



## NON-PROLIFERATION MONTHLY

Issue 78

**CWC 3rd Review Conference Special Issue**

SPECIAL ISSUE 2013/II

### *A Blueprint for the future*

*By Ahmet Üzümcü, Director General of the Organisation for the Prohibition of Chemical Weapons*

The Third Review Conference of the Chemical Weapons Convention (CWC), to be held from 8 to 19 April 2013 in The Hague, will take place at a very important stage in the life of the OPCW.

The success of the OPCW, especially in the verified destruction of declared chemical weapons, will have a major impact on the Organisation's future priorities. At the time of the last Review Conference five years ago less than 40% of declared chemical weapons had been destroyed; today that figure has doubled to nearly 80%. Although the final extended deadline to complete the destruction of all stockpiles was not fully met, progress has certainly been significant.

While destruction of chemical weapons will remain a priority, including the elimination of old and abandoned chemical weapons, the actual quantum of associated verification work will progressively decline. By the Fourth Review Conference in 2018 a much lower percentage of our resources will be needed for these activities. A blueprint for the OPCW's future orientation should be established well before that time, and the Third Review Conference offers such an opportunity.

Verification and related transparency and confidence-building measures are at the heart of the CWC, and programmatic elements for preventing the re-emergence of chemical weapons will acquire much greater salience in the future.

This is a much wider notion than mere non-proliferation, one that covers industry verification and its improved efficacy over time, data monitoring, transfer controls, effective national CWC implementation, and dissemination of the treaty's ethical norms through outreach, education and public diplomacy.

At the same time, our promotional programmes constitute fundamental pillars of the Organisation. Sustaining the current widespread support that the Convention enjoys will require continued attention and improvements to our international cooperation activities. Our work in this area as well as in assistance and protection has been a key factor in the near-universal adherence to the Convention.

The Convention serves a security purpose and the OPCW is a security organisation. In our global village and particularly in view of the changing nature of perceptions and threat assessments, States Parties have increasing expectations with regard to the Organisation in a number of areas. These include a better defined role for the Organisation in the context of anti-terrorism (for instance, greater emphasis on what it can do to promote chemical safety and security) and enhanced coordination with other relevant international and regional organisations, including in the context of assistance and protection and capacity building in States Parties.

The Chemical Weapons Convention is rooted in a science whose breathtaking advances bring promise but also potential peril. We must therefore find ways to enhance the interaction between the OPCW's Science Advisory Board and its policy-making organs, and to increase our dialogue with the scientific community as a whole. Ethical norms as well as tools of verification must keep in step with scientific advancements to ensure progress with peace.

So as we look to the future, it is obvious that a common understanding about longer term priorities is needed. This should accompany a consensus on the adequate resource allocation and structure for the Technical Secretariat. There is no better opportunity to devise such a framework than the Third Review Conference and I am confident that States Parties will once again rise to the occasion to make it a success.



*H.E. Ahmet Üzümcü, Director General of the OPCW*  
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## CWC 3rd Review Conference

### ***Progress since the Second Review Conference (2008) and challenges***

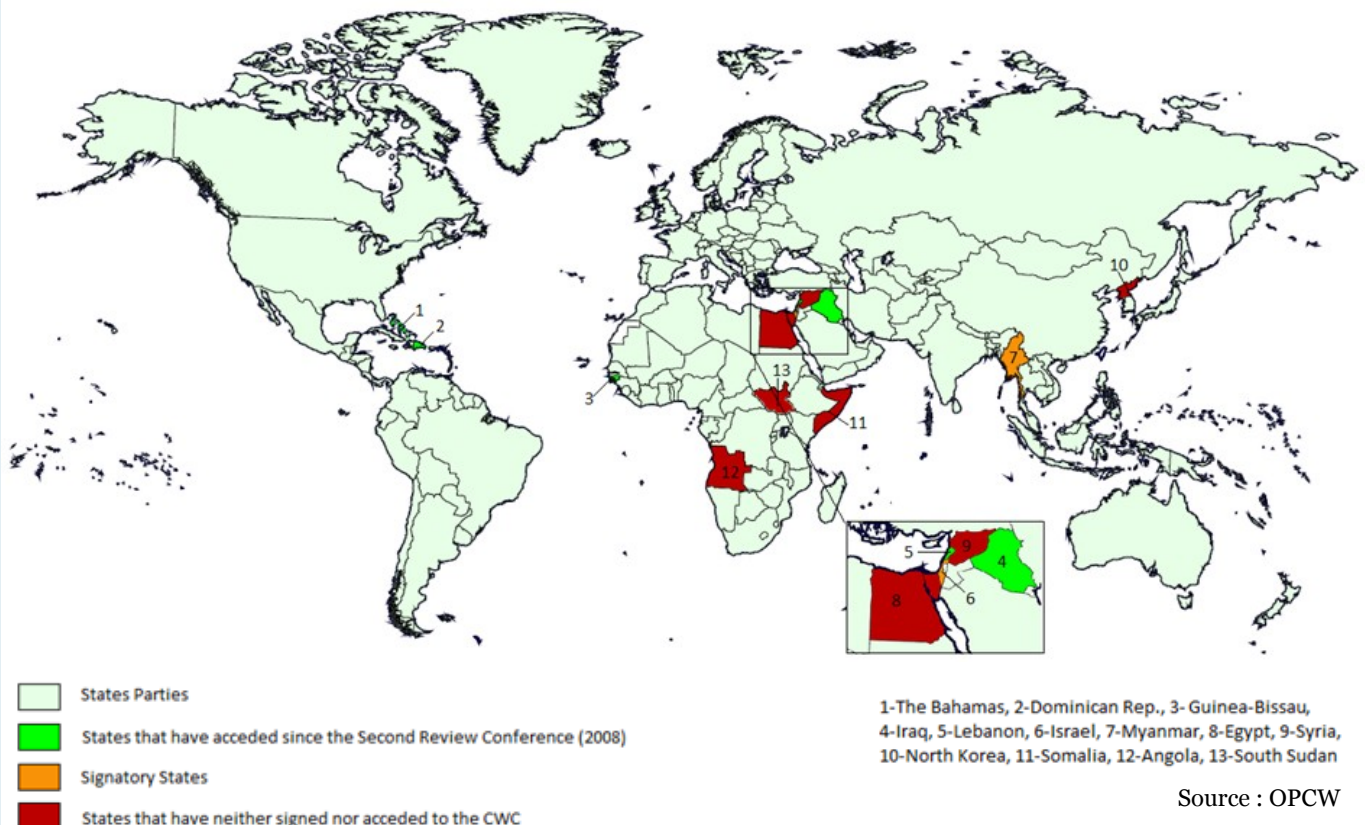
By Elisande Nexon, Research Fellow, Fondation pour la Recherche Stratégique, France

The opening of the Chemical Weapons Convention to signatures twenty years ago, constituted an essential step in the fight against chemical weapons. Taking the past, especially the heritage of the Cold War, into account, the Convention undeniably provides an ambitious answer to the question of the destruction of the chemical weapons declared by seven States Parties to the Convention (Albania, India, Iraq, Libya, Russia, the USA, and another State Party). The CWC remains the principal international instrument providing for the eradication of a category of weapons of mass destruction. While up until recently this kind of threat could appear to be more political than military, the situation in Syria (a non-Member State) shows that the Convention remains as pertinent as ever.

The number of CWC States-Parties currently stands at 188, covering 98% of the world's population and the majority of chemical industrial areas. Although five States have joined the Convention since the last Review Conference, namely Guinea-Bissau and Lebanon in 2008, and the Bahamas, Iraq, and the Dominican Republic in 2009, eight States are still not Parties to the CWC. While Israel and Myanmar have signed but not ratified the Convention, Angola, Egypt, North Korea, Syria, Somalia, and South Sudan (which became the 193rd United Nations Member State in July 2011 following its independence) have neither signed nor acceded the Convention. Angola's ambassador to the Netherlands did, however, announce in May 2012 that his country was prepared to join the Convention.

Relationships with the Convention vary greatly by country, meaning that approaches adapted to different specific situations need to be developed. Universality is yet to be achieved and must remain an objective. It is moreover necessary to note that while the majority of States have designated a national authority, many are yet to adopt national legislation covering all of the CWC's provisions (see pages 4 and 5).

### ***Progress towards universalization of the CWC***



[...]

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The Convention relies on a rigorous verification regime. The Organisation for the Prohibition of Chemical Weapons (OPCW) was created with a mandate “to achieve the object and purpose of the Convention, to ensure the implementation of its provisions - including those for international verification of compliance with it - and to provide a forum for consultation and cooperation among States Parties”. Several types of inspection are provided for, along with the possibility to conduct on-site challenge inspections in the case of an allegation of use by another State Party. Routine inspections – which concern declared storage, production, and destruction facilities, along with declared industrial facilities – are designed to verify States Parties’ declarations and to guarantee that activities undertaken comply with the Convention, contributing to the fostering of confidence. Moreover, each State Party, as specified by Article IX, “has the right to request an on-site challenge inspection of any facility or location in the territory or in any other place under the jurisdiction or control of any other State Party for the sole purpose of clarifying and resolving any questions concerning possible non-compliance with the provisions of this Convention”. This option has not yet been triggered, but that does not mean that the possibility of such activities should be excluded.

As for disarmament, States Parties are required to destroy chemical weapons and production facilities under their jurisdiction and control, as well as any chemical weapons that they may have abandoned on the territory of another State Party. The OPCW is tasked with verifying that this process is irreversible. As of the 23rd January 2013, 78.01% of the declared global stockpiles of chemical agents (71,196 tons) have been destroyed. 45.56% of the 8.67 million chemical munitions and containers targeted by the Convention have also been destroyed. Albania, India, and one other unspecified State Party have completed the destruction of their stockpiles. In spite of the means implemented, Russia and the United States (which possess the largest chemical weapons stockpiles) did not meet the 29th April 2012 deadline for the total destruction of their stockpiles, nor did Libya. The sixteenth session of the Conference of States Parties went somewhat to resolving this situation via the adoption of a decision defining the confidence-building and transparency measures to be implemented by the Secretariat and the three States in question. Although a large share of the Organisation’s resources have hitherto been allotted to the verification of declared stockpiles and former production facilities, as well as to verifying the destruction of these stockpiles and the conversion of the facilities to permitted ends, the question of reorientation must now be considered. In light of the non-proliferation approach and the verification of industrial facilities, one of the main issues concerns the rationalisation of sites to inspect (see pages 6, 7 and 8).



*Destruction of chemical agents in Albania  
© Defense Threat Reduction Agency*

Envisaging the Convention’s evolution means also having to study the potential impact of scientific and technological progress (see pages 9 and 10), which can either pose a risk of misuse for hostile purposes, or help to reinforce the means of implementing the Convention’s provisions. Moreover, although it was not conceived for this purpose, taking non-State threats into account in the framework of the Convention is a cause for concern. The CWC is legitimate with regard to assistance in case of aggression or to detection and prevention training. Finally, besides the provisions that assist the fight against chemical weapons and their effects, the CWC should help to promote international cooperation on the peaceful uses of chemistry.

In this context, the Third CWC Review Conference will take place in The Hague from the 8th to the 19th April, in light of which this special issue will examine the key issues facing the Convention.

## CWC 3rd Review Conference

### ***National Implementation of the Chemical Weapons Convention: Using the law to prevent chemical weapons***

By Yasemin Balci, Legal Officer, VERTIC—UK

The Third Review Conference of the Chemical Weapons Convention (CWC) comes 15 years after the entry into force of the CWC. There has been significant progress towards a chemical weapons-free world over that period, although less than half of the CWC's 188 States Parties have so far adopted the necessary legislation to implement the Convention in their domestic legal orders. This year also marks the 25th anniversary of the use of chemical weapons in the Iraqi town of Halabja, as a result of which around 5,000 people died. To prohibit these weapons and prevent them from being used in either peace or wartime, States Parties need to adopt a range of measures to give effect to the CWC in their national legal orders.

The need for appropriate and enforceable legislation to prohibit and prevent chemical weapons is clear. It has been almost ten years since Mr Frank van Anraat, a supplier of the chemicals needed to produce the mustard gas used in attacks against Iranian and Iraqi villages by Saddam Hussein's regime, including Halabja, was arrested by the Dutch authorities. His case was lengthy and complicated. Prosecutors had to prove that his chemicals (thiodiglycol or TDG, now listed in the CWC as a 'Schedule 2' chemical) were those used by the Iraqi regime to produce the chemical weapons that were employed by Iraqi forces. Prosecutors also had to prove that selling these chemicals amounted to a violation of international humanitarian law for which Mr Van Anraat incurred individual criminal responsibility.



*Frank van Anraat. © AFP*

In the 1980s, the CWC did not yet exist and legislation prohibiting the misuse of toxic chemicals was limited to the use of poison or poisonous gases. Prosecuting acts similar to those of Mr Van Anraat would be much more straightforward under legislation implementing the CWC given that specific activities, such as transferring chemical weapons, or chemicals appearing on one of the CWC's Schedules without authorization, are criminalized. Importantly, comprehensive legislation can also help prevent the use of chemical weapons, as export-control legislation can ensure that chemical agents reach and remain with their identified user and that the type and quantity of the agent match the purpose.

However, if States Parties do not have the required legislation in place – and 53 per cent of CWC States Parties still do not – there will continue to be weak points in the global system. For his part, Mr Van Anraat chose trading companies in countries with weak export-control legislation to forward shipments to the Iraqi regime. That kind of exploitive behavior can easily occur in States Parties without comprehensive CWC legislation. Moreover, those States Parties that have adopted implementing legislation have to make sure that it is enforced. Officers should be trained to identify imports and exports correctly so that the data of importing and exporting states correspond. The OPCW reports that 75 per cent of transfers of Schedule 2 and 3 Chemicals at present do not. This does not necessarily mean that the chemicals did not reach their intended destination, but it makes it difficult to verify whether they did. Similarly, law enforcement officers may require training to investigate suspicious incidents with toxic chemicals. Continuous training may be required at different levels of government. States Parties also need to have measures in place that allow for review of their legislation. For example, national export-control lists may need to be amended to keep up with developments in chemistry and the growing convergence between chemistry and biology.

Implementing legislation will be required in all States Parties' domestic legal orders, regardless of whether these are dualist (i.e. treating international and national law as separate systems) or monist (i.e. treating international and national law as one system). Most States now recognize that the CWC is not a self-executing treaty, which means that it is not directly applicable in the national legal order. For example, Article I of the CWC prohibits States Parties from engaging in activities concerning chemical weapons.

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This article will not automatically apply to natural and legal persons within States Parties. To allow the prohibitions in Article I to apply to individuals or companies, national implementation measures are required in all States Parties, as obliged by Article VII of the Convention.

National implementation of the CWC features on the agenda of the Third Review Conference. During the First Review Conference in 2003, a push for comprehensive implementation of the CWC was made with the agreement of a 'Plan of Action Regarding the Implementation of Article VII Obligations'. During the execution of this Action Plan it became clear that close cooperation between States Parties, the OPCW, regional and international organizations, and other stakeholders is needed to achieve the full legislative implementation of the CWC. This Review Conference will need to make decisions that will remain relevant for the next five years, during which time the OPCW will see a decrease in its chemical-weapon-destruction activities. To ensure that States Parties' attention to the CWC will not fade but rather refocus on preventing chemical weapons from reappearing, this Review Conference should reaffirm in the strongest terms States Parties' commitment to national implementation of the CWC and encourage further cooperation among the relevant international, regional, and national stakeholders.

### ***Beyond reemergence***

By Colonel Nicolas Coussière, Délégation aux affaires stratégiques, ministère de la Défense, France

*All opinions expressed herein are those of the author and do not reflect any official position.*

The OPCW's principal function and *raison d'être* comprise the destruction of chemical weapons declared by certain States. Yet, the undoubted corollary of this primary function is to prevent the parallel emergence of new chemical weapons, termed the notion of "re-emergence". These are two sides of the same coin. The metaphor is indeed hackneyed, but it is hard to depict any more clearly the strict intertwining of these two concepts, their inseparable nature, and the fact that one is not conceivable without the other.

With regard to re-emergence, a recent development is worthy of note. The signature in the autumn of 2012 of "Interface Procedures" between the OPCW and the United Nations regarding the placement of the Organisation's resources at the disposal of the United Nations Secretary General in the case of an allegation of use of chemical weapons on the territory of a non-State Party to the Convention. This agreement covers technical points, but beyond its provisions and its scope, it represents a step in the right direction, namely the growing involvement of the OPCW in the International Community's efforts to counter the development of weapons of mass destruction. This article will attempt to clarify this synergy from an operational perspective.



*OPCW inspectors in action*  
© OPCW

It is first of all necessary to highlight the extent to which the availability of the OPCW's resources constitutes an added value for any fact-finding mission. In the first place, the OPCW personnel are used to working in a team, a factor that will save time when setting up the mission, which cannot be launched without meeting the unavoidable demands of interoperability. Next, all of the inspectors have been trained to work in contaminated atmospheres, which reduces the length of the specific training programme during the mission's initial stages. Furthermore, the OPCW possesses an extremely broad range of competency: beyond that of the inspectors that immediately springs to mind, the contributions of the decontamination teams, the specialists in chemical weapon dispersion, and even jurists, to cite but a few examples, should be taken into account. The mastery of the specialised logistics in tandem with the aforementioned competency is also a significant factor. This wealth of human resources would prove invaluable in the formation of any mission.

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Moreover, the expertise that the Organisation's headquarters in The Hague could provide in support of its deployed teams should least of all be neglected, a fact which more than underlines the extent to which the idea of "a global concert of chemical weapon knowledge" is not an empty phrase.

The ability to count on the OPCW during a fact-finding mission provides the international community with an unparalleled asset, which no other international organisation is likely to boast.

That said, the Organisation cannot equip an entire fact-finding mission alone, but must appeal to individuals and/or teams that the OPCW is unable to provide, such as forensic pathologists, environmental toxicologists, specialists in interviewing witnesses, operational search teams, and interpreters to cite a few examples. It is also conceivable that an enquiry into alleged use might comprise not only a chemical aspect, but also a biological element, something that the OPCW is, by definition, unable to provide. Finally, on a political note, the presence of a wide geographical range of State experts is an imperative condition of an enquiry's legitimacy and of the admissibility of its conclusions.

The crux of the matter is, however, by no means in these few reservations. What counts above all is the OPCW's preparation of its agents to take their place in a larger coordination structure, training its teams to work in conjunction with other teams or individual experts, and improving its capacity to deploy its personnel and support them from The Hague. In so doing, the OPCW also reinforces its expeditionary know-how, which will be equally indispensable, depending on the circumstances, to the conduct of a challenge inspection or the organisation of an assistance mission under Article X of the CWC.

Is there any better proof that we are dealing here with the very core of the OPCW's vocation?

### ***The future of verification***

By Isidore Decostaire, Scientific Advisor of the Deputy Defense and Security Official, Economic and Financial Ministries, France;

And Coralie Nyffenegger, Chemical Office, Institute for Radioprotection and Nuclear Safety, France

*All opinions expressed herein are those of the authors and do not reflect any official position.*

France ratified the Chemical Weapons Convention (CWC or the Convention) on the 2nd March 1995. The text is unique in the field of disarmament: it is the only international convention that provides simultaneously for the total destruction of an entire category of weapons of mass destruction and for an onerous verification system that facilitates action on the non-proliferation front. Since its entry into force on the 29th April 1997, the Convention has garnered a great deal of success in the shape of the destruction of 80% of declared chemical weapon stockpiles and a quasi-universalization of States Parties (188 countries out of 196). Total elimination seems feasible in the coming years.

The national implementation of the CWC (comprising authorisations, declarations, and facility inspections) and the preservation of companies' scientific and technical potential (including know-how and data confidentiality) in the industrial sector constitute the two fundamental elements of the activity of the Finance and Economics Ministries' Senior defence and security official. To this end, it benefits from the scientific and technical expertise of the chemical office of the international controls application service (SACI) at the Institute for Radioprotection and Nuclear Safety (IRSN). This office is also in charge of accompanying the inspections carried out on French territory by the Organisation for the Prohibition of Chemical Weapons ("OPCW" or "the Organisation"). Furthermore, the office of the Senior defence and security official, along with the French chemical industries union, the second largest chemical industry in Europe and the seventh largest in the world, undertake a joint approach to apply the Convention.

On the international front, the Organisation is entering a phase of transition towards "post-destruction". The five-yearly review which will take place between the 8th and the 19th April 2013 will be devoted to the Organisation's new roles.

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The latter is the only guarantee of an effective struggle against the re-emergence of chemical weapons. In this respect, a certain number of proposals concerning declarations, the selection of sites, and inspections themselves, and greater heed taken of the recommendations of the Scientific Consultative Council and other organisations involved in the disarmament process would help to reinforce the verification regime in the industrial sector.

Based on a regime of confidence, the data declared to the OPCW should be done so within the allotted timeframe with the utmost precision in order to guarantee equal treatment among States Parties, to

optimise resources (to avoid inspections of uninspectable sites), and to ensure that the sites selected for inspection are pertinent. Generalising the use by national authorities of an electronic declaration programme and establishing a bonus-malus system that would have an impact either on the frequency of reinspection or on a country's geographical balance would comply with the dual-imperative of punctuality and precision. Regarding imports and exports of chemicals listed in Schedules 2 and 3 of the CWC, the issue of inconsistencies in transfers (71%) between States



Parties presents a risk of misuse from a non-proliferation perspective. In accordance with Article IX of the Convention, the Technical Secretariat could act as an intermediary, an eventuality that would most likely encourage States Parties to make the information in their possession available. Regarding the improvement of declarations of discrete organic chemicals, the addition of data pertaining to the characteristics of the production site would allow the sites to be categorised and would thereby help to select the most pertinent sites for inspection.

In this perspective, a new provisional selection method for discrete organic chemical sites was established in late 2011 and evaluated in early 2013. A regular analysis aiming to ensure geographical equity while maintaining its efficacy (by avoiding the impoverishment of pools) is imperative. Nonetheless, the method only covers two of the three factors defined by the Convention. States Parties should coordinate amongst themselves to collectively define the third factor, which is currently on hold. The use of open sources in the site-selection methods could also provide a means of more efficiently targeting the most pertinent sites for inspection. It is important to remember that less than 5% of sites in the world are inspected annually by the Organisation. The Technical Secretariat could formulate the guidelines dealing with open sources that are used solely for selecting sites and by no means during inspections.

Inspections are a fundamental component of the CWC. The inspections field has witnessed considerable improvements since the Second Review Conference in 2008, notably as a result of the increased number of inspections, the use of samples and sample analysis, and greater training and efficiency of the inspection teams. To date, the OPCW has carried out fifty or so inspections with physico-chemical analyses on sites engaging in activities involving Schedule 2 chemicals under Article 27 of Part VII of the Verification Annex. These inspections are highly intrusive and more onerous than traditional inspections. The analysis technique employed has been significantly enhanced since 2006 (via the use of sample carriers and a stabilisation system). Extending this kind of inspection to sites producing Schedule 3 chemicals and discrete organic chemicals would reinforce the verification regime.

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Despite significant developments in the verification field, the scientific and technical progress since the Convention's entry into force makes it necessary to consider the nature of the products covered by the CWC. To this end, States Parties and the Technical Secretariat could build on the diverse expertise provided by the consultative scientific council, and notably that which recommends defining the term "synthetic products" as anything arising from processes leading to the formation of a chemical substance. Including biological syntheses in the term "synthetic products" cited in the Convention would have repercussions with regard to the declarations submitted by States parties under Part IX of the Verification Annex, undoubtedly raising the question of convergence between chemistry and biology. At present, certain States Parties declare sites that produce discrete organic chemicals by chemical synthesis. Taking into account the opinions of entities involved in the disarmament process, as is the case in the nuclear and biological fields, would also constitute a means for the Organisation to open itself up to civil society and increase media visibility on the international scene.

### *Three questions for Neil Harvey, Head of International Trade, UK Chemical Industries Association*



**CHEMICAL INDUSTRIES  
ASSOCIATION**

**1. What is the role of industry in support of the Convention?**

The commercial sector has no interest in chemical weapon production although some precursors of warfare agents do have legitimate commercial uses.

The Convention requires all sites which produce organic chemicals above threshold levels to make declarations and be open for inspections. Industry has always understood that the routine verification process is primarily a confidence-building measure rather than a process for detecting violations of the Convention. Action by officialdom can only provide a limited degree of comfort but it does give credence to statements by chemical companies that they are not involved in CW-related activities. In practice, responsible behaviour within industry is the primary defence to stop commercially available toxic chemicals getting into the wrong hands.

At present, the Convention continues to balance the necessity of industry verification with the need to protect legitimate industry interests. The Convention's multiple schedules, varied inspection aims, different degrees of intrusiveness and different thresholds reflect a sensible strategic approach to industry verification. Since the last review conference there have been some minor technical breaches of national legislation by companies but no pre-meditated contraventions. Basically, thou-

sands of plant sites have complied with trade controls, obligatory declarations and have been open anytime, anywhere for OPCW inspections.

**2. Looking forward: From an industrial perspective, what are the key challenges regarding the implementation of the Chemical Weapons Convention?**

There are many. Industry compliance to the Convention will come under greater public scrutiny as the industry evolves and as the global security situation changes. So it is important that the site inspection programme and the declaration processes are fundamentally sound and applied universally.

The site inspection programme now involves plant sites producing either scheduled or unscheduled discrete organic chemicals, the activity accounting for the majority of declarable and inspectable States Parties. As a result, these inspections should be extending the geographic reach of industry verification and engaging new States Parties.

However, despite the availability of assistance from both States Parties and the OPCW, nearly half of States Parties have yet to adopt national implementing legislation and regulations to meet their non-proliferation and destruction obligations. Even where States Parties have adopted measures there are significant disparities in declaration practices, leading to a range of rules and inconsistent implementation. While this situation persists confidence in the Convention's contribution to non-proliferation and CW elimination worldwide is being undermined. That is not helpful to the public image of the industry. [...]



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### **3. What are the new or key trends in the chemical industry (that are relevant for the Chemical Weapons Convention and the Organization for the Prohibition of Chemical Weapons)?**

The most obvious trend in the global chemicals industry is the expansion of new declarable production sites to new industrial zones or chemical parks. This will require the OPCW to ensure its inspection and internal administrative resources are redeployed to reflect the changing demographics of the industry. From a production point of view, batch production reactors have not fundamentally changed for a hundred years and will continue to be used for the foreseeable future. Continuous processes are more susceptible to technological change but even high through-put technologies are not yet in common use.

The OPCW's interaction with industry will be more crucial in the future, which is why industry would like to see a mechanism in place to inform the OPCW on how to better interact with industry. Industry is so far only involved to a very limited degree in the OPCW's Scientific Advisory Board which is an important overseer of technological developments in the chemicals industry. We welcome this but there are a cluster of verification issues, mostly of a technical nature, that also need addressing. Many of them have been raised and addressed by the Advisory Panel on the Future Priorities of the OPCW but there needs to be follow-up and closer dialogue with industry. We would like the 3rd Review Conference to trigger more engagement with industry to sort these issues out.

*Interview conducted by Elisande Nexon*

### **Science, technology, convergence, and the CWC**

By Ralph Trapp, International Arms Control and Disarmament Consultant

A standing agenda item for Review Conferences of the Chemical Weapons Convention is to review advances in science and technology and assess their impact on the operation of the Convention. Such advances can affect the strength of treaty prohibitions, the way the treaty needs to be implemented by the States Parties, and the way in which the OPCW conducts on-site inspections. New scientific discoveries and enabling technologies can also enhance countermeasures against toxic chemicals, thus shifting the balance between offensive and defensive applications of chemistry in favour of the latter. Furthermore, the environment wherein States Parties collaborate in the peaceful uses of chemistry is in flux.

This review will be particularly pertinent for the Third Review Conference. The OPCW is beginning to adjust its priorities as the destruction of declared chemical weapons stocks nears completion. Another reason is the fast pace of science and technology. The time from scientific discovery to industrial application and the use of chemical products in society has shrunk considerably. The cost of scientific experimentation continues to drop while the environment for scientific collaborations has changed with the use of the Internet and the emergence of "virtual laboratories". These trends are particularly noticeable at the intersection of chemistry and biology. In the life sciences, a process of convergence is taking place, bringing together different scientific disciplines, engineering, mathematical modelling, and other enabling technologies.

Whenever scientific disciplines converge and their different investigation methods and theoretical concepts combine, roadblocks are likely to disappear. At such junctions, scientific progress can happen in leaps rather than via linear progression, and surprises are possible. Chemistry and the life sciences seem today to be at such a crossroads. What does that imply for the Chemical Weapons Convention?

A first question to ask is whether new discoveries might in any way undermine the scope of the prohibitions. Could there be agents that somehow fall outside the regime of the Convention? So far, the answer has been that the "General Purpose Criterion" covers any such eventuality. But it is at the intersection of chemistry and biology that uncertainties might occur. As synthetic biology advances and the construction of more complex biological systems becomes a reality, where exactly will the borderline between BW and CW be drawn? Is a synthetic virus-like replicating system with human toxicity a biological agent, a toxic chemical, or both? And if the conclusion were that it was a chemical agent, is the CWC equipped to deal with the risks associated with such agents given its focus on industrial-scale production of chemicals known from past CW programs?

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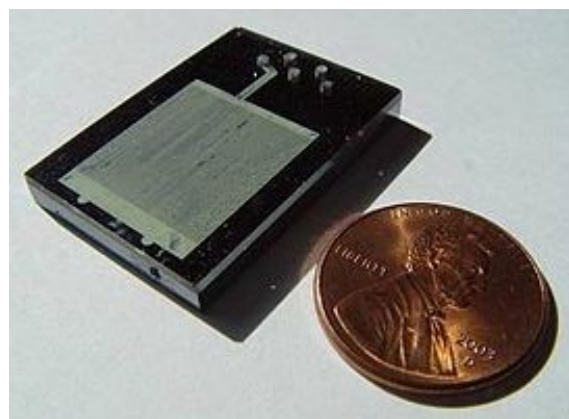
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Equally, as biology gets better at explaining exactly how biomolecules work, there may be a temptation to interpret the definitions of the CWC in too loose a sense.

The discussion about whether or not incapacitating chemicals can be used in law enforcement is an example of how the treaty regime could be undermined by a combination of scientific promises and pressures to reinterpret the treaty. This could lead to the weaponization of new types of toxic chemicals under a new label, undercutting the disarmament character of the CWC.

A second set of questions relates to national implementation. Biologically mediated processes have been discussed for some time in the OPCW, and with regard to scheduled chemicals the situation is clear: any production, whether by chemical, biological, or mixed processes, is covered under the CWC and needs to be subject to national implementation measures. Above the respective thresholds, it becomes liable to OPCW verification. With OCPFs, however, no such agreement has been reached and different States Parties have regulated biological methods of chemicals manufacturing differently. This may not have caused major problems in the past. As the share of the bio-industry in the production of chemical products increases, however, and in particular when bio-mediated production is more widely used for the manufacture of platform and specialty chemicals (in addition to such products as biofuels), inequalities in implementation systems are likely to cause friction among States Parties and need to be resolved.

A third issue is verification. Advances in science and, perhaps more importantly, technology are changing the operations of the chemical industry. New products are being brought onto the market - some of them might have utility as candidate chemical agents. New manufacturing processes and equipment are being used - some might increase the versatility of chemicals manufacturing and make it easier to convert legitimate chemical plants to the production of traditional or novel chemical agents, thus creating a kind of "breakout capability" that could put stress on the verification system and make verification results less dependable. In addition to these technological changes, the industry is evolving in response to environmental, economic, and demographic pressures. How should the industry verification system of the CWC respond? Should the Schedules be reviewed and new chemicals be added to them? Should the OCPF verification regime be refined to focus verification efforts on chemical plants that are more relevant to the objectives of CW disarmament than others? Views on these issues vary among experts from the chemical industry, the verification community, and communities that deal with security risks. The answers will not be easy to establish, and more discussion will be needed about the objectives of industry verification.



*Microreactor developed at the Lawrence Livermore National Laboratory  
© U.S. Department of Energy*

Finally, there is the impact of science and technology on enhancing the protections against chemical weapons. The general consensus seems to be that developments in such fields as nanotechnology and synthetic biology will help to improve countermeasures to mitigate the risks related to toxic chemicals, for example through new treatments, better detectors, new methods of forensic analysis, and milder decontamination agents. These are merely examples to illustrate that progress in the life sciences is expected to bring no small number of benefits to society. How can the OPCW facilitate these trends? More broadly speaking: what can the OPCW contribute in order to improve chemical safety and security in all States Parties, and how should it develop its international cooperation programmes to ensure that States Parties can take full advantage of the evolving scientific and technical environment?

All these questions are before the Third Review Conference. They surely cannot all be answered at this point in time, but the Review Conference is an opportunity to promote a conversation about the strategic orientation of the OPCW and task the Executive Council and the Technical Secretariat with preparing solutions and recommendations in the future.

***This article does not reflect the French official position.***

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### *Bridging the Security/Development Divide: The Case of Chemical Security*

By Brian D. Finlay, Managing Director, Stimson Center



*Chemical containers in the Libyan desert in 2011*  
© Associated Press

In 2004, Libya signed the Chemical Weapons Convention (CWC) and joined the Organization for the Prohibition of Chemical Weapons (OPCW). It simultaneously declared possession of almost 25 metric tons of sulfur mustard, 3,500 chemical munitions, and more than a ton of other chemicals that could be used to produce weapons. Destruction efforts soon got underway, and by February of 2011, nearly half of the Gadhafi regime's legacy stockpile had been eliminated. However, shortly thereafter, technical difficulties and political turmoil disrupted these important efforts.

As the country descended into civil war, worrisome reports intermittently suggested a loss of control over chemical weapons by Gadhafi's forces, and the regime's deliberate preparations to deploy the munitions in the battlefield. Since then, the international community has responded with coordinated new efforts to complete the work begun in 2004. Working closely with Canada, the United States, Germany, and other donor governments, the OPCW has helped coordinate international assistance to prevent the illicit proliferation of the remaining deadly chemicals, and to date, no known incidents of proliferation have occurred in Libya.

The case is indicative of the continued importance of addressing the threat. Indeed, the opportunities today for the illicit diversion of chemicals for nefarious use is growing rather than diminishing. As a direct result of globalization, toxic chemicals and their precursors, or the necessary technologies to fashion them into deadly weapons, flow more readily around the globe today than ever before—and this, at a time when budgets around the world to help mitigate these growing threats are demonstrably shrinking. Just this month, the White House announced a \$57 million funding cut to the US Defense Department's Cooperative Threat Reduction Program, the flagship effort responsible for the elimination of almost 3,800 metric tons of CW agents. This trend is expected to accelerate in donor governments around the world as the global economic and debt crises grinds on.

These pecuniary realities cannot be permitted to underwrite a backsliding in global efforts. But this will require a level of innovation often lacking in the global security community. Too often, foreign assistance directed toward controlling weapons of mass destruction, preventing terrorism, managing organized criminal activity, promoting economic growth and development, or widening the national industrial base in countries of the Global South (to name but a few) are treated as separate and sometimes competing priorities. Yet when considered more comprehensively, these priorities are increasingly interlinked and can provide direct mutual benefits to one another.

The dearth of creativity is, in part, attributable to the once generous security budgets across the developed world. Since the end of the Cold War, funding for WMD security has been on the rise. Despite the annual vicissitudes of national budgets, the unmistakable trend for security expenditures and assistance has been upward. In general, security officials could count on this year's budget being higher than last year's, and next year's being higher still. Regrettably, this has sapped the motivation of many governments to adapt to evolving security realities with more inventive approaches to the threat.

[...]

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*The Headquarters of the OPCW in The Hague*  
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Certainly, the OPCW—and funders in the CW space more generally—have proven to be some of the most innovative thinkers when it comes to stretching financial resources. Using resources from Norway, for instance the OPCW has exposed chemists and scientists from Member States in Africa to science-based chemical research for the purposes of commercialization. From Asia to Latin America, the OPCW assists small-scale research projects in targeted countries for the development of scientific and technical knowledge in the field of chemistry for industrial, agricultural, research, medical, pharmaceutical and other peaceful purposes relevant to the CWC. It also regularly facilitates the transfer of used and functional equipment to laboratories and other academic institutions in developing countries from institutions in developed countries. In so doing, the Organization has been able to leverage

targeted international security assistance available for chemical safety, security, and non-proliferation creatively to the direct benefit of the growth and development of national public and private infrastructures.

However, today's budgetary threats are so immense that maintaining security will require a further breaking down of the artificial stovepipes in our thinking, and across our security and development institutions and priorities, and between the public sector/private industry divide.

Here the case of Libya is again instructive. In the face of an emergency situation, the international donor community wisely channeled its resources through an existing international institution capable of rapidly responding to the threat. But donors to the OPCW remained deeply siloed in their own actions to address the threat. Although resources from the G8 Global Partnership Against the Spread of Weapons of Mass Destruction were tapped, the UN 1540 Committee, which has developed deep equities in the Middle East and North Africa, was underutilized and inadequately inculcated into international efforts. Furthermore, donor governments most concerned with rebuilding post-conflict Libya failed to adequately coordinate parallel efforts with regard to conventional weapons abatement, border security, counterterrorism efforts in the Sahel, and economic reconstruction—all of which have mutual benefits for the mission of the OPCW. Technical assistance for scientific training, venture capital investments for industrial expansion, and security enhancements at borders to disrupt the conventional arms trade all yield direct benefits to WMD security and nonproliferation, and can help all governments to fully implement the Chemical Weapons Convention. A recent effort launched by the Polish Government demonstrates the important role that private industry has to play in the modern era. A new public-private partnership has been launched to better promote compliance among chemical companies, while meeting the objectives of industrial growth and expansion. As public dollars dwindle, tapping the motivation and financial wherewithal of the chemical industry itself can provide much needed and mutually beneficial support to security interests, development objectives, and corporate bottom lines.



*German Inspectors in Libya, November 2011*  
© Bundesministerium der Verteidigung

Governments in need of CWC implementation assistance have traditionally had a plethora of donors willing to help. But with national budgets for chemical security facing potentially steep reductions, national authorities, international organizations, and private industry must identify innovative and mutually reinforcing activities to better share resources and act in concert.

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### *Africa and the Chemical Weapons Convention*

By Noël Stott, Senior Research Fellow, Africa's Development and the Threat of Weapons of Mass Destruction Project, Institute for Security Studies, South Africa

Angola, Somalia and Egypt and now South Sudan, which in July 2011 became the 193rd member State of the United Nations (UN), are among only eight countries that are not party to the Chemical Weapons Convention (CWC). Their accession at this time would reinforce the African Union's (AU) calls for a Chemical Weapon-Free Zone in Africa – something it has been pushing for since at least 2004 and which was strengthened in 2006 with the signing of a Memorandum of Understanding between the AU and the Organization for the Prohibition of Chemical Weapons (OPCW) that underscores their continuing co-operation in the Convention's implementation.

#### *The Importance of National Legislation*

The near-universalization of the CWC in Africa is a testament to the continent's commitment to ensuring that the misuse of dangerous chemicals does not happen either in Africa, or anywhere else in the world. While it remains important to promote accession in the remaining States not yet party to the Convention, effective implementation of the CWC in the existing African States Parties is an ongoing challenge. In particular, the fact that only 22 percent of African States Parties have implementing legislation covering all key areas of the CWC is of major concern.

Given the resource constraints under which most African countries operate, it may be useful for African States Parties to consider an integrated approach to the regulation of WMD issues in general. A useful model of the latter is South Africa's Non-proliferation of Weapons of Mass Destruction Act (Act No. 87 of 1983) and its inter-departmental structure - the South African Non-Proliferation Council for Weapons of Mass Destruction (NPC) – which administers the Act and controls the transfer (export/import/transit/re-export) of dual-use technology, materials, and goods. While it may be true that each of the major treaties relating to nuclear, biological, and chemical weapons have different requirements for national implementation measures, it does not follow that States need to adopt a separate and dedicated legal instrument for each.



The OPCW Director General, S.E. Ahmet Üzümcü, with the Rwandan representative to the Netherlands and the OPCW, Immaculée Uwanyiligira  
© OPCW

Such an approach would make it easier for States to implement related treaties such as the NPT and BTWC and indeed UNSC Resolution 1540 thus making the best use of limited resources to, for example, effectively control dual-use nuclear, biological, and chemical materials. This approach would also prevent a collage of export control, customs, and criminal legislation in a particular country. In addition, it may make it possible for States, through appended regulations, to make provisions for new technological developments and risks in the field and new UNSC resolutions covering non-proliferation issues that may arise in the future.

Importantly, the adoption of the necessary legislation by African States will demonstrate their full compliance and build confidence in the fact that the assistance they receive in the development of advanced chemical technologies will be used only for peaceful purposes.

#### *Involving other Stakeholders*

Although the OPCW has achieved a great deal in Africa and beyond, it cannot continue to do this alone. Other stakeholders of established National Authorities, such as the chemical industry, customs authorities and other governmental stakeholders, regional and sub-regional bodies, as well as civil society must work collaboratively to ensure that the practical aspects of the Convention are im- [...]

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This co-operation should also include a tailor-made approach for implementing the CWC, and other related WMD conventions in Africa.

Important for Africa is the impact that conventions such as the CWC have on socio-economic development. Benefits of being a State Party includes the right to participate in the fullest possible exchange of chemicals, equipment, and scientific and technical information relating to the development and application of chemistry for purposes not prohibited under the Convention. Therefore, engagement on this issue in Africa must include (or even predominantly focus on) both the developmental benefits as well as the security dimensions of OPCW membership. Implementing the CWC does not solely pertain to security – keeping chemicals out of the hands of unauthorized State and non-State actors.

Technical assistance, co-operation, and the transfer of technology are probably most relevant to a continent that struggles with challenges such as poverty, unemployment, and under-development.

### *Recommendations*

As the OPCW shifts its focus away from chemical-weapon disarmament to one that concentrates on non-proliferation and international co-operation and assistance, adjustments to the mandate, programmes, and approaches given to the OPCW by its Member States will need to be made. As a way to improve effective national implementation of the CWC in Africa, thereby creating the essential conditions for providing reliable non-proliferation assurances, and addressing new challenges, such as the potential use of toxic industrial chemicals (for example, by non-State actors), the following recommendations are proposed for the OPCW:

1. To follow the example of a recent African initiative to establish a Forum of Nuclear Regulatory Bodies in Africa (FNRBA). The FNRBA sees itself as assisting States in upgrading their legislative and regulatory frameworks, to promote education training, and managing the recent increase in uranium mining on the African continent. A similar African initiative with a mandate on the CWC and the chemical industry, in co-operation with the OPCW, could be created in order to sustain and maintain a network for information exchange among diplomats, scientific communities, academic institutions, chemical-industry associations, NGOs, and regional and international institutions.
2. The African Union, which, as described above, has a Memorandum of Understanding on Cooperation with the OPCW's Technical Secretariat, should be lobbied to take a more proactive role in strengthening States Parties' capacities against the misuse of toxic chemicals and in finding the appropriate balance between security and development.
3. The OPCW should assist African States in examining current examples of general WMD-control legislation that covers the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological and Toxin Weapons and their Destruction (BTWC), the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) as well as the CWC.
4. Given that the role of both the OPCW and African civil society is to promote international peace and security through disarmament and non-proliferation the complementary nature of our activities should be recognized and both should embark on mutually reinforcing actions in, for example, promoting awareness and universality of the CWC in Africa and lobbying for the enactment of domestic laws.

### ***South Asia and the CWC***

By Ajey Lele, Research Fellow, Institute for Defense Studies and Analyses, India

In the post-Cold War world, Asia is rediscovering itself both economically and strategically. The overall transformation of Asia is being viewed as a 'Rise of Asia'. However, Asia is also a region facing numerous security challenges. It has an appalling history with regards to usage and investments in Weapons of Mass Destructions (WMD). A few decades ago chemical weapons were actually used in the Iran-Iraq theatre. Japan has witnessed acts of chemical terrorism in the past. Only recently has the presence of chemical weapons been stabilised in Libya. At present, there is a serious nuclear crisis in the Korean peninsula and the Iran issue is getting murkier by the day. The South Asian region has been described as a possible nuclear flashpoint for many years. Out of three non-signatory States to the NPT,

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two are in South Asia. In short, Asia presents a dismal picture regarding WMD and arms control. Interestingly, with regard to chemical weapons, South Asia provides a slightly different picture. This paper discusses the issues of the Chemical Weapons Convention (CWC) in the South Asian context.

For the purpose of this paper, South Asia is defined as a region comprising the SAARC (South Asian Association for Regional Cooperation) countries. These countries are India, Pakistan, Bangladesh, Nepal, Bhutan, the Maldives, Sri Lanka, and Afghanistan. Technically, Myanmar (Burma) is not a part of South Asia. Amongst the various South Asian States, India and Pakistan are de facto nuclear weapon States (outside the purview of NPT). For other smaller states, their interest in WMD is essentially with a view to keeping themselves ready to address any issue regarding the threat from WMD terrorism.

So far, the South Asian region has not experienced any WMD disasters in general and chemical disasters in particular. All South Asian States have ratified the CWC and generally abide by the treaty provisions. None of these States is normally found lacking with regard to implementation of the Convention. Each has formulated various legal mechanisms as per the treaty requirements and other UN stipulations mandated by new instruments of arms control and disarmament (like Resolution 1540). The best example of this could be the formulation of the 2005 WMD act by India.

India is the only country which has officially declared possessing chemical weapons. India is an original signatory to the CWC (signed on January 14, 1993). India was also amongst the first 65 countries to ratify this treaty in September 1996. Subsequently, India has disclosed its chemical weapons holdings. A four-person Organization for the Prohibition of Chemical Weapons (OPCW) inspection team visited Indian laboratories in Gwalior to verify India's compliance with the CWC in July 1997. Ever since India's declaration of possession of chemical weapons it has correctly followed all global norms towards their destruction and has not faced any criticism in this regard from any of the concerned international agencies. India has successfully destroyed all its stockpile of chemical weapons in accordance with the OPCW guidelines. An announcement to this effect was made on the 26th March 2009.

South Asian States appreciate the important role played by the CWC over the years and are happy to be partners in this endeavour. Their main concern appears to be the delay in the process of destruction of chemical weapons by the US and Russia. They want sufficient pressure to be built up on these States so that effective and total implementation of the CWC can eventually be realised.

Terrorism has been a serious issue for South Asia. There are therefore concerns about chemical terrorism in the region. The CWC has limitations, particularly *vis-a-vis* terrorism. This treaty was designed in a pre-9/11 era for addressing conventional WMD threats, which leaves terrorism issues out of the scope of the existing mechanism. The 21st century threats are both conventional and asymmetric in nature and hence it is important that this treaty regime should attempt to address these new challenges. There are concerns that the CWC regime, in general, is not open to discussing this issue in great detail. It is felt that the issues related to nuclear terrorism are getting significant attention but there is general silence with regards to chemical terrorism.

Over the years, the CWC has made commendable efforts to address the challenges posed by the developments in toxic chemical production technology and intends to continue with this effort. It is felt that all efforts should be made to get Myanmar (Burma) to ratify the CWC. There is no major disagreement among States in the region with respect to industry inspections but they want more simplification of procedures in regards to Other Chemical Production Facilities Inspections (OCPF). South Asian States are also aware of other issues like sea-dumped and abandoned chemical weapons and non-lethal weapons and feel that all these issues should be discussed and debated during the Review Conference.

Overall, South Asia fully supports the notion of universality of the Chemical Weapons Convention and is committed to ensuring chemical safety and security. It is felt that today, in spite of its achievements, the CWC is at a crossroads – this is largely due to the increasing threat from emerging technologies and asymmetric warfare. The 3rd Review Conference thus offers a great opportunity to address various critical issues.

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**Issue undertaken with the support of the Delegation for Strategic Affairs of the Ministry of Defense.  
The opinions expressed therein do not reflect the views or official position of the Ministry of Defense.**

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