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**The Significance of National Implementation
Measures Under the Chemical Weapons
Convention: Guarding Against Terrorist Use of
Commercial and Industrial Chemicals**

By Naeem Haider • Series Editor: Maria Sultan



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Naeem Haider

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*Abstract**Naeem Haider**

Many international and regional organizations such as the International Atomic Energy Agency (IAEA), the Organization for the Prohibitions of Chemical Weapons (OPCW), the World Customs Organization (WCO), the International Criminal Police Organization (INTERPOL), the European Union, have registered a heightened concern about chemical weapons proliferation, and have emphasized the importance of harmonized monitoring and control measures to be taken by States. In this paper the author addresses these issues from a national perspective.

**Lieutenant Colonel Naeem Haider is serving in the Arms Control and Disarmament Affairs Directorate of Pakistan's Strategic Plans Division.*

The Significance Of National Implementation Measures Under the Chemical Weapons Convention: Guarding Against Terrorist Use of Commercial and Industrial Chemicals

(Naeem Haider*)

INTRODUCTION

Many international and regional organizations such as the *International Atomic Energy Agency* (IAEA), the *Organization for the Prohibitions of Chemical Weapons* (OPCW), the *World Customs Organization* (WCO), the *International Criminal Police Organization* (INTERPOL), the European Union, and some international summits have registered a heightened concern about chemical weapons proliferation, and have emphasized the importance of harmonized monitoring and control measures to be taken by States. These international organizations have requested member States to review

the existing preventive measures in place, and to reinforce them with a view to stopping illicit trafficking in chemical substances covered by the Chemical Weapons Convention.¹

On 29 April 2007, the world watched in dismay when Iraqi insurgents blew up tanks of chlorine gas to kill and injure unprotected civilians.² In this case a commercial chemical was misused as a chemical weapon. Chlorine bombing in Iraq began in October 2006, and has carried out 13 attacks involving chemicals until 13 June 2007.³ In fact, two chemicals employed as warfare agents in World war-1, chlorine and phosgene are now consumed in large volumes by the chemical industry. Another highly toxic industrial chemical methyl isocyanate (MIC) is widely used for producing insecticides. The extreme

* Lieutenant Colonel Naeem Haider is serving in Arms Control and Disarmament Affairs Directorate of Pakistan's Strategic Plans Division.

¹ Ercan Saka, "The Role of Customs Services and the World Customs Organization's Enforcement Programme to Combat the Illicit Movement of Chemicals"

² DG OPCW Rogelio Pflirter address to the 10th Anniversary of the Chemical Weapons Convention, 29 April 2007

³ http://en.wikipedia.org/wiki/2007_chlorine_bombings_in_Iraq

toxicity of MIC was witnessed in 1984, when several tons were released accidentally from a manufacturing facility in the Indian city of Bhopal, killing more than 3,000 people and causing 100,000 serious injuries.⁴ The public's vulnerability to lethal chemical weapons has been apparent since the Sarin terrorist attacks in Japan in the mid-1990s.⁵

The CWC is one of the 25 "core" treaties identified by United Nations Secretary General as reflecting the fundamental purpose of the United Nations. It is the world's only legal instrument to prevent the use and proliferation of chemical weapons. It is functioning successfully as a disarmament regime- one that is able to verify the destruction of a weapon of mass destruction (WMD) and is approaching universal adherence:

184 States Parties.⁶ The CWC is not a self executing treaty, therefore, it is the national obligation of States to take necessary measures for its effective national implementation and to nurture its development.

Adherence to the obligations under CWC has immense safety, commercial and security benefits for States, each individual chemical facility/ industry, local population and environment. However, certain scientific and industrial developments, wrong interpretation of CWC, and inadequate national implementation measures carry serious implications for the verification regime of the Convention. For example:

- a. It is widely but mistakenly assumed that the *chemicals listed in the three Schedules of the CWC* are the only chemicals to which the Convention applies;⁷ and the

⁴ George W. Parshwall, "Scientific and Technical Developments and the CWC," *The Chemical Weapons Convention: Implementation Challenges and Solutions*, p.1

⁵ Smithson AE. Rethinking the Lessons of Tokyo. In: Smithson AE, Levy LA. Ataxia: The chemical and biological terrorism threat and the US response. The Henry L. Stimson Center, Washington D.C. 2000; report no. 35:71-111.

⁶ "Status of Participation in the Chemical Weapons Convention," See the OPCW website http://www.opcw.org/html/db/members_frameset.html

⁷ The CWC establishes three lists of schedule chemicals, which categorizes chemicals according to their toxicity. Schedule 1 chemicals are super toxic chemicals that have little or no commercial use.

OPCW is responsible for the effective implementation of the Convention. These two views are not in line with the object and purpose of the Convention.

- b. Some States have still not established a National Authority or Authority are carried out on an ad hoc basis.⁸ Number of States Parties lack penal provisions to criminalize prohibited activities, and many States lack regulatory and enforcement measures.⁹
- c. Negotiations on CWC began in 1984, but had been preceded by many years of discussions in Geneva. The design of the Convention was therefore based on a chemical industry

Schedule 2 includes chemicals and precursors that are high risk and have limited commercial applications. Schedule 3 chemicals are used in quantities commercially, but are also precursors for chemical weapons.

⁸ Mtshana M. Ncube, "Divergent National Implementing Legislation and Non-uniform Implementation: Threat to the Object and Purpose of the CWC,"

⁹ Dr Radoslav Deyanov, "National Export Control: A Tool to Enforce Non Proliferation," *AG Training Seminar on Strengthening Border Customs Control on Shipments of Dual Use Goods and Technology in the Western Balkans*, Sofia, 4-6 October 2005

that has significantly evolved for the last 20 years. This evolution impacts the CWC's Verification Annex.¹⁰

- d. The sophisticated scientific methods developed for the discovery and production of new commercial products are equally applicable to finding and making Chemical Warfare agents. Moreover, the dissemination of these technologies and chemical industry itself throughout the world is such that the OPCW alone cannot ensure effective control. Here comes the important role of National Authorities to ensure the implementation of the Convention.

As terrorist organizations replace the major powers as the most likely candidates to employ Chemical Weapons, the Twenty-first century chemical warfare may target civilians; and commercial chemical industry or clandestine

¹⁰ George W. Parshall, "Trends in Processing and Manufacturing that will Affect Implementation of the CWC," *Pure Appl. Chem*, Vol. 74, No. 12, 2002, p.4

production facilities may manufacture toxic agents from industrial chemicals not monitored under the CWC control regime. Therefore, there is a need for following: -

- a. Enhanced focus of monitoring and verification is required on dual-use industrial chemicals as compared to scheduled chemicals.
- b. National Authorities should play the lead role in the implementation of the CWC.

FACTORS THAT MAY FACILITATE MISUSE OF COMMERCIAL CHEMICALS

ASPECTS RELATED TO CWC

Fallacy Regarding Chemical Weapons and Scope of CWC

It is widely but mistakenly assumed that the chemicals and families of chemicals listed in the three Schedules are the only chemicals to which the Convention applies. This view is not in line with the text, object and purpose of the Convention, and it seriously restrict

the verification regime of the Convention and the OPCW.¹¹

Misperceptions Regarding the Implementation Role of OPCW

The verification regime overseen by the OPCW is based on the declaration and inspection of activities involving Schedule 1, 2 and 3 chemicals and industry producing significant quantities of Unscheduled Discrete Organic Chemicals (UDOCs).¹² However, within many States Parties, it is likely that there are other activities involving toxic chemicals and their precursors, which, while falling within the scope of the Convention according to the General Purpose criterion, fall outside of its international monitoring mechanism because they are not declarable under the Convention.¹³ In such cases the responsibility for monitoring rests with the individual

¹¹ Working Paper for the Preparatory Commission (11th Session) of the OPCW by Australia, "The Scope of the CWC and the Role of its Schedules," Document No. PC-XI/B/WP.13, 25 July 1995, p.1

¹² OPCW Website, "Determination of the Presence or Absence of a Declarable chemical industry," *Identification of declarable activities*, Available at http://www.opcw.org/html/db/natadv/id_decl_act.htm

¹³ *Ibid*

States Parties and, in particular, with the National Authority. The Convention thus creates a division of labour between the National Authorities and the OPCW. Given the importance of the General Purpose Criterion¹⁴ in upholding the scope of the Convention, it is essential that National Authorities and other relevant state agencies are properly empowered by effective national legislation to monitor and control transfers of all toxic chemicals, not just those in the schedules.

Inadequate National Implementation Measures

The CWC is not self-executing. Article VII requires State Parties to “adopt the necessary measures to implement its obligations under the convention” on its natural and legal persons. The responsibility for upholding the Chemical Weapons ban then falls not only to the State Party itself, but also to individuals and companies operating within it. Adherence to the Article VII requirements is thus central to the

successful operation of the Convention.¹⁵ Yet the OPCW’s survey’s on the status of implementing legislation required under Article VII shows following facts¹⁶:

- a. Number of States Parties lack penal provisions to criminalize treaty prohibited activity.
- b. Many States lack regulatory and related enforcement measures.
- c. Some States have still not established a National Authority.

Difficulties in Control of Intangible Technology

Intangible technology transfer is becoming an important concern in the export control community worldwide.¹⁷ In the context of CWC, the dangers posed by the transfer of

¹⁵ Meeting with Angela Woodward, *VERTIC*, 17 April 2007

Angela Woodward presentation to Foreign & Commonwealth Office Seminar on the Occasion of the 10th Anniversary of the Entry into Force of the CWC, 26 March 2007

¹⁶ Meeting with Daniel Feakes, University of Sussex, 20 April 2007

Daniel Feakes, “Challenges in the Implementation of Export Controls under the chemical Weapons Convention,” in *Treaty Enforcement and International Cooperation in Criminal Matters: with Special Reference to the Chemical Weapons Convention*, Rodrigo Yepes-Enriquez and Lisa Tabassi (eds), The Hague: T.M.C. Asser Press, 2002

¹⁷ *Ibid*, p.334

¹⁴ Article-1, *Chemical Weapons Convention*

intangible technology have been acknowledged by many states. Although aware of the risk, States have found that intangible technology transfers are particularly difficult to monitor, and penalties can be hard to enforce. Many states have only recently introduced controls on such transfers. Article 1 that is the General Purpose Criterion contains no explicit requirement for the states parties to enact legislation or adopt regulations implementing the article 1 prohibitions.¹⁸ Moreover, the UN Security Council Resolution 1540 obligates states that they take effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery. To achieve this goal, states have to develop and maintain appropriate and effective physical protection measures, accounting system, borders control, law enforcement efforts and national

¹⁸ Article 1, *Chemical Weapons Convention*

exports and transshipment controls.
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Risk Factors are not Appropriately Emphasized

During negotiations of the CWC, Schedule 1 and 2 facilities were deemed to pose the greatest risk to the convention.²⁰ Experience of inspections to date proves that production, processing or consumption, of Schedule 1 and 2 chemicals is not the only – or even the key indication of the potential threat to the Convention posed by given facility. Under certain circumstances a Schedule 1 facility may pose less of a potential threat to the Convention than an OCPF plant site.²¹ For example a single small-scale facility may only consist of a small laboratory containing a single fume cupboard, having the capability to produce a few

¹⁹ Dr Radoslav Deyanov, “National Export Control: A Tool to Enforce Non Proliferation,” *AG Training Seminar on Strengthening Border Customs Control on Shipments of Dual Use Goods and Technology in the Western Balkans*, Sofia, 4-6 October 2005

²⁰ Leslie Anne Levy, *The CWC: A Unique On-Site Inspection Framework*. Available at <http://www.unidir.ch/pdf/articles/pdf-art211.pdf>

²¹ The UK Paper, “The Changing Face of the Chemical Industry: Implications for the Chemical Weapons Convention”, *OPCW Conference of the States Parties*, 24 April 2003, p.4

kilograms but more likely actually producing a few grams of chemicals per year. Conversely, a pharmaceutical plant producing a highly active ingredient in hundreds of tones per year that has corrosive and toxic properties could be declared as an OCPF. Both facilities have the capability to produce Schedule 1 chemicals, but production at the SSSF is much lower than the OCPF.

TRANSFORMATION OF CHEMICAL INDUSTRY

Evolution of Chemical Industry

Negotiations on the CWC began formally in 1984, which were preceded by many years of discussions in Geneva. The design of the Convention was therefore based on a chemical industry that has significantly evolved for the last 20 years. This dramatic evolution definitely impacts the CWC Verification Annex.²² In the late 1980s the global chemical industry

comprised a number of large multinational companies with major plant sites that produced a range of diverse products on a large scale. Throughout the 1990s major changes occurred such as:²³

- a. Large plant sites have been broken up into smaller units, with separate operations and owners existing within the former site boundary.
- b. Larger companies now concentrate on 'core' activities such as specialized synthesis or final formulation of products.
- c. Larger companies purchase specific chemicals from external suppliers.
- d. Rapid rise in the number of facilities and plants specializing in the production of chemicals on a contract basis.
- e. Industry is driven towards flexibility in production, which means that they are able to respond quickly and efficiently

²² David P. Fidler, "The Chemical Weapons Convention After ten Years: Successes and future Challenges", *The American Society of international Law*, Vol 11, Issue 12, 27 April 2007

²³ The UK Paper during Conference of the States Parties, *op.cit*

- to meet new customer requirements and orders.
- f. The aforementioned changes have significantly altered the design of chemical production facilities.

Technological Advancements and its impact on Chemical Plants

Modern production equipment, synthesis techniques, use of automated ‘micro-reactors, combinational chemistry, etc have following significant effects:²⁴

- a. It reduced the size and increased the capability and versatility of standard chemical plant configurations.
- b. Substantial quantities of chemicals can be quickly produced in relatively small plants.
- c. Quick and commercially viable synthesis have the potential to change the nature of the chemical industry.

- d. It is possible to produce in bulk, many chemicals that previously were difficult to synthesize.
- e. Knowledge of these advances is spreading globally and could make it easier for non-state actors to engage in chemical terrorism.
- f. Solid state reactions eliminate the need for costly bulk solvent use and storage, more efficient heating methods, and use of catalysts, are changing the size and traditional “signatures” of chemical production plants.
- g. Chemical inventories are reduced thus it becomes more difficult to detect and determine whether a plant has been used for purposes prohibited by the Convention.

Globally Dispersed Chemical Industry

From the economic incentive, some developing countries encourage chemical companies to locate production facilities throughout the world. From the standpoint of the Convention, the

²⁴ *Ibid* and George W. Parshall, Graham S. Pearson (et al) International Union of Pure and Applied Chemistry Technical Report, “Impact of Scientific Developments on the Chemical Weapons Convention”, Vol 74, 2002

effect has been to increase the number of sites that must be monitored. The task of international control is further complicated when such chemical industry sites are located in countries that lack competent regulatory authorities.²⁵

Organizational Changes in Industry and Impact on Transparency

Some large chemical companies now have multiple owners and/or operators. This change in organizational structure has following impacts:²⁶

- a. It has restricted the transparency of the site operations.
- b. Some Schedule 3 and OCPF facilities, which were formerly part of larger sites, now have very small plant site boundaries.
- c. Some of these small plant sites share central resources such as medical, waste handling and distribution facilities, etc.

²⁵Meeting with Fillipa Lentzos, *London School of Economics*, 27 April 2007

International Council of Chemical Associations Paper for *Second Review Conference of the Chemical Weapons Convention*,. This paper was presented during an OPCW meeting of States parties and the Chemical Industry on 11 June 2007, p.3

²⁶ The UK Paper during Conference of the States Parties, *op.cit*

Above aspects in view, the definition of plant site can be used to limit access afforded to OPCW inspectors during routine verification. And this access is vital to completely understand the activities carried out at the site.

Characteristics of New Other Chemical Production facilities (OCPF) and Schedule-1 facility are Nearly Similar

A potential threat to the Convention is posed by the growth in the number of Other Chemical Production Facilities (OCPFs) currently capable of producing Schedule 1 chemicals with little or no physical conversion. The success of such facilities often depends on their ability to perform a wide range of chemical processes, anticipating the changing needs of customers. The implications of ensuring the long-term viability of plants would be that the owners would install latest technology to handle an unpredictable range of toxic chemicals. Resultantly, such facility will need most of the characteristics of Schedule 1 production facilities, such as chemically resistant

equipment, specialized filtration equipment, etc. Moreover, the capabilities for “Just-in-time” production will reduce the need to store large quantities of raw materials and products at plant sites. Such features could have previously indicated the existence of CW related activities at a particular site.

SCIENTIFIC DEVELOPMENTS

Automated Control of Chemical Industry

Since the last two decades, there is an increasing use of computers to control manufacturing processes. Automated control permits production under the most efficient reaction conditions and enhances safety for the operators. In the context of producing chemical weapons, however, automated control offers similar advantages. It minimizes operator exposure and limits the release into the atmosphere of toxic vapours that might be detected by sensitive monitoring equipment. Moreover, from the CW proliferation point of view, it is troublesome that the

equipment, software, and know-how are commonly available.²⁷

Reactor on a Chip can help Clandestine Production OF Lethal Chemicals

For the clandestine production of toxic chemicals on a small scale, “reactor on a chip” technology offers a new means of production that might be relatively easy to conceal. Such reactors can operate under automated control for weeks with little human intervention. Despite its small size, a micro reactor with a throughput of two grams per minute could produce a ton of material per year.²⁸ Such devices would require only a small, ventilated enclosure and might even be disguised as a piece of research laboratory equipment. The advantages of micro reactors for safe and efficient production of toxic and explosive chemicals have been demonstrated by DuPont engineers working in collaboration with the

²⁷ George W. Parshall, Graham S. Pearson (et al) International Union of Pure and Applied Chemistry Technical Report, “Impact of Scientific Developments on the Chemical Weapons Convention”, Vol 74, 2002

²⁸ George W. Parshall, “Scientific and Technical Developments and the CWC”, p.2

Massachusetts Institute of Technology. They produced MIC, phosgene and hydrogen cyanide.

Versatile Methods of Production and their Global Availability

The chemical industry is transforming rapidly and the pace of change is constantly increasing. One major trend is an increased emphasis on the production of chemicals that have desirable biological effects, such as pharmaceuticals, crop protection chemicals, etc. The methods for the discovery and production of such products are equally applicable to finding and making chemical warfare agents. Moreover, the dissemination of these technologies is such that the OPCW alone cannot ensure effective control.

The interchangeability of large number of chemicals can also help in the production of chemical weapons. For example, the conventional production process for MIC is based on phosgene, which is controlled under the CWC. However, quantities of MIC

sufficient for terrorist use might be diverted from a plant in which the chemical is made and consumed as an intermediate in pesticide production.²⁹

Combinational Chemistry can Help Develop Chemical Weapons

Combinational chemistry makes it possible to synthesize large libraries of chemical compounds that can be evaluated for useful properties. In general this process involves mixing reactive chemicals in multiple combinations to generate hundreds or thousands of compounds, some familiar and other new. From the CW nonproliferation viewpoint, the new drug discovery methods are of concern because they could also be used to develop lethal chemicals for terrorist purposes.

Large Distribution Facilities Complicates Verification Process

Commercial technologies could be misused for the development of novel chemical weapons. Globalization has

²⁹ *Ibid*, p.1

dispersed the means of production of industrial chemicals and free trade policies have also made controlling transfers of chemical precursors more difficult for the OPCW. Therefore, scientific developments and globalization have following implications:

- a. Impact on CWC implementation.
- b. The increased global trade in chemical materials has led to increased transfers of chemicals through large distribution facilities.
- c. This concept of large distribution facilities complicates examination for verification purposes, and thus obscures the initial manufacturer.³⁰

³⁰ The UK Paper, "The Changing Face of the Chemical Industry: Implications for the Chemical Weapons Convention", *OPCW Conference of the States Parties*, 24 April 2003

RECOMMENDATIONS FOR PREVENTING MISUSE OF COMMERCIAL CHEMICALS BY TERRORISTS

PROPER USE OF CWC

CWC's Scope should be Broadly Interpret

The scope of the Convention needs to be interpreted as broadly as possible. The view that the Convention applies to chemicals listed in the three Schedules is not correct.³¹ The CWC comprehensively prohibits the misuse of all toxic chemicals, regardless of their origin or method of synthesis.³² There are number of places in which the Convention makes it clear that the scheduled chemicals are not to be seen as defining the scope of the Convention. For example:

- a. In Article- II it is stated that toxic chemicals and precursors listed in the three

³¹ Julian Perry Robinson, "The CWC Verification Regime: Implications for the Biotechnology and Pharmaceutical Industry", *University of Bradford Briefing Paper No.11*, (July 1998)

³² The UK Paper, "The Comprehensive Nature of the Chemical Weapons Convention with respect to Verification and national Implementation Measures"

- schedules are identified for the application of verification measures.³³
- b. The preamble paragraph to the schedules underlines that “these schedules do not constitute a definition of the Chemical Weapons.”³⁴
 - c. The definition of “toxic chemicals” is “any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals.”³⁵ Thus, the definition of a chemical weapon is not based upon the properties of specific chemicals, but on the purposes to which the chemicals are put.
 - d. Paying due regard to general-purpose criterion is essential if the goals of the Convention are to be realized. Historically States have not always used scheduled chemicals for the production of chemical weapons. For example, once restrictions were placed upon procurement of Schedule 2 mustard gas precursor thiodiglycol in the mid-1980s, Iraq acquired unscheduled chemicals such as 2-chloroethanol and sodium sulphide.³⁶
 - e. Some of the Research and Development in the field of chemistry will affect the Convention. For example research in the field of non-lethal incapacitants for the counter-terrorism operations. There are concerns that the potential development and use of incapacitating chemical or bio-chemical agents have physiological effects more

³³ During the Convention negotiations negotiators reached compromise between political reality and risk assessment whereby some chemicals of most relevance were selected for the application of verification measures.

³⁴ Annex on Schedule Chemicals, *Chemical Weapons Convention*

³⁵ Article II, *Chemical Weapons Convention*

³⁶ Daniel Feakes, “Challenges in the Implementation of Export Controls Under the Chemical Weapons Convention”, *Harvard Sussex Programme*, p.3

substantial and long lasting those produced by Riot Control Agents.³⁷ Such developments may take advantage of the permissible ‘law enforcement’ provision of the CWC.

CWC has Catch All Clause to Control Intangible Technology Transfer

The primary export control provisions of the CWC are found in Article 1. Article 1 (1) (d) requires States Parties not “to assist, encourage or induce, in any way”, anyone to engage in any prohibited activity. This Article represents a kind of catch-all clause that expands the Convention’s nonproliferation obligation from the core prohibition of activities with chemical weapons to any activity that prohibits the provision of equipment, any kind of brokerage activity, any type of military research cooperation, financial resources, and intangible technology if they are to be used in connection

³⁷ David P. Fidler, “The Chemical Weapons Convention After Ten Years: Success and future Challenges”, *The American Society of International Law*, Vol 11, Issue 12, 27 April 2007

with prohibited activities.³⁸ The dangers posed by the transfer of intangible technology can be effectively addressed, if all States Parties act upon the General Purpose Criterion, which is so central to the object and purpose of the Convention. Moreover, there is a need to read Article 1 (1) (d) in conjunction with Article VII, which obligates states not to permit any prohibited activity and to enact and extend penal legislation. These two articles together require States Parties to establish adequate national oversight and controls on the flow and use of scheduled chemicals, related equipment and technologies. Thus States would put in place extra barriers to non-state groups.³⁹

States to Enforce Export Control System under CWC with Penal Sanctions

There is in fact an intimate relationship between Article VI and

³⁸ Urs A. Cipolat, “The New Chemical Weapons Convention and Export Controls: Towards Greater Multilateralism” *Michigan Journal of International Law*, Spring 2000, p.12

³⁹ Dr Radoslav Deyanov, “Strengthening Border Customs Control on Shipments of Dual Use Goods and Technologies in the Western Balkans”, *Australia Group Training Seminar*, Sofia, 4-6 October 2005

VII. The chapeau of Article VI (2) does explicitly require States Parties to implement controls on one element of the “chemical weapon” definition. The chapeau states, “each State Party shall adopt the necessary measures to ensure that toxic chemicals and their precursors are only...transferred...for purposes not prohibited under this Convention.” The key terms in this chapeau are ‘necessary measures’, and ‘ensure’. Therefore there is an intimate relationship between Articles VI and VII (which deals with national implementation measures), and that the use of term ‘necessary measures’ in both articles implies legislative and administrative measures, as well as the penal legislation, which is explicitly required under Article VII (1) (a).⁴⁰ The most effective way to prevent the misuse of scheduled and Discrete Organic Chemicals is by establishing a legally-based export

⁴⁰ Daniel Feakes, “Challenges in the Implementation of Export Controls Under the Chemical Weapons Convention”, *Harvard Sussex Programme*, p.4

control system which includes penal sanctions for violations.⁴¹

Declaration Thresholds of Other Chemical Production Facilities (OCPF) under CWC may Require Review

The thresholds for OCPF declarations may be reviewed in relation to the types of plant site which pose threat to the object and purpose of the Convention, not only in terms of their potential to produce Schedule 1 chemicals, but in addition, their potential to produce toxic chemicals in general.⁴² This would provide a better reflection of the current status of the chemical industry relevant to the Convention.

INTERNATIONAL COOPERATION

States to Utilize the Avenue of Arms control, disarmament and Nonproliferation

⁴¹ Views of Air Commodore Khalid Banuri who is presently heading Arms Control and disarmament Affairs Directorate of the Pakistan’s Strategic plans Division

⁴² Graham S. Pearson and Malcolm R. Dando, “Maximizing the security benefits from the first review Conference of the Chemical Weapons Convention”, Report of the NATO Advanced Research Workshop, Slovak Republic, University of Bradford, 19-21 September 2002, p. 10-11

Anyone with access to the Internet can learn to produce extremely dangerous and destructive weapons. And this technical know-how genie cannot be put back in the bottle. Another reality is that the conventional means of deterrence cannot work against the terrorists. This leaves the course of arms control, disarmament and non-proliferation the only one remaining avenue to pursue.⁴³

Enhanced Administrative Cooperation between States Would be Beneficial for Export Controls

Cooperation between the States Parties is an essential component of effective implementation of Convention's export control provisions. In particular, administrative cooperation between States Parties will be important, to ensure accurate reporting of transfers among States Parties.⁴⁴ One

possible model could be the dual-use goods regime established within the European Union. Although EU is an exceptionally developed regional organization, there are elements of the regime, which could be applied to other regions. The regulation that created the dual-use goods regime states that EU member States "shall take all appropriate measures to establish direct cooperation and exchange of information between competent authorities." The regime has thus created a network of export control officials from the 15 member States who are obliged to take all appropriate measures to establish direct cooperation and exchange of information between competent authorities and to consult regularly on policy issues.⁴⁵

States to Develop Layered Defence Approach

In the context of chemical proliferation, transportation security measures must be developed and

⁴³ Stephen E. Flynn, "New Approaches to Stemming the Spread of Weapons Within International Transportation Networks" p.344

⁴⁴ Author's meeting with Rahul Roy Chaudhary, 27 April 2007

⁴⁵ Article 15, Chapter VI "Administrative Cooperation" *Community Regime for the Control of Exports of Dual use Items and technology, Council Regulation (EC) No. 1334/ 2000, 22 June 2000*

coordinated globally. In this regard joint regional efforts might prove beneficial. Moreover, security improvements must apply throughout the logistics networks, because, if limited to ports of entry, new security measures may produce a “balloon effect”.⁴⁶

Seek Access to “Near Real Time” Data

Achieving the in-transit visibility of trade and passenger is very much possible presently. The technologies and data management systems that are fuelling the supply-chain management revolution provide the companies with greater levels of oversight and control within international transportation networks. Such technologies could provide the national authorities, customs and the chemical industry the tools for monitoring the arrival of goods. Major retailers like Wal-Mart are requiring wholesale suppliers to use trucks equipped with Global Positioning System (GPS) transponders. E-commerce providers like Amazon.com provide customers Federal Express tracking

numbers to monitor the movement of purchases. A customer get tracking numbers by logging onto the company’s website.⁴⁷ Access to “near real time” data would enable States Parties to:

- a. Focus limited enforcement resources on the higher risk targets.
- b. Regulatory and enforcement agents gain “strategic depth”.
- c. Enforcements agents could launch controlled sting operations by delaying arrests and confiscation.
- d. Such capabilities would also serve as deterrents.

Coordinated Transnational Response

The issue of the proliferation of Chemical Weapons demands a coordinated transnational response and full compliance with international obligations. Strengthened relationships between all relevant actors in the international community that are pursuing common goals are of paramount importance to address issues of international concern.

⁴⁶ Stephen E. Flynn, *op.cit.*, p.349

⁴⁷ See <http://www.leatherup.com/showpages.asp?pid=1004>

Strengthened relationships are mandated of all States by applicable United Nations Security Council Resolutions, including UNSCR 1373 (2001) that refers to international terrorism as a “serious challenge and threat to international security”, and “emphasizes the need to enhance coordination of efforts on national, sub regional, regional, and international levels in order to strengthen a global response”.⁴⁸ The OPCW should therefore, cooperate with all relevant international organizations.

OPCW IMPLEMENTATION ROLE

OPCW May Need to Reassess the Industrial Declaration and Verification Activities

The changes to the chemical industry indicate the need to reassess the emphasis of the declaration and verification activities of the Convention especially in relation to OCPFs. Increasing the number of OCPF inspections will

provide further transparency in the growing capability of these sites.

A low number of inspections have been carried out at OCPFs relative to the size of the sector and number of declarable plant sites.⁴⁹ Toxic chemicals are globally distributed, and there is growing evidence that terrorists might focus increasingly on the chemical industry. Therefore, there is a need that the OPCW inspectors must beef up the number of inspections at industrial facilities. Moreover, the bias of the selection process should be towards those countries with the largest number of facilities.⁵⁰ In both 1999 and 2000 the Secretariat was able to conduct only three re-inspections of Schedule 2 facilities, 38 inspections at Schedule 3 plant sites, and a further 26 in the year 2000. The rate of inspection of DOCs, which began in May 2000, is of the same order. To enhance the rate of inspections budgetary support would be required,

⁴⁸ Matthew Meselson and Julian Perry Robinson, “A draft Convention to Prohibit Biological and Chemical Weapons Under International Criminal Law”, p.453

⁴⁹ Background Paper by the Technical Secretariat of OPCW “Facilities declared and Inspected under Article VI” 27 January 2003

⁵⁰ Rogelio Pffirter Keynote address sponsored by Global Green USA, “CWC Achievements and Challenges” 29 march 2007

otherwise with present funding, it might take 100 years to complete initial inspections of the currently declared DOC plant sites.⁵¹

OPCW Assistance to States Regarding National Implementation

The OPCW has provided assistance to states regarding national implementation, including the preparation of domestic legislation. Though States are responsible for necessary law making, yet due to complexity of the Convention, it might prove more useful that States seek assistance from the OPCW.⁵² This is important because national implementation form the basis for the effective implementation of CWC worldwide. Moreover, OPCW should also devote more attention to the important subject of national legislations under CWC, study the legislations of States and where required, identify

⁵¹ Ron G. Manley, "The Role of Governments and Research Institutes in the Implementation of the Chemical Weapons Convention, September 2001. Available at

<http://www.opcw.org/synthesis/html/s7/p15.html>

⁵² Sergey Batsanov, "Approaching the 10th Anniversary of the Chemical Weapons Convention: A Plan for Future Progress", The Monterey Institute of International Studies, Centre for Non-Proliferation, Non-Proliferation Review, Vol.13, No 2, July 2006

the shortcomings in those legal documents and provide requisite assistance to states.

Outreach to the Global Scientific Community

Greater focus is needed on education and outreach to the worldwide scientific and technical community to increase awareness regarding obligations under CWC. At the same time, major relevant scientific societies could be involved to play a role in providing technical advice in efforts to control CW proliferation.⁵³ Ideally those scientists/ scientific societies should be preferred who have chemical industrial backgrounds or verification of international instrument related background that are directly relevant to CWC compliance monitoring.

OPCW may Emphasize Verification of Discrete Organic chemical (DOC) Facilities

⁵³ Graham S. Pearson, Peter Mahaffy, "Education, Outreach and Code of Conduct to Further the Norms and obligations of the Chemical Weapons Convention", *International Union of Pure and Applied Chemistry Technical Report*, University of Bradford, p.3

The OPCW verification mechanism places heavy emphasis on the destruction of chemical weapons. From the Cold War perspective, this approach seems logical. However, the international security situation has immensely changed. It is felt, that presently the enormously growing commercial chemical industry that process or produce huge quantities of chemicals poses bigger challenge than most of the declared schedule-1 facilities, which are in fact small laboratories. As a result, large numbers of DOC facilities that produce huge quantities of chemicals are still not inspected in the course of routine verification.⁵⁴ The industrial verification would surely grow more challenging in the time to come; therefore, the OPCW should take necessary measures to address the aforementioned imbalance.

⁵⁴ Sergey Batsanov, "Approaching the 10th Anniversary of the Chemical Weapons Convention: A Plan for Future Progress", The Monterey Institute of International Studies, Centre for Non-Proliferation, Non-Proliferation Review, Vol.13, No 2, July 2006

OPCW Role for Chemical Defence may be Enhanced

Although the OPCW conduct several courses and exercises for assistance and protection against chemical weapons, still there is a need to pay more attention to this vital area because any chemical disaster would necessitate the OPCW timely response. Therefore, OPCW should fine-tune the minute details of its response and regularly carry out exercises for the effective preparation of its obligation. Moreover, the OPCW joint assistance training with other relevant organizations would prove beneficial.⁵⁵ But, such partnership needs to be institutionalized.

NATIONAL IMPLEMENTATION MEASURES

States Parties to Ensure Effective National Implementation

National implementation is an absolutely essential foundation of the Convention. Each State Party's international obligations under the

⁵⁵ Chemical Terrorism Protection and Assistance exercise, "Joint Assistance 2005", held in Ukraine, The OPCW Press Release No. 57, 10 October 2005

Convention must be given direct internal legal effect, because CWC is not self-executing. Without the ability to apprehend and punish violators of the convention, universality remains a hollow accomplishment. Moreover, State Parties are required to “adopt the necessary measures to implement its obligations under the convention.”⁵⁶ National implementation is an area in which States Parties must develop their expertise and should formulate comprehensive export controls covering scheduled chemicals, Unsheduled Discrete Organic Chemicals (UDOCs), intangible transfer of technology and other related activities. The Schedules-based export controls in the CWC are not satisfactory as a non-proliferation tool. The Schedules is meant to assist the verification and monitoring regimes of the Convention.⁵⁷

⁵⁶ Article VII, *Chemical Weapons Convention*

⁵⁷ Dr Jean Pascal Zanders, “Technology Transfers and Export Controls under the CWC” Available at http://www.opcw.org/synthesis/html/s5/zanderspg16_17final.html

The increased emphasis on preventing and prohibiting, proliferation to non-state actors also requires focus on national monitoring and enforcement. Therefore, it is the responsibility of each State to ensure compliance with the CWC throughout its territory.⁵⁸ And the OPCW cannot be held solely responsible for States Parties, failures to effectively implement and enforce the Convention.

States Parties Need to Enhance Awareness regarding Obligations under CWC

National Authorities must increase awareness of their officials and technical staff regarding new production routes, processes and technologies through OPCW courses and seminars. This will enable them to carry out correct analysis and draw accurate conclusions regarding the nature of activities at industrial plant sites. Moreover, the national Authorities must

⁵⁸ Jonathan B. Tucker “Verifying the Chemical Weapons Ban: Missing Elements”, *Arms Control Today*, January/ February 2007.

implement trade control on the suppliers and the destination; register all the equipment that can produce chemical weapons;⁵⁹ and ask chemical industry to formulate policies that reflect the export and trade control provisions of the CWC.

States to Develop Multi Agency Approach and Harmonized Application of CWC

The effective implementation of CWC by States parties requires a multi agency approach with a view to ensuring harmonized interpretation and application. The prohibitions and controls stipulated in the CWC bring national customs administrations to assume an important role as the national cross border management agency. The World Customs Organization (WCO) has development of a comprehensive action plan to combat hazardous materials smuggling. The overall objective of the programme is to assist Member administrations to enhance their enforcement capabilities for preventing, detecting

and responding to illicit traffic in hazardous materials, including toxic chemicals.⁶⁰ The OPCW, National Authorities and other relevant international and national agencies can develop partnership with WCO and thus benefit from their excellent networks and facilities. The salient aspects of the WCO action plan are⁶¹:-

- a. The WCO Global Regional Intelligence Liaison Offices Network has 120 Member States that are organized through ten regional offices. Each national customs intelligence unit collects seizure data relating to customs offences from all possible sources to identify new or unusual national and regional smuggling methods.
- b. This network is an information system for data exchange and communication between customs services of member States. It is based on

⁵⁹ Daniel Feakes, "Export Controls, Chemical Trade and the CWC" The Harvard Sussex Program on Chemical and Biological Weapons

⁶⁰ Ercan Saka, "The Role of Customs Services and the World Customs Organization's Enforcement Programme to Combat the Illicit Movement of Chemicals" p.319

⁶¹ *Ibid*, pp.317- 319

- Internet technology and offers opportunities to enhance the exchange of information between customs administrations. This data is then utilized for strategic analysis to ascertain new trends in customs frauds including illicit trafficking of toxic chemicals.
- c. The WCO encourage customs administrations to implement the MoU concept at the national level to create and enhance communication and cooperation with relevant national agencies, trade representatives, etc.
 - d. The WCO has created legal/administrative instruments called Nairobi Convention. Customs administrations can utilize this instrument to enhance their cooperation with other customs services.
 - e. The WCO public and private websites have been created to enhance the customs community's information and communication capacity at national and international levels.
 - f. Customs services are continuously trained regarding potential smuggling of toxic chemicals and the risk posed to them, society and the environment. Most customs administrations either hold their own training programmes or attend other relevant regional or national seminars.
- States should pay due Attention to the Safety and Security of Chemical Facilities*
- States should identify high priority chemical facilities. The prioritization should be based on the threat posed to public health and safety due to proximity to population centres, type and amount of chemical involved, and threat to critical infrastructure. In this connection, the concerned authorities of states should

establish regulations to require each priority facility to do the following:⁶²

- a. Conduct a vulnerability/hazard assessment.
- b. Develop the prevention, preparedness and response plan in the light of the vulnerability/hazard assessment of the facility.
- c. Carryout scheduled and unscheduled site visits/inspections.
- d. Establish safety and security advisory committee at each facility.
- e. Organize exercises to practice prevention, preparedness and response plans.
- f. Organize annual security related training for the workers and concerned officers.

MEASURES RELEVANT TO CHEMICAL INDUSTRY

Private Chemical Industry must be Intimately Involved

⁶² Frank Lautenberg/ Barak Obama, *The Chemical Security and Safety Act*, 30 March 2006

To effectively address the threat of CW proliferation, the chemical industry has to play a pivotal role. In this regard, certain approaches could be⁶³: -

- a. Monitor the Sales. One strategy could be to monitor the sales and transfers of dual-use chemicals to detect suspicious activity. This approach would require chemical companies and industry trade groups to pay more attention to knowing their customers. This would enable the industry to identify unusual transfers of sensitive chemicals. Consequently Industry should seek clarification from the National Authority and other relevant agencies.
- b. End-use Monitoring. Although chemical companies are generally reluctant to monitor customers' use of their products, a small number of companies do so in certain

⁶³ Meeting with Michel Crowley, *VERTIC*, 17 April 2007
George W.Parshall, "Scientific and Technical Developments and the CWC" p.5

instances. Moreover, despite industry's distaste, companies may be required to assume this role because small-scale proliferation to non-state actors is becoming a serious concern.

c. Develop Software Programmes.

It should be possible to develop software programmes to spot unusual activity with regard to dual-use chemicals.

d. Enhance Awareness. The chemical industry should make concerted efforts to enhance the awareness of their staff regarding their obligations under CWC.

SCIENTIFIC MEASURES

Modern Monitoring Technologies must be Utilized

Advances in analytical chemistry and data analysis can help to deter the efforts of those seeking to produce chemical weapons. New super-sensitive monitoring techniques can spot illicit activity by remotely analyzing trace amounts of chemicals leaking

from suspected CW facilities. Chemical analysis techniques for chemical pollutants are sensitive to the part per billion level, and sometimes to parts per trillion. Great successes have also been made in detecting minute concentrations of pollutants in soil and water. In this regard, it is highly desirable that such advance technology be made available to all States Parties.

DESTRUCTION OF CW STOCKPILES MUST BE EXPEDITED

The CWC required possessor States Parties to destroy their chemical weapons within ten years from the CWC's entry into force. This objective has not been achieved. Most States Parties possessing chemical weapons arsenals requested extensions on the deadline to finish destruction. In December 2006, the OPCW granted deadline extensions to China and Japan (until 2012) India (until 2009), South Korea (until 2008), Libya (until 2010), Russia (until

2012), and the United States (until 2012).⁶⁴ Experts do not believe that the United States and Russia, would be able to meet the 2012 deadline. Besides lack of political commitment and financial resources, the process of destruction of chemical weapons has proven far complicated than what was anticipated.

The states concerned should continue to fulfill their stockpile destruction obligations. Without such commitment and demonstration of good faith, the treaty's credibility risks being seriously undermined. Destroying stockpiles of chemical warfare agents also reduces potential terrorist threats and prevents diversion of weapons.⁶⁵ With the increase in the number of destruction facilities, the requirement of inspectors for on-site monitoring would also increase. To address such situation, the OPCW can consider the introduction of

remote monitoring technology and random checks instead of continuous on-site verification will enable the OPCW to substantially reduce the number of inspectors without affecting the efficacy of verification mechanism⁶⁶.

CONCLUSION

The staff of National Authorities and inspectors of the OPCW should be knowledgeable about modern production and processing trends in chemical industry that are difficult to detect. This would enable them to counter the threat of chemical warfare agents posed by the development of modern reactor technology and global distribution of multipurpose chemical industry. Moreover, to enhance the capabilities of States to effectively detect and deter the efforts of those seeking to produce chemical weapons, the Western countries should be forthcoming in

⁶⁴ C Harrington, Chemical Weapons Deadlines Extended”, *Arms Control Today*, January/ February 2007

⁶⁵ Rogelio Pfitter Keynote address sponsored by Global Green USA, “CWC Achievements and Challenges” 29 March 2007

⁶⁶ Note by DG OPCW, “Report of the Scientific Advisory Board on Developments in Science and Technology” *OPCW Conference of States Parties*, 23 April 2003, p.10

sharing advanced detection, monitoring and analytical technology with the developing countries.

Effective national legislations and regulations are essential for the effective national implementation of the prohibitions of the CWC. States Parties implementing the CWC are required, in accordance with Article VII, to make it a penal offence to assist in the production of chemical weapons. But such material assistance is not limited to the supply of any particular set of chemicals (those on the schedules or on any other list). There is a clear obligation on States Parties to take whatever steps they find necessary, consistent with the object and purpose of the Convention to prevent any such material assistance.

The scope of CWC is so comprehensive that it aims *elimination* of chemical weapons; and it also aims to prevent the *proliferation* of chemical weapons. On the contrary other regimes such

as Australia Group or the European Union's dual-use goods legislation focus on a narrow list of specific chemical precursors. The export control provisions of the CWC are based on its *General Purpose Criterion*. As Julian Robinson notes, a chemical weapon under the CWC is a "considerably broader concept". It allows the CWC to keep up with the technological progress and it protects legitimate uses of dual-use chemicals.

The compliance with the CWC has to be linked to the definition of chemical weapons as given in the CWC. The term "toxic chemical" is defined as "any chemical, which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals." Thus, The definition of chemical weapons focus on the proposed use, purpose and properties of chemicals and their precursors. A restrictive interpretation of the CWC, believing that the verification mechanism of the CWC is designed only for

scheduled chemicals, would establish loopholes and that would defeat the object and purpose of the Convention.

The issue of the proliferation of Chemical Weapons demands a coordinated transnational response and full compliance with international obligations. In particular, administrative cooperation between States Parties will prove very useful in ensuring accurate reporting of transfers among States Parties.

The timely destruction of chemical weapons stockpiles and prevention of any further development, production or stockpiling of chemical weapons is both a multilateral commitment and expressed OPCW contribution to the war on terror. The states possessing chemical weapons should continue to fulfill their stockpile destruction obligations. Without such commitment and demonstration of good faith, the treaty's credibility risks being seriously undermined.

To prevent the misuse of commercial industrial chemicals by terrorists, the chemical industry can make substantial contributions by monitoring suspicious sales, by enhancing awareness of their staff regarding CWC obligations, etc. The chemical industry and the National Authorities working closely with all other relevant national and international agencies such as customs, relevant scientific community, commerce, police, etc should continuously work on improving risk based safety and security measures at the chemical plants and storage sites of industrial chemicals for the safety of their own environment and people.



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For more information visit www.sassu.org.uk or Email: info@sassu.org.uk

For our Islamabad office Email: Zerfishan.akhtar@sassu.org.uk

SASSI (London)

Email: info@sassu.org.uk

36 Alie Street

Aldgate

London, E1 8DA

Phone: + 44 (0) 845 003 0864

Fax: +44 (0) 127.434.7295

SASSI Pakistan

Street #1, House # 427,

F-11/1 Islamabad

Pakistan

Telephone: +92-51-22-90-917

Telephone: +92-51- 22-91-061

Fax: +92-51-21-03-479



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