals, Schedule 3.

<sup>10</sup> Australia Group, ‘Guidelines for transfers of sensitive chemical or biological items’, June 2012, <<http://www.australiagroup.net/en/guidelines.html>>.

<sup>6</sup> Chemical Weapons Convention (note 3), Article XI 2.(c) and (e).

<sup>7</sup> Chemical Weapons Convention (note 3), Annex on Chemicals, Schedule 1.

one on dual-use chemical manufacturing facilities and equipment and related technology.<sup>11</sup> The list of chemical weapon precursors agreed by the AG includes approximately 25 industrial chemicals that are not listed on the schedules attached to the CWC.

Exports of dual-use chemicals to Syria have regularly been the subject of discussions at meetings of the Australia Group, with periods of more intensive discussion (including bilateral and small group consultations) coinciding with evidence of significant procurement activities by Syrian entities of concern. Governments in the home states of chemical suppliers and states along transport routes to Syria were also consulted.<sup>12</sup> After the AG plenary meeting in June 2012 the press statement included a paragraph drawing attention to the risks involved in chemicals trade with Syria.

Against the background of ongoing violence in Syria, Australia Group participants noted that Syria continues to be a country of proliferation concern, with active biological and chemical weapons programs. Participants also discussed the extensive tactics—including the use of front companies in third countries—the Syrian government uses to obscure its efforts to obtain items on the Australia Group’s common control lists, as well as other dual-use items, for proliferation purposes. Participants agreed on the importance of increased vigilance with regard to dual-use exports to Syria and to subject exports to Syria to particular scrutiny.<sup>13</sup>

<sup>11</sup> Australia Group, ‘Fighting the spread of chemical and biological weapons: strengthening global security’, July 2007, <[http://www.australiagroup.net/en/agb\\_july2007.pdf](http://www.australiagroup.net/en/agb_july2007.pdf)>.

<sup>12</sup> US Embassy in The Hague, ‘Dutch response to Syrian CW-useful chemical procurement demarche’, Cable to US Secretary of State, no. 07THEHAGUE2084, 21 Dec. 2007, <<http://wikileaks.org/cable/2007/12/07THEHAGUE2084.html>>; US Embassy in Rome, ‘Australia Group: GOI response to demarche on Syrian efforts to procure CW-useful chemicals; questions on AG chair’s report on Russian export controls’, Cable to US Secretary of State, no. 07ROME2505, 21 Dec. 2007, <<http://wikileaks.org/cable/2007/12/07ROME2505.html>>; US Embassy in Ankara, ‘Turkey prepared to help block Syrian efforts to procure CW-useful chemicals’, Cable to US Secretary of State, no. 07ANKARA3043, 28 Dec. 2007, <<http://wikileaks.org/cable/2007/12/07ANKARA3043.html>>; and US Embassy in Athens, ‘Demarche delivered on Syrian efforts to procure CW-useful chemicals’, Cable to US Secretary of State, no. 08ATHENS30, 7 Jan. 2008, <<https://wikileaks.org/cable/2008/01/08ATHENS30.html>>.

<sup>13</sup> Australia Group, ‘Media release 2012 Australia Group plenary’, 15 June 2012, <[http://www.australiagroup.net/en/media\\_june2012.html](http://www.australiagroup.net/en/media_june2012.html)>.

In January 2013 the AG issued a special statement indicating that participating states were subjecting chemical exports to Syria to ‘particular scrutiny’.<sup>14</sup> At their June 2013 plenary meeting, AG participants devoted significant time to discussing Syrian chemical weapon-related issues. In the subsequent press release, participating states ‘emphasised the need for all countries to exercise increased vigilance with regard to dual-use exports to Syria of items potentially relevant to chemical and biological weapons, and to subject such exports to Syria to particular scrutiny.’<sup>15</sup> The participating states also agreed to apply special vigilance to transfers to Syria of five chemicals—ethylene oxide, hydrogen sulfide, sulfur trioxide, white and yellow phosphorus, and thiophosphoryl—that are not on the common control list of chemical weapon precursors. Finally, AG members committed to agree, as quickly as possible, an additional reference list related to chemical exports to Syria, and AG participating states are currently making proposals to that effect.

### The European Union dual-use export control system

With the creation of a single market for goods in the early 1990s it became illegal to restrict the movement of dual-use items from one EU member state to another. However, a system was needed to complete the single market without undermining the sovereign undertakings given by member states when they signed international conventions such as the CWC.

After 1994 the EU developed a progressively more harmonized approach to dual-use export controls. The rules that established the EU dual-use export control system were developed between 1991 and 1994, and the first laws entered into force in 1995. In 2000 a major consolidation and reform created a single Council regulation for the control of exports of dual-use items and technology.<sup>16</sup> According to the

<sup>14</sup> Australia Group, ‘Australia Group statement of concern regarding Syrian chemical weapons’, 28 Jan. 2013, <[http://www.australiagroup.net/en/syria\\_statement.html](http://www.australiagroup.net/en/syria_statement.html)>.

<sup>15</sup> Australia Group, ‘Media release: 2013 Australia Group plenary’, 7 June 2013, <[http://www.australiagroup.net/en/media\\_june2013.html](http://www.australiagroup.net/en/media_june2013.html)>.

<sup>16</sup> Council Regulation (EC) No 1334/2000 of 22 June 2000 setting up a Community regime for the control of exports of dual-use items and technology, *Official Journal of the European Communities*, L159/1, 30 June 2000. The current law governing dual-use exports from the EU is Council Regulation (EC) No 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and



current EU legislation, items that are listed in an annex to the export control regulation may only leave the EU customs territory if they have received an export authorization. Authorization is provided in the form of an export licence, which can be of four different kinds: general export authorizations, national general export authorizations, global authorizations and individual licences.

A general export authorization in effect provides prior approval to export certain items to certain destinations without specifying the quantities of the items or the number of transactions. The use of this licence must be recorded with customs authorities. National general export authorizations may be issued by EU member states, and France, Germany, Greece, Italy, Sweden, the Netherlands and the United Kingdom make use of them. EU member states may also issue global authorizations—licences that are issued to one exporter but cover multiple transactions. Finally, individual licences granted by the responsible authorities in member states approve one export by one exporter to one end-user.

The decision to grant or deny a licence application rests with the national authorities of member states. However, the EU legislation lays down criteria that must be applied when those decisions are made. Member states must take into consideration ‘the obligations and commitments they have each accepted as members of the relevant international non-proliferation regimes and export control arrangements, or by ratification of relevant international treaties’ as well as obligations under EU or United Nations sanctions. They are also obliged to make a national determination about the plausibility of the intended end-use of the items concerned and the risk that they could be diverted from that end-use.<sup>17</sup>

The EU legislation includes simplified procedures that can be applied to countries that are not considered to pose any proliferation risk. However, while low-risk countries are identified in annexes to the EU law, there is no corresponding list of countries of proliferation concern. All countries that are not eligible for simplified procedures are treated on an equal basis from the perspective of the EU law.

transit of dual-use items, *Official Journal of the European Union*, L134, 29 May 2009.

<sup>17</sup> Council Regulation (EC) No 428/2009 (note 15), Article 12.

### European Union restrictive measures against Syria

The UN Security Council has not been able to agree on any restrictive measure against Syria. Although the majority of Security Council members have voted for draft resolutions on several occasions in the past two years, these drafts have been blocked by two permanent members whose support is essential if they are to pass: China and Russia.

The bilateral EU–Syria relationship has been based on both trade facilitation and restrictive measures. The EU has had a contractual relationship with Syria since the 1970s, principally based on a 1977 Cooperation Agreement that was intended to facilitate trade.<sup>18</sup> After 1995, when the Barcelona Process was launched, the EU conducted bilateral discussions with countries participating in the Euro-Mediterranean Partnership, including Syria. Between 1997 and 2004 the European Commission negotiated a bilateral Association Agreement with Syria intended to strengthen political and economic relations, including developing a framework for regular political dialogue and creating a free-trade area between the EU and Syria in a step-by-step process over roughly a decade.<sup>19</sup> Although the Association Agreement was negotiated, it has never entered into force, and since 2004 the bilateral relationship with Syria has progressively deteriorated.

In contrast to the UN, the EU has imposed restrictive measures against Syria since the end of 2005, when sanctions were put in place following the killing of the former Lebanese Prime Minister, Rafiq Hariri.<sup>20</sup> Until recently, EU sanctions have been motivated by concerns about the internal repression of Syrian citizens, as well as Syrian actions that are considered to undermine regional instability and human rights. However, recent decisions have also reflected EU

<sup>18</sup> Cooperation Agreement between the European Economic Community and the Syrian Arab Republic, *Official Journal of the European Union*, L269, 27 Sep. 1978, pp. 2–87.

<sup>19</sup> Council Decision on the signing, on behalf of the European Community, and provisional application of certain provisions of the Euro-Mediterranean Agreement establishing an association between the European Community and its Member States, on the one part, and the Syrian Arab Republic, on the other part, European Council Interinstitutional File: 2008/0248 (AVC), Brussels, 17 Aug. 2009, <<http://register.consilium.europa.eu/pdf/en/09/st09/st09921.en09.pdf>>.

<sup>20</sup> Council Common Position 2005/888/CFSP of 12 December 2005 concerning specific restrictive measures against certain persons suspected of involvement in the assassination of former Lebanese Prime Minister Rafiq Hariri, *Official Journal of the European Union*, L327, 14 Dec. 2005.

member states' concerns about the proliferation of nuclear, biological and chemical weapons, as well as ballistic missile delivery systems for those weapons.

In 2011 the EU expanded the scope of restrictive measures, so that by 2012 many bilateral commercial ties to Syria were affected.<sup>21</sup> The supply of arms and related material of all types by EU member states to Syria is prohibited, as is the supply of any items on a list of equipment that could be used for internal repression. This has subsequently been expanded to include a prohibition on the sale, supply, transfer or export of equipment or software intended for use by the Syrian Government in monitoring or interception of Internet and telephone communications. The trade in gold, precious metals and diamonds as well as other listed luxury goods is prohibited. It is also forbidden to supply services, including financial services, connected to any of the previously mentioned prohibitions.

Specific individuals and entities are subject to an 'asset freeze', whereby their assets are held by EU financial institutions, and there is a ban on both cargo flights operated by Syrian carriers and travel to the EU by specific, listed individuals. Certain equipment or technology for use in the Syrian oil and gas industry is embargoed, and EU contractors may not participate in projects to generate electricity in Syria, including financing. Furthermore, Syrian banks and financial institutions are subject to EU restrictive measures, and are effectively barred from operating in the EU, mirroring a prohibition on operations in Syria by EU banks and financial institutions.

Items that are banned for sale, supply, transfer or export to Syria were listed in annexes to Council Regulation (EU) No 36/2012.<sup>22</sup> In June 2012 the list of prohibited items was expanded to include, among other things, dual-use chemicals as defined in the EU dual-use export control regulation. Already subject to prior authorization, since June 2012 the supply of these items has been prohibited.<sup>23</sup> In July 2013

Council Regulation 36/2012 was further amended, introducing a list of chemicals that are not part of the list of items controlled under the EU dual-use export regulation. However, the supply of these chemicals is not prohibited but instead made subject to prior authorization for the first time.<sup>24</sup>

### III. CHEMICALS SUBJECT TO CONTROL IN ORDER TO REDUCE PROLIFERATION RISK

As noted above, the global trade in chemicals is a huge economic endeavour involving many thousands of participating companies. Knowledge of industrial chemistry has spread very widely through the international system, so that companies and entities in many countries have now thoroughly mastered basic chemical techniques.

The states participating in the Australia Group have noted that chemical agents relevant to chemical weapon production fall into two broad categories: harassing agents intended to inconvenience or temporarily diminish the effectiveness of an enemy, and casualty agents intended to kill or incapacitate an enemy over a longer period.<sup>25</sup> Not all chemicals are suitable for use as chemical weapons, and the handbook on chemical weapon precursors developed for the Australia Group notes that 'the chemistry of phosphorus, sulphur, nitrogen, chlorine and fluorine is the most relevant to CW [chemical weapon] production.'<sup>26</sup>

The categories that the Australia Group refer to are extremely broad. The basic building blocks—elements that exist in nature—can combine in many different ways in chemical compounds that can be considered the precursors of chemical weapons. The chemicals that are confirmed to have been transferred to Syria, for example, include not only a range of chemical compounds but also chemicals that are mixed with others to make a product that has a particular purpose—such as galvanizing metal. Using techniques in industrial chemistry that are widely understood around the world, it would be possible to recover from these products and chemical mixtures chemicals that

<sup>21</sup> The restrictive measures in force against Syria are summarized in European Commission, 'European Union Restrictive measures (sanctions) in force', 31 July 2013, <[http://eeas.europa.eu/cfsp/sanctions/docs/measures\\_en.pdf](http://eeas.europa.eu/cfsp/sanctions/docs/measures_en.pdf)>.

<sup>22</sup> Council Regulation (EU) No 36/2012 of 18 January 2012 concerning restrictive measures in view of the situation in Syria and repealing Regulation (EU) No 442/2011, *Official Journal of the European Union*, L16, 19 Jan. 2012.

<sup>23</sup> Council Regulation (EU) No 509/2012 of 15 June 2012 amending Regulation (EU) No 36/2012 concerning restrictive measures in view of the situation in Syria, *Official Journal of the European Union*, L156, 16 June 2012.

<sup>24</sup> Council Regulation (EU) No 697/2013 of 22 July 2013 amending Regulation (EU) No 36/2012 concerning restrictive measures in view of the situation in Syria, *Official Journal of the European Union*, L198, 23 July 2013.

<sup>25</sup> Australia Group (note 10), p. 5.

<sup>26</sup> US Department of Energy, Argonne National Laboratory (ANL), *A Handbook for the Australia Group: Chemical Weapon Precursors*, Report ANL/NE/RP-116007, May 2005, p. 15.

would (if transferred individually) require an export licence.

To help manage the system for regulating chemicals in international commercial use, the states parties to the CWC and the participants in the Australia Group have discussed how to treat chemical mixtures exported to non-CWC states parties. In general, mixtures containing low concentrations of Schedule 2 and Schedule 3 chemicals can legally be exported to non-CWC states parties, although there are significant variations in how states implement this understanding in their national export control systems.

The Organization for the Prohibition of Chemical Weapons (OPCW) has compiled a database containing more than 29 000 chemicals that fall within the three schedules linked to the CWC, but also points out that the database does not contain all possible scheduled chemical formulae.<sup>27</sup> In fact, the chemicals that can be the ingredients from which chemical weapon agents could be produced might be impossible to catalogue comprehensively because of the nature of the families of chemicals concerned. For example, the guidance document published by the World Health Organization has noted that some of the 14 families of chemicals included in the CWC's Annex on Chemicals 'are very large indeed, running into many millions of chemicals, most of which have, however, never actually been made'.<sup>28</sup> However, it should be noted that this very large number is the result of theoretical combinations of chemicals, the vast majority of which have never been synthesized, and many of which would have properties rendering them unsuitable for use as chemical weapon agents if they were to be made.

The OPCW has also undertaken studies to identify the chemicals used in the final stage of synthesizing chemical agents that are known to have been weaponized. While many of these are only traded at a very small scale each year—which also reduces the proliferation risk associated with them—some scheduled chemicals are produced or traded on a large scale. Based on declarations from participating states, the OPCW has identified around 1400 chemicals considered to be particularly relevant to the purposes of the Convention.

<sup>27</sup> Organization for the Prohibition of Chemical Weapons (OPCW), *The Handbook on Chemicals*, (OPCW: The Hague, 2009).

<sup>28</sup> World Health Organization (WHO), *Public Health Response to Biological and Chemical Weapons: WHO Guidance* (WHO: Geneva, 2004), p. 29.

Isolating the chemicals relevant for the purposes of non-proliferation is balanced in the CWC by a general-purpose criterion based on end-use. Toxic chemicals are included in the definition of a chemical weapon contained in the CWC, which refers to 'any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere.'<sup>29</sup> This criterion underlines the need to continue monitoring additional chemicals as the chemical industry develops new products and new chemicals to meet societal needs. The criterion captures future chemicals that are not on the CWC schedules but could be used as agents or provide alternative synthetic routes to make chemical weapon agents.

The Convention prohibits states parties from developing, producing, otherwise acquiring, stockpiling or retaining chemical weapons, and also prohibits their transfer and use. Experts on the CWC have emphasized that these prohibitions and definitions do not apply to specific lists of chemical agents, but 'are all embracing and that the lists of chemicals making up the Schedules were never intended to be, and never could be, comprehensive'.<sup>30</sup>

While Articles I and II of the Convention, taken together, are comprehensive in that they include all toxic chemicals produced either now or in the future, Article II also goes on to exempt from the scope of the CWC any chemicals that are 'intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes'. While the Convention goes on to specify those purposes, it does so in very broad terms. Article II defines the following purposes as not being prohibited under the Convention:

- a) Industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes;
- b) Protective purposes, namely those purposes directly related to protection against toxic chemicals and to protection against chemical weapons;

<sup>29</sup> Chemical Weapons Convention (note 3), Article II.

<sup>30</sup> Pearson, G. S., 'Implementation of the general purpose criterion of the Chemical Weapons Convention', First CWC Review Conference Paper no. 3, Jan. 2003, <[http://www.brad.ac.uk/acad/scwc/cwrcrp/cwrcrp\\_3.pdf](http://www.brad.ac.uk/acad/scwc/cwrcrp/cwrcrp_3.pdf)>.

**Table 1.** Licences granted to German companies to export items to Syria under Annex I of the European Union's dual-use export regulation, 1998–2011

An asterisk (\*) denotes an uncertain figure.

Year	Chemical	Amount (kg)	Value (€)
1998	Potassium fluoride	2.5	29
	Sodium fluoride	1 018	2 694
	Potassium cyanide	25	307
	Electroplating with sodium cyanide	1 512	8 695
1999	Hydrogen fluoride, 71–75%	2 553	7 207
	Phosphorus pentasulfide	1	18
	Sodium sulfide, 35%	60	933
	Sodium fluoride	6 090	17 659
	Ammonium bisulfide	1 500	3 835
	Galvanizing product containing potassium cyanide	2 253	20 160
	Galvanizing product containing ammonium bisulfide	50	93
	Galvanizing product containing sodium cyanide	8 051	41 020
2000	Hydrogen fluoride, 71–75%	16 000	30 166
	Ammonium bisulfide	5 000	8 948
	Sodium fluoride	2 000	3 579
	Sodium cyanide	500	3 196
	Galvanizing product containing potassium cyanide	650	13 621
	Galvanizing product containing sodium cyanide	200	383
	2001	Hydrogen fluoride, 71–75%	18 000
Potassium cyanide		0.125	21
Phosphorus pentasulfide		1	14
Sodium hydrogen difluoride		4 000*	7 158
Galvanizing product containing sodium cyanide 55%		500	3 196
Galvanizing product containing potassium cyanide 50%		50	3 794
2004		Diethylaminoethanol	4 320.88
	Potassium fluoride	6	152
	Galvanizing product containing potassium cyanide	18.8	4 093
	2005	Hydrogen fluoride	40 000
Galvanizing product containing potassium cyanide		100	5 042
Ammonium bisulfide		4 000	5 196
Galvanizing product containing ammonium bisulfide		300	1 170
2006	Galvanizing product containing sodium cyanide	6 000	16 990
	Hydrogen fluoride	33 000	47 520
	Galvanizing product containing potassium cyanide	250	35 932
	Ammonium bisulfide	4 000	6 200
2007	Galvanizing product containing sodium cyanide	7 100	38 604
	Sodium fluoride	2 400	6 480
	Hydrogen fluoride, 71–75%	33 000*	47 520
	Sodium cyanide	4 000*	35 150
2008	Sodium fluoride	5 000*	13 000
	Diisopropylamine	8.64	151
	Hydrogen fluoride, 58–60%	20 000*	28 000
	Hydrogen fluoride, 71–75%	17 000*	44 200
	Diisopropylamine	8.64	173
	Potassium cyanide	2	400
	Galvanizing product containing ammonium bisulfide	100	390
Galvanizing product containing potassium cyanide	500	74 170	
Galvanizing product containing sodium cyanide	6 000*	32 100	



Year	Chemical	Amount (kg)	Value (€)
2009	Diisopropylamine	30.2	560
	Ammonium bisulfide	15 000*	27 750
	Galvanizing product containing ammonium bisulfide	50	208
	Galvanizing product containing potassium cyanide	100	2 120
	Galvanizing product containing sodium cyanide	1 750*	7 750
2010	Hydrogen fluoride, 71–75%	20 000	28 000
	Diisopropylamine	14.4	291
	Ammonium bisulfide	15 000*	28 100
	Galvanizing product containing ammonium bisulfide	400	1 716
	Galvanizing product containing sodium cyanide	2000	8 480
2011	Galvanizing product containing potassium cyanide	300	59 229
	Galvanizing product containing sodium cyanide	4 000	34 110

Source: German Ministry of Economics and Technology (BMWi), 'Informationen zu den erteilten Ausfuhrgenehmigungen nach Syrien auf Grundlage der EG-Dual-Use-Verordnung' [Information on export licences granted to Syria on the basis of the EC Dual-Use Regulation], [n.d.], <[http://docs.dpaq.de/5219-ausfuhrgenehmigungen\\_syrien\\_bmw\\_i\\_\\_bersicht\\_final.pdf](http://docs.dpaq.de/5219-ausfuhrgenehmigungen_syrien_bmw_i__bersicht_final.pdf)>

- (c) Military purposes not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare;
- (d) Law enforcement including domestic riot control purposes.<sup>31</sup>

Nevertheless, the CWC is essential in normative terms, because it creates a comprehensive prohibition on chemical weapons, and also offers some practical help to national authorities responsible for making that prohibition operational. However, the implementation of the CWC remains technically challenging, as demonstrated by recent cases of chemical transfers to Syria.

#### IV. EXPORTS OF DUAL-USE CHEMICALS TO SYRIA BY EUROPEAN UNION MEMBER STATES

In 2013 a number of European parliamentarians requested further information about the export of chemicals to Syria. Many EU member states now produce annual reports on export controls, including dual-use items. The fact that European companies were being granted licences to export dual-use chemicals to Syria was often acknowledged in general terms in annual reports produced prior to 2013. However, parliamentarians have since sought additional detail and greater clarity regarding chemical transactions than that provided in these reports.

<sup>31</sup> Chemical Weapons Convention (note 3), Article II, para. 9.

#### Germany

German companies involved in the chemical industry have had commercial connections with Syria, including transactions involving goods subject to export licensing because of their potential dual-use in military applications.

Since 1998 German authorities have granted 98 licences authorizing the export of dual-use chemicals to Syria for use in civilian applications (see table 1). The stated end-uses of the licensed goods include the surface treatment of metal goods to apply protective coating, the etching of glass, fluoridation of drinking water and the production of dental care products. German companies have also sold dual-use equipment to facilities in Syria for legitimate civilian end-uses such as producing paper and to the food processing industry. Since 1998, nine permits have been issued for valves, heat exchanger plates and several different kinds of pump, as well as spare parts for the licensed manufactured goods.

The transactions listed in table 1 were all submitted to the responsible German authorities for assessment and licensing prior to export. The risk assessments included consideration of possible diversion to a chemical weapon programme, based in part on an assessment of the potential use in making chemical weapons. The exporters were required to explain the intended civil end-use of the goods, and these statements were also assessed and considered to be plausible. In their evaluations, the authorities incorporated information provided by intelligence sources related to the end-users in Syria as well

as the end-use of the items. The assessments also involved checking whether or not other states that are partners of Germany in relevant non-proliferation regimes (including the Australia Group) had denied authorization to export similar items to Syria.

The risk assessments did not indicate a military use for the items for which authorization was sought, and therefore there was no basis for the authorities to refuse permission to export. Subsequent evaluations have not provided any evidence that the items delivered from Germany contributed to Syria's chemical weapon arsenal.

### The Netherlands

On 22 May 2013 the Dutch Minister for Foreign Trade and Development responded to a parliamentary request to comment on media reports that Dutch companies had exported an industrial chemical (monoethylene glycol, MEG) to Syria that could contribute to a chemical weapon programme.<sup>32</sup> In their public responses, representatives of the Dutch Government confirmed that exports of MEG from the Netherlands to the Syrian Ministry of Industry had occurred in 2003, adding that the Dutch authorities had informed the United States of the transfer at the time.<sup>33</sup>

As in Germany, the Netherlands has a national export control system based on risk assessment. In potentially sensitive licensing applications, various Dutch authorities (including the Ministry of Foreign Trade and Development, the Ministry of Foreign Affairs, the Dutch Customs Service and the security services) participate in the licensing assessment.

In this case, MEG was not on the EU dual-use export control list (which is still the case), and there was no reason to justify asking the Dutch company to apply for an export licence based on the end-use. The licensing authority, the Ministry of Economic Affairs, requested a technical report on the possible use of MEG in the production of chemical weapons at the time, and received information from the security services.

<sup>32</sup> Dutch Minister of Foreign Trade and Development, Letter to the President of the Second Chamber of the Dutch Parliament, 22 May 2013, <<http://www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2013/05/22/kamerbrief-inzake-berichtgeving-over-levering-door-nederland-van-grondstof-voor-chemische-wapens.html>> (in Dutch).

<sup>33</sup> Second Chamber of the Dutch Parliament, Question 3149, 4 Sep. 2013, <<http://www.tweedekamer.nl/downloads/document/index.jsp?id=6e6e47da-251e-4248-95eb-a0036138eb25>> (in Dutch).

In August 2003, after a shipment of MEG had left the Netherlands for Syria, the USA warned Dutch officials that the shipment could be used in the manufacture of rocket fuel and would be used in the Syrian missile programme.<sup>34</sup> The shipment was stopped by Belgian customs authorities but it proved impossible to do more than delay the shipment from going ahead. Dutch authorities had no authority to restrict shipments from Belgium, while Belgian authorities had no legal power to prevent the shipment since the goods were not on a control list and Belgian authorities could not impose an end-use control on a Dutch exporter. A subsequent analysis suggested that there were insufficient grounds to deny a request for an export licence based on end-use in this case. The goods had a plausible stated end-use and the information provided was not sufficient to make a link between the stated end-user and proliferation-related activities.<sup>35</sup>

In 2006 the Dutch security services provided a confidential report on the possible use of MEG in the production of mustard gas.<sup>36</sup> The report warned of the technical possibility that MEG could be used by the Syrian Government to produce mustard gas but did not contain concrete evidence that export licensing officers felt would have justified denying an export licence to Syria. Between 2008 and 2010 a Dutch company, Brenntag, exported approximately 70 tonnes of MEG to Syria.<sup>37</sup> The Dutch customs authority has no record of an export declaration for MEG after that date with Syria as a destination.

In 2008 the Netherlands made a presentation to the Australia Group on the potential end-uses of MEG in the production of chemical weapons, but the subsequent discussion in the group did not lead to the chemical being added to the common control list of chemical weapon precursors. There were two main reasons given. First, introducing a licensing requirement would have had a major impact on the commercial market for MEG. Second, where there

<sup>34</sup> Dutch Parliament, Second Chamber, General Committee for Foreign Trade and Development Cooperation and Permanent Committee on Foreign Affairs, Arms Export Policy Report no. 230, adopted 9 Aug. 2013, <<http://www.tweedekamer.nl/kamerstukken/verslagen/detail.jsp?id=2013Z04251&did=2013D31545>> (in Dutch).

<sup>35</sup> Dutch Minister of Foreign Trade and Development, Letter to the President of the Second Chamber of the Dutch Parliament, 14 June 2013, <<http://www.rijksoverheid.nl/bestanden/documenten-en-publicaties/kamerstukken/2013/06/14/kamerbrief-over-de-levering-van-glycol-aan-syrie/kamerbrief-over-de-levering-van-glycol-aan-syrie.pdf>> (in Dutch).

<sup>36</sup> Dutch Minister of Foreign Trade and Development (note 35).

<sup>37</sup> Dutch Minister of Foreign Trade and Development (note 35).

was information about proliferation risk, it would be possible to require a licence based on end-use.<sup>38</sup>

MEG is not listed in the annex of controlled goods that is part of the EU regulation that bans the export, transfer, brokering and transit of dual use items. However, in his letter to the parliament, the Dutch Minister for Foreign Trade and Development promised to raise the issue again in the EU and in the Australia Group and indicated that MEG would be added to a recently introduced national control list in the Netherlands specifying goods that need a licence if exported to Syria.

### The United Kingdom

In September 2013 it was confirmed that since 2011 the UK had granted two standard individual export licences (SIELs) for chemical exports to Syria. The licences were granted in January 2012, and the chemicals involved were sodium fluoride and potassium fluoride.<sup>39</sup> The UK has apparently authorized multiple shipments of potassium fluoride and sodium fluoride to Syria in recent years. The purported end-use of the chemicals was in industrial processes, as well as in cosmetic and healthcare products. However, the chemicals are also said to be precursors for chemical weapons such as sarin gas.

The licences issued in January 2012 were revoked six months later, in July 2012, after the introduction of new EU restrictive measures against Syria. According to the British customs service, the chemicals licenced at the beginning of 2012 were not delivered before the licences were revoked.<sup>40</sup> The British Government subsequently confirmed that over the past decade a total of six licences were authorized for sodium fluoride (in 2004, 2005, 2007, 2009, 2010 and 2012), with one licence authorized for potassium fluoride (in 2012).<sup>41</sup>

According to the British Department of Business, Innovation and Skills, which is the body responsible

for export licensing in the UK, the stated end-use of the chemicals was for industrial and commercial purposes, specifically for metal finishing of aluminium parts that would be used in making showers and window frames. The exporter and recipient company both provided information on end-use, and the British Foreign Minister subsequently told the parliament ‘there is no evidence that those goods, if they were exported, were used for anything other than their declared commercial purpose. When those two things are taken together, there is no evidence that any such exports have contributed to Syria’s chemical weapons programme’.<sup>42</sup>

Applications for SIELs are always considered on a case-by-case basis after assessment against both EU and national criteria (which include consideration of the CWC general-purpose criterion). The evaluation includes inputs from both the British Foreign and Commonwealth Office and the Ministry of Defence, and involves an analysis of the prevailing circumstances in the recipient country, the nature of the goods, the identity of the end-user and the stated end-use. In cases where doubt exists as to whether or not to grant an export licence, the responsible officials can refer the matter to the Secretary of State for Business, Innovation and Skills. However, decisions on whether or not to license chemical exports to Syria were made by officials, and not referred to ministers, because no specific concerns about end-use were identified.

The stated end-use that the exporters provided when applying for the export licences was considered a credible and legitimate use for the specific chemicals concerned, and was also consistent with the quantities involved in the transaction. No information available to the British authorities at the time the assessment was made suggested that the end-user involved in the transaction had links to the Syrian chemical weapon programme. Therefore, the applications for export licences were granted because there were no grounds for refusal.

Critics of the decision to grant licences for export to Syria drew attention to the fact that one of the Syrian end-users had earlier been named in reports by the Iraq Survey Group as a front company used by Iraq to buy aluminium for use in the Iraqi nuclear programme.

<sup>38</sup> Dutch Minister of Foreign Trade and Development (note 35).

<sup>39</sup> British Secretary of State for Business, Innovation and Skills, ‘Chemical weapons: Syria’, Written answer to the House of Commons, *Hansard*, 5 Sep. 2013, <<http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm130905/text/130905w0003.htm>>.

<sup>40</sup> British Parliamentary Under-Secretary of State, Department for Business, Innovation and Skills, ‘Export licenses’, Answer to the House of Lords, *Hansard*, 10 Oct. 2013, <<http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/131010w0001.htm>>.

<sup>41</sup> The UK publishes annual and quarterly reports on export licences issued, refused or revoked, sorted by destination. British Department of Business, Innovation and Skills, ‘Strategic export controls: reports and statistics’, <<https://www.exportcontroldb.bis.gov.uk/eng/fox>>.

<sup>42</sup> British Foreign Minister, Statement to the House of Commons, *Hansard*, 12 Sep. 2013, <<http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm130912/debtext/130912-0002.htm>>.

This information should have been considered as part of the risk assessment carried out prior to granting the export licence. However, the responsible British minister stated that he was not certain that the information about the end-user was in fact part of the licence assessment.<sup>43</sup>

## V. CONCLUSIONS AND RECOMMENDATIONS

The EU has agreed on a set of destinations that may receive listed dual-use items using a general export authorisation. Beyond these countries (to which exports are, in effect, pre-authorized) the EU does not differentiate between destinations, but requires a case-by-case assessment of proliferation risk when deciding whether or not to authorize a licensable export.

In Germany, the Netherlands and the UK, licensing assessments are linked to an enforcement system that includes automated reporting for shipments of sensitive goods, and particularly close attention is paid when a shipment is headed for a sensitive destination. If the risks associated with a particular shipment are considered too high, the authorities have the legal powers to require an export licence for items not normally subject to licensing. If necessary, the terms of export licences can also be adapted to include additional safeguards to reduce proliferation risk.

Identifying chemicals that could pose a proliferation risk is not a straightforward matter. The scale of commercial trade in chemicals makes it unrealistic to monitor and control all shipments of chemicals. There is a tendency to focus on large-scale shipments of the chemical precursors most closely associated with chemical warfare agents.

While more information may become available in future, there is no current evidence that the chemical transfers to Syria briefly described above contributed to Syria's chemical weapon arsenal. However, diversion from peaceful uses cannot be discounted, and a degree of risk was certainly present. The transfers underline the need to ensure that licensing authorities have access to all available information on the end-users involved in a transaction, and the need for a methodology that ensures that the information is included in risk assessment.

International chemical transfers to Syria for commercial purposes are not prohibited. European

legislation allows for national legislation imposing an authorization requirement on the export of unlisted items based on proliferation concerns. However, the cases described above indicate that EU countries are reluctant to implement national measures restricting commercial trade in chemicals, and prefer to seek agreements on common measures at the EU level and in international export control regimes.

In the absence of common rules, national licences are considered to be prejudicial to the commercial competitiveness of chemical companies. This approach is consistent with the legal framework for dual-use export control established in the EU—which was, first and foremost, intended to facilitate the free movement of goods as a part of completing the single market and reducing barriers to trade.

Statements by government representatives indicate that, when balancing commercial interest and proliferation risk, the main emphasis should be placed on proliferation risk reduction. The current position of governments seems to be that commercial competitiveness is a consideration in the application of export controls, but should not be an overriding or decisive argument.

The transfers to Syria often involved shipments of small quantities. As an indication, the total value of exports of hydrogen fluoride from Germany to Syria in the period 1998–2011 is equivalent to three-quarters of one per cent of the annual sales of that chemical by the German chemical industry. Small shipments of listed chemicals, or (to an even greater extent) shipments of unlisted, but proliferation-relevant, chemicals may pass through risk assessment procedures implemented by enforcement agencies.

From a non-proliferation perspective, the volume of chemicals needed to support a development programme would be very difficult to conceal. A large-scale production programme would require tens or hundreds of tonnes of chemicals. Efficient international information exchange on the trade in chemicals helps countries to identify cases where what seem to be small volume transactions when viewed in isolation are actually part of a larger procurement effort.

The shipments from the Netherlands involved a chemical, monoethylene glycol, that is not found on any control list or schedule, but which could nevertheless play a role in a chemical weapon programme. Listing countries with which all transactions should be assessed prior to export is generally not favoured in Europe. However, countries such as Canada operate

<sup>43</sup> Milmo, C., 'Vince Cable refuses to name firms that tried to export chemicals to Syria', *The Independent*, 24 Oct. 2013.

an area control list that identifies states to which any export requires a licence, whether the items involved are listed or not—in effect, a country-specific end-use control. Another approach could be to develop tailored, country-specific lists rather than relying on end-use controls that are only likely to be triggered by specific intelligence information on particular shipments.

The country-specific approaches noted above should be linked to a shared assessment among EU member states of the proliferation risk associated with the country concerned. That assessment should include a joint analysis of the military establishment of the country that takes into account all relevant aspects of doctrine, military organization, delivery systems for chemical weapons and the research and industrial base to support a military capability. This would also facilitate the sharing of information on end-users, and reduce the chance that relevant information would be overlooked in national risk assessments.

Extending the system of risk assessment to cover currently non-listed chemicals to sensitive destinations would probably have a minimal impact on commercial competitiveness. There are only a few such destinations, and the transactions captured in this approach probably involve small quantities with a very low financial value. However, the process would have to be developed with transparency and in full cooperation with the chemical industry if it were to be implemented effectively. In addition, chemical manufacturers, traders and brokers would need to understand the use of country classification and incorporate it in their internal company routines for customer screening.

## ABBREVIATIONS

AG	Australia Group
CWC	Chemical Weapons Convention
MEG	Monoethylene glycol
OPCW	Organization for the Prohibition of Chemical Weapons
SIEL	Standard individual export licence



## A EUROPEAN NETWORK

In July 2010 the Council of the European Union decided to create a network bringing together foreign policy institutions and research centres from across the EU to encourage political and security-related dialogue and the long-term discussion of measures to combat the proliferation of weapons of mass destruction (WMD) and their delivery systems.

## STRUCTURE

The EU Non-Proliferation Consortium is managed jointly by four institutes entrusted with the project, in close cooperation with the representative of the High Representative of the Union for Foreign Affairs and Security Policy. The four institutes are the Fondation pour la recherche stratégique (FRS) in Paris, the Peace Research Institute in Frankfurt (PRIF), the International Institute for Strategic Studies (IISS) in London, and Stockholm International Peace Research Institute (SIPRI). The Consortium began its work in January 2011 and forms the core of a wider network of European non-proliferation think tanks and research centres which will be closely associated with the activities of the Consortium.

## MISSION

The main aim of the network of independent non-proliferation think tanks is to encourage discussion of measures to combat the proliferation of weapons of mass destruction and their delivery systems within civil society, particularly among experts, researchers and academics. The scope of activities shall also cover issues related to conventional weapons. The fruits of the network discussions can be submitted in the form of reports and recommendations to the responsible officials within the European Union.

It is expected that this network will support EU action to counter proliferation. To that end, the network can also establish cooperation with specialized institutions and research centres in third countries, in particular in those with which the EU is conducting specific non-proliferation dialogues.

<http://www.nonproliferation.eu>



## FOUNDATION FOR STRATEGIC RESEARCH

FRS is an independent research centre and the leading French think tank on defence and security issues. Its team of experts in a variety of fields contributes to the strategic debate in France and abroad, and provides unique expertise across the board of defence and security studies.

<http://www.frstrategie.org>



## PEACE RESEARCH INSTITUTE IN FRANKFURT

PRIF is the largest as well as the oldest peace research institute in Germany. PRIF's work is directed towards carrying out research on peace and conflict, with a special emphasis on issues of arms control, non-proliferation and disarmament.

<http://www.hsfk.de>



## INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES

IISS is an independent centre for research, information and debate on the problems of conflict, however caused, that have, or potentially have, an important military content. It aims to provide the best possible analysis on strategic trends and to facilitate contacts.

<http://www.iiss.org/>



## STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament. Established in 1966, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.

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