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**STATUS OF IMPLEMENTING THE CHEMICAL WEAPONS CONVENTION TEN
YEARS AFTER ENTRY INTO FORCE, AND THE WAY AHEAD**

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Abstract

The Chemical Weapons Convention is shortly characterised stressing their main principles, *inter alia* the so called *General Purpose Criterion*. Status of its implementation as of February 2007 shows the main data obligatory declared by 181 States Parties and main achievements in destruction of Chemical Weapon (CW) stockpiles and destruction / conversion of CW production facilities and their verification. The Organisation for the Prohibition of the Chemical Weapons (OPCW) is briefly presented, main results of the 1st Review Conference, and current problems in implementation are analysed. Further developments in preparing for the 2nd Review Conference in 2008 are discussed

Key words: *Chemical Weapons (CW), CW Convention (CWC), General Purpose Criterion (GPC), CW Production Facilities (CWPF), CW destruction, CWPF destruction & conversion, verification, Organisation for the Prohibition of Chemical Weapons (OPCW), Review Conferences*

INTRODUCTION

Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, depicted also as the Convention on general and comprehensive chemical disarmament, or shortly Chemical Weapons Convention (CWC), adopted in 1992 after complex negotiations on the soil of Conference on Disarmament in Geneva lasting nearly a quarter of a century not only due to then proceeding Cold War and East-West confrontation but mainly due to the worldwide spread of chemical industry and relatively easy possibility of clandestine synthesis of chemical warfare agents in militarily relevant quantities. This and also rather bad experience with previously adopted Convention on the Prohibition of Development, Production and Stockpiling Bacteriological (Biological) and Toxin Weapons and of Their Destruction - BTWC (opened for signature in 1972, entering into force in 1975), lacking any objective verification mechanisms, has been reflected in CWC's very careful definitions and criteria, and mainly in a very complex and sophisticated verification system. The CWC is the best elaborated disarmament document, totally outlawing one very dangerous kind of weapons of mass annihilation, committing the States Parties (SP) to destroy their chemical weapons (CW) stockpiles and production facilities (CWPF). 13 years after opening for signature and 6 years after entry into force (EIF), The 1st Review Conference was convened in The Hague (2003), stating generally good acceptance by the international community, showing positive results of implementing the CWC, and defining

the course for future. At the time being, it seems that the main problem is destruction of CW at the main possessors. Preparations for the 2nd Review Conference have already started.

CHEMICAL WEAPONS CONVENTION – BASIC FACTS

Chemical Weapons Convention (CWC) [2], opened for signature in Paris, on January 13, 1993 entered into force on April 29, 1997. Its complexity is reflected by nearly 200 pages of text, containing Preamble and 24 Articles and 3 Annexes: On Chemicals (6 p), On Implementation & Verification (105 p), and On Protection of Confidential Information (5 p).

To the main pillars of the CWC belong:

- Verified destruction of chemical weapons (CW) and of CW production facilities (CWPF), i.e. disarmament,
- Verified non-production of CW, i.e. non-proliferation,
- Assistance and Protection,
- International Cooperation.

The genie of this Convention lies *inter alia* mainly in the mood of defining the scope of the prohibition. The CWC is rather purpose than compound oriented. This means that it is nothing like the list of prohibited compounds as some less informed people expect. The CWC's leading principle, which is often reported as *General Purpose Criterion (GPC)* is contained in the wording of Article II, para 1, defining the purposes of the CWC among "Chemical Weapons":

Article II DEFINITIONS AND CRITERIA

For the purposes of this Convention:

1. "Chemical Weapons" means the following, together or separately:

- (a) Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes*
- (b) Munitions and devices, specifically designed to cause.....*
- (c) Any equipment specifically designed for use.....*

Under purposes non prohibited by this Convention according to Article II para 2 (a) – (d) are understood:

"industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes, protective purposes, namely those, directly related to protection against toxic chemicals, military purposes not connected with the use of CW and not dependent on the use of toxic properties of chemicals as a method of warfare as well as law enforcement including domestic riot control".

Toxic chemicals are further defined in Article II para 2 as meaning

"Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans and animals. This includes all such chemicals, regardless of their origin or of their method of production and regardless of whether they are produced in facilities, in munitions or elsewhere".

From this explanation, quoting relevant articles of the CWC is evident, consistent with the mentioned GPC that the Convention:

- a) is nothing like a list of prohibited compounds,
- b) covers *any* toxic chemical intended to be used for chemical warfare (and therefore developed, produced and stockpiled), pursuant to Article II, para 1 (a) and para 2, i.e. even those not yet synthesised. This means that the CWC is open-ended and the prohibition covers any scientific and technological development.

The CWC lists (only as the verification instrument) the most important toxic chemicals and their precursors, endangering the CWC (known in the time of drafting the CWC) within three Schedules, constituted according to the risk the chemicals pose for the Convention. Schedule 1 contains super-toxic lethal chemicals and key precursors that have no peaceful uses, Schedule 2 contains less dangerous toxic chemicals and precursors produced in small quantities, and Schedule 3 lists toxic industrial chemicals (that were in the former history used for chemical warfare) and precursors produced on mass scale. A frequent misunderstanding occurs considering the Schedules as the lists of “prohibited compounds” although it is clearly stated in the CWC that “Schedules do not constitute a definition of CW”. The open-ended prohibition however does not mean that new toxic chemicals (other than those contained in Schedules) cannot appear on battlefields being used by non States Parties or less possibly by SPs breaching the CWC or more possibly by the terrorist groups. That is why the scientific and technological development is to be very cautiously watched, international verification measures extended, national authorities and operation systems established, and respective legislation adopted in order to enable prevention and adequate response in real time (repression, protection, rescue and recovery) in cases of emergency.

STATUS OF IMPLEMENTATION OF THE CONVENTION

(If it is not otherwise stated, the data are reported as of February 22, 2007).

- There are altogether 181 States Parties to the Convention. Important is the membership of all P-5 members of UN Security Council and vast majority of states with declarable CWC facilities.
- Six SPs (Russia, USA, India, South Korea, Albania, and Libya) declared CW possession.
- Among SPs, there are 12 possessors of former (after 1946) CW production facilities (CWPFs), i.e. Russia, USA, India, South Korea, France, UK, China, Iran, Japan, Bosnia & Hercegovina, Serbia (declaring the same facility), and Libya.
- The CWC implementation & verification regime now covers 98 % of the global population and landmass, and what is maybe more important, 98 % of the worldwide chemical industry.

Reviewing the figure on the number of SPs, it is also important to note that there are 6 signatory states that have not yet ratified (*inter alia* Israel) and altogether 9 countries that have not even signed. Beside not very important states it is necessary to note DPR of Korea and the neighbours of Israel (Egypt, Iraq, Lebanon and Syria) bounding their signature on the Israel's withdrawal from its nuclear weapons programme. With regard to hot region of the Near East, a very significant breakthrough was made by the accession of Libya in 2004.

Assessing the universality of the CWC (by the way one of the strong requirement of the First Review Conference), one can come to interesting results comparing this requirement with the status of other principal agreements on weapons of mass destruction (WMD) as can be demonstrated by table 1. It seems that one could be satisfied with relatively high number of

SPs, eight years after EIF in comparison with other important arms-control / disarmament agreements addressing main kinds of WMD. Nevertheless, for the prevention of any use of CW, it is necessary to reach higher number of SPs mainly because most of the above mentioned important non-SPs, concentrated in Near and Middle East and on Korean peninsula are supposed nearly certainly to be possessors of CW (not to speak on possession of other kinds of WMD like in the case of Israel).

Table 1. Universality: CWC as compared with other main agreements on WMD

Treaty	Entry into force	SPs	other signatories	non-signatories
NPT	1970	191	---	4
BTWC	1975	155	16	24
CWC	1997	181	6	8

The worldwide status of CWC implementation is witnessed by another data:

- 165 initial declarations (on possession / non-possession of CW) were obtained from SPs,
- 172 national authorities were established in the SPs,
- 114 national legislations on implementing the CWC adopted,
- 75 comprehensive national legislation on implementing the CWC adopted.

Mainly the latter three numbers are still quite insufficient taking into account the tasks of such governmental office in the national implementation measures starting with the respective legislation and supervision of the domestic chemical industry and any cooperative activities with the Organisation for the Prohibition of Chemical Weapons (OPCW). The most important data from the declarations of SPs (see table 2) show the worldwide problems with possession, storage, former production of CW as well as with the spread of chemical industry as the point of outcome for the destruction of CW at present but for monitoring the non-production of CW in chemical industry in future.

Table 2. Important data from the declarations by the SPs

Subject	Declaring SPs	Declared sites
CW storage facilities (CWSFs)	6	36
CW destruction facilities (CWDFs)	6	37
CW Production Facilities (CWPFs)	12	65 ^a
Abandoned CW	3	18
Old CW	13	47
<i>Industry production:</i>		
Schedule 1 Chemicals	21	27
Schedule 2 Chemicals	37	439
Schedule 3 Chemicals	33	475
Discrete Organic Chemicals	77	5142

^a Of the 65 former CWPFs, 58 have been certified as destroyed & converted

The total number of declared sites (6286) which are to be regularly or randomly inspected shows the high burden of expected verification activities. At this stage of implementation, the verification activities have been obviously concentrated on storage and destruction, and in industry on facilities producing scheduled chemicals.

At present, the most important activity in implementation of the CWC is destruction of CW:

- Declared chemical agents	~	71.330 thousand tonnes
Destroyed	~	17.087 thousand tonnes
- Declared munitions (containers)	~	8.67 M items
Destroyed	~	2.65 M items

As expected, the destruction is proceeding asymmetrically, meeting domestic financial and technological problems with construction of destruction facilities. None of both two major possessors (Russian Federation, USA) will manage the scheduled 10 years term for total CW destruction according to the CWC. The allowed exemption to extend the destruction period for another 5 years has been already agreed for both these SPs. It is important that the ongoing destruction process has been accelerated now mainly in Russia but there are doubts whether even the extended time schedule will actually be managed in both named SPs.

ORGANISATION FOR THE PROHIBITION OF CHEMICAL WEAPONS – OPCW

Pursuant to the CWC, after its signature, the Preparatory Commission was founded and after EIF the Organisation for the Prohibition of Chemical Weapons (OPCW) with the seat in The Hague (Johan de Wittlaan 32, 2517 JR Den Haag) was established. For more information see <http://www.opcw.org>.

The Organisation consists of three main elements:

- a) Conference of the State Parties (all SPs, meets regularly once a year),
present Chair: H.E. Amb. Mr. José Antonio Arróspide (Peru).
 - b) Executive Council (41 members distributed among the SPs on a regional, rotating base for 2 years term, meets regularly 4 times a year),
present Chair: H.E. Amb. Ms.Hlengiwe Buhle Mkhize (South Africa).
 - c) Technical Secretariat (nearly 500 staff members from 66 nations, of them about 200 inspectors). Director General: H.E. Amb. Mr. Rogelio Pfirter (Argentina),
- Subsidiary bodies: Scientific Advisory Board (25 experts); Confidentiality Commission; Advisory Board on Administrative and Financial Matters.

THE FIRST REVIEW CONFERENCE

The character and tasks for the Conference were determined as follows:

- Review operations of the Convention,
- Take account of scientific and technological development,
- Lessons learned and recommendation for future implementation,
- Not an amendment (revision) conference.

The attendance represented then (May 2003) 113 SPs, 2 signatory states (Haiti, Israel), 2 non-signatory states (Libya, Angola), 5 International Organisations (ESA, ICRC, PCA,

CTBTO, UNIDIR), 22 NGOs and 6 Industry Associations. The Conference did not result in radical change of direction for the OPCW or substantive decisions on crucial, still outstanding issues (e.g. so called “non-lethal” agents, riot control agents, “law enforcement”, nil declarations in respect of OCPFs and like.

A number of priorities have, however been clearly recognised. To those priorities belong:

- Universality of the Convention,
- National implementation measures,
- International Cooperation and Assistance,
- Verification regime for the chemical industry
- Optimisation of verification measures
- Scientific and technological development and
- Functioning of the OPCW.

The detailed explanation goes beyond the frame of this paper. For further information see the adopted documents. This is in the first line the Political declaration containing 23 paras [3] and the main written result, i.e. the Review document with 134 paras [4]. Except many statements, mostly only general, the programme did not go too deep into the problems of impact of scientific & technological development on the CWC that are obviously connected with its implementation in future. This problem was analysed in the document prepared by the OPCW Scientific Advisory Board introduced in the Note by the Director General [5] on which the scientific community was informed closely before the 1st Rev. Conf. at the session of the Pugwash CBW Study Group in Oegstgeest, 2003 [6]. It seems that some of recommendations by the SAB (eg. on amending Schedules, submitting data on novel agents and on measures providing cover against unscheduled and new toxic compounds) were not welcomed by some SPs. It was felt that they feared from misusing such information by terrorists. Nevertheless this question remains open as an important impetus for further verification of CW non-production (non-proliferation of CW). However, other important recommendations of SAB have been generally accepted. Some of them are reflected in the SAB's recent advice and mainly in projects that have been launched. It is generally expected that their results will mainly influence present and future activities of the OPCW, considering the crucial importance of the impact of scientific and technological development on the CWC mainly after current CW stockpiles have been ultimately destroyed.

Recent advice and recommendations by the OPCW-SAB are related to:

- Salts of scheduled chemicals (the same toxicological importance as free bases);
- Captive use of (scheduled) chemicals (generally not important for possible misuse);
- Structure of ricin (A + B chain, connected with a disulphide crosslink –S-S-);
- Role of CAS numbers (only auxiliary tool, no regulatory power).

To the ongoing projects under aegis of the OPCW-SAB belong:

- Biomedical Sampling and Analysis (in investigating Alleged Use of CW) (TWG – 3 sessions);
- Sampling and Analysis to upgrade objective verification efforts (TWG had already the 1st session)
- Education and Outreach (Joint Project OPCW-IUPAC) on introducing CWC issues in University curricula and on code of conduct of chemists and life scientists – Workshops in Bologna, Oxford and Moscow (2005), Bologna (2006). The latter was associated with an informal SAB meeting.
- Preparations for the 2nd CWC Review Conference

For detailed information on the above mentioned recent activities see [7, 8, 9]. All those reports are being utilized by the open-ended group preparing the 2nd Rev. Conf.

MAIN ACTIVITIES AHEAD

This year is marked by the 10th anniversary of the CWC entry into force and preparations for the 2nd Review Conference, where also the OPCW SAB is playing a significant role. The short overview of main events can be shown as follows:

- IUPAC Workshop on Science and Technology, Zagreb/HR, April 22 – 25, 2007.
Internationally known experts will be invited, results will be utilised in the work of SAB for the 2nd Rev. Conf.
- Opening Memorial to All Victims of Chemical Weapons and Commemoration Ceremonies, OPCW, The Hague/NL, May 9, 2007.
- OPCW Academic Forum, The Hague/NL, September 18 - 19, 2007.
It is expected to organise similar event every 2 – 3 years in future.
- OPCW Industry and Protection Forum, The Hague/NL, November 2 – 3, 2007.
- The 2nd CWC Review Conference, The Hague/NL, April 7 – 18, 2008.

Active engagement of NGOs at the Conference and/or Conference NGOs Forum is again expected. This is an opportunity for NGOs representing the worldwide community of scientists and engineers, including Pugwash and its CWC/BTWC Study Group.

CONCLUSIONS

With the exception of the considerable delay in the schedule of CW-destruction, all operations of the Chemical Weapons Convention are proceeding satisfactory judging according to the status of its implementation by States Parties and verification by the Organisation for Prohibition of the Chemical Weapons in The Hague nine years after entry into force of the CWC. The First Review Conference (2003) formulated priorities in implementing the CWC and stressed the importance of achieving worldwide CWC-universality in order to totally eliminate the heredity of past chemical arsenals once forever, prevent threats and utilise benefits of the scientific and technological development for the CWC implementation in the foreseeable future. The rapid growing number of the SPs has been proceeding since the 1st Rev. Conference reaching now 181. The main current problem is destruction of CW stockpiles at two major CW possessors (of total 6 SPs that had declared the possession) even in the extended period to 15 years. Preparations for the Second Review Conference have already started. It is expected that the problems of scientific and technological developments will attract more attention at the 2nd Review Conference in all their aspects. The OPCW-SAB has initiated some projects on the most relevant issues of science and technology. It is expected that international NGOs will again play active role, before, at and parallel to the 2nd Review Conference in 2008.

Notes and references

- [1] The author was working since the 1950s in R&D for Chemical Corps, Health Services and Civil Protection, *inter alia* as Head of the Czechoslovak NBC Defence R&D Establishment (now Military Technical Institute of Protection, Brno) and member of the Czechoslovak Delegation to the Conference on Disarmament in Geneva. He is currently chairman of the OPCW Scientific Advisory Board.

- [2] *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction*. UN, New York 1993.
- [3] *Political declaration*. [www.opcw.org/cwrevcon/doc/NAT/FRCPolitical declaration.html](http://www.opcw.org/cwrevcon/doc/NAT/FRCPolitical%20declaration.html). OPCW, The Hague 2003.
- [4] *Review document*. www.opcw.org/html/global/wgrc/2k3/rc1revdoc.html. OPCW, The Hague 2003.
- [5] *Note by the Director General: Report of the SAB on Developments in Science and Technology*, OPCW, Conference of the SPs, RC-1/DG.2. OPCW, The Hague 2003.
- [6] Matoušek J.: Brief information on the Report of the OPCW-SAB for the 1st CWC Rev. Conf. 19th Workshop of the Pugwash Study Group on the Implementation of the Chemical and Biological Weapons Conventions. The First CWC Review Conference, and Beyond. Oegstgeest, 2003.
- [7] Note by the Director General (EC-44/DG.7: 8 March 2006): Response to the Report of the 8th Session of the SAB (SAB-8/1: 10 February 2006).
- [8] Report of the Informal Meeting of the SAB, Bologna, September 2006.
- [9] Report of the 9th Session of the SAB, The Hague, February 2007