

# **Article XI of the Chemical Weapons Convention: Between Irrelevance and Indispensability**

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The 1993 Chemical Weapons Convention (CWC) is first and foremost a disarmament treaty, which aims to destroy existing stocks of chemical weapons (CW) and prevent chemical rearmament under international supervision. The treaty is extremely complex, because many chemicals it covers have important legitimate civilian applications, while many of the civilian chemical manufacturing plants and research establishments could easily be converted for CW development and production. Over the past decades the chemical industry has established itself across the world. For many developing countries, the chemical sector has become an important component of economic, scientific and technological progress. The knowledge and capability to manufacture CW have thus spread beyond the countries that held or currently hold CW stocks. To generate confidence in the global security regime established by the CWC these industries too have to be submitted to international verification. Universal adherence to the treaty will greatly strengthen the conventional norm. The CWC must therefore attract the ratifications of states that do not possess CW or have not been exposed to CW threats. Article XI of the CWC provides such an incentive by requesting all states parties to implement the CWC in a manner which avoids hampering the economic or technological development of other states parties, and international co-operation in the field of chemical activities for purposes not prohibited under the convention. In addition, Article VI grants states parties the right to have access to certain dual-use chemical compounds and technologies for purposes it does not prohibit. Eventually, states parties will be forbidden to export some of these commodities to non-states parties, while other chemicals will be subjected to an export control regime specified in the convention.

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Such provisions go far beyond the traditional understanding of security and disarmament. Negotiations for the CWC were mostly conducted during the Cold War when forces of the NATO and the Warsaw Treaty Organization had CW at their disposal and the threat of chemical warfare in Europe was deemed to be real. The main goal of the negotiations was to eliminate that threat by destroying the respective stocks under international supervision and establishing a stringent verification regime so that the adversary would be unable to maintain a clandestine CW armament programme. By the time the convention entered into force on 29 April 1997 the global system had changed fundamentally. In the past 15 years the world has witnessed the use and threat of use of CW in two wars in the Middle East and by terrorists against unsuspecting civilian targets. Concerns over proliferation of CW, as well as other unconventional weapons, have moved to the top of the security agenda. Article I of the CWC, which contains the core prohibition and requirements, also forbids states parties to assist anyone in any way in an activity prohibited under the convention. As the increased access to knowledge, technologies, equipment and other dual-use goods is considered part of the proliferation threat, Articles I and XI have come to symbolize the diametrically opposed expectations the industrialized and developing countries have from the CWC. The insistence by several supplier states meeting in the Australia Group to maintain a supplementary CW-related export control regime outside the CWC has further widened the rift between North and South.

Arms control and disarmament increasingly penetrate non-military areas of society and regulate legitimate civilian activities as they seek to avert the diversion of dual-use commodities for illegitimate or potentially destabilizing armament programmes. The resulting concerns about hampering economic and societal development will have to be accommodated with the more traditional security expectations. This tension poses a formidable challenge to the implementation of the CWC and the future of the treaty regime.

This article analyses the importance of Article XI for reaching universal adherence to the CWC. Although the convention establishes a global disarmament regime, dynamics on the regional and sub-regional levels force states to make complex security calculations in order to ratify the CWC. The issue of joining the treaty is context relative and depends upon whether states are seeking absolute or relative gains. The factors involved may differ from region to region or from period to period. It thus becomes possible to identify the circumstances under which Article XI acts as an incentive for a state to join the CWC. For many developing countries with low-intensity security interactions Article XI may be the sole reason to sign and ratify the CWC. The analysis also reveals some situations in which

Article XI is entirely irrelevant to the choice of whether or not to join the treaty. The success of the CWC and any future global arms control or disarmament agreement will depend on recognition of the multiplicity of expectations, which is reflected in the relative importance states attach to individual provisions.

### **The Chemical Weapons Convention as a Security Regime**

Arms control or disarmament is part of security strategies designed to reduce external threats and increase stability. In the first case, parties freeze the quantitative level of a particular class of weaponry, which can be higher or lower than at the moment of the agreement. In the case of disarmament, the parties agree to reduce the arms category to zero. Arms control and disarmament require the collective action of two or more parties who share the view that mutual limitations of military capabilities increase their security more than the continuation of unilateral policies, such as armament. In the process, they are willing to accept limitations of absolute sovereignty. An arms control or disarmament treaty offers states that wish to join it the prospect of absolute gains. An absolute gain can be understood as the total reward received by a state in response to an action and can be measured by comparing the security condition of the state to that of itself at a different time. The primary benefit a state may obtain from joining such a cooperative regime is the decrease in the likelihood of a potential adversary inflicting damage with the weapon category concerned. A disarmament treaty thus holds out the prospect of far greater absolute gains (and losses) than an arms control agreement, because the weapon category in question is entirely eliminated.

Today, the choice for arms control or disarmament is still not evident. Because no government accepts vulnerability, it seeks to maintain if not increase military strength to preserve its national security. Yet in the process it will experience greater insecurity as an unanticipated consequence of the response by other states to the security dilemma. The security dilemma arises because every state accumulates military assets for its own defence, but other states cannot be certain that such accumulation is for defensive purposes only. Based on worst-case scenarios states will match the military power of other states. This vicious circle may actually lead to less security, while every protagonist incurs the cost of having acquired and having to maintain that increased military power.<sup>1</sup> The dynamic appears to operate in one direction only, namely that of ever-increasing levels of qualitative or quantitative armament. Arms acquisitions are not solely an expression of international competition. They also serve to maintain the military status quo, whereby domestic influences and technological changes too may

pressure states into changing the quantity and quality of the armed forces they already possess.<sup>2</sup> Unilateral steps towards disarmament do not appear to elicit similar concessions from adversarial or friendly states. One possible explanation is the necessity to maintain preparedness against all possible enemies and not just a single state. Another reason may be the impossibility for an outsider to ascertain that the policy declaration is actually being implemented. From these observations it follows that no state can ever achieve total security. A state has little, if any, leverage on other actors in the international arena and will therefore always have to confront a variety of challenges. A 'security deficit' emerges because it can never meet all contingencies no matter what military preparations it undertakes. While the security deficit contains an objective component – for instance, the differences in numbers and types of weapon deployed – it is foremost an expression of the subjective appreciation of the external threat.

Such a perception of the international system makes international co-operation problematic. States position themselves in comparison with or against other states and consequently seek or fear relative gains, which offer disproportionate benefits that change the balance between two or more states. Relative gains create advantages when they allow the state that benefits more to secure additional gains in the future and thus influence other outcomes in the same or other security-related domains. Consequently, the security dilemma and, more importantly, the security deficit can be an important obstacle on the road to arms control or disarmament. An arms control or disarmament agreement must provide an adequate answer to this fundamental issue if it is to establish an effective treaty regime. The creation of a political climate conducive to arms control and disarmament both among the states concerned and within the states themselves will be prerequisite. Since the security deficit contains a substantive subjective element, states do not necessarily hold static perceptions of gains. Certain situations may emphasize the importance of relative gains, while other circumstances may encourage absolute gains. The security condition of a state at any given point in time may determine the nature of the security policies and strategies that state adopts. One example illustrates the point. Ten years ago the West expressed grave concern about the Soviet stockpile of CW, which amounted to 40,000 agent tonnes. Today these CW are still there, but few security planners view them as a direct threat to the West.

The Chemical Weapons Convention offers states parties considerable absolute gains both in terms of security and economic advantages. While it is the longest and most detailed disarmament treaty thus far, the strength of the treaty regime will nevertheless evolve as a consequence of intrinsic and extrinsic factors. The manner in which the CWC is able to react to direct

challenges, such as violations, determines the intrinsic strength of the convention. The CWC must thus extend sufficient security guarantees so that the states parties can address their security dilemma and perception of the security deficit over an extended period. The extrinsic challenges are closely connected to the environment in which the CWC must function. Certain developments, such as new discoveries or the increasing importance of new political actors, can make the treaty irrelevant or at least undermine it seriously if it does not possess the necessary mechanisms to adapt. The international community will consequently have to redefine the conventional norm permanently if the CWC is to remain relevant under all, even unforeseen, circumstances.

This long-term adaptability is key to the permanent ability of the CWC to provide a sufficient security regime to meet future challenges posed by CW. Adhering to the convention can indeed place any country in an acute security dilemma. Each state party commits itself individually to the treaty regime and not to other states, irrespective of whether these have joined the CWC or not. As long as it does not withdraw from the convention, it renounces CW under all circumstances, including in-kind retaliation.<sup>3</sup> It even agrees not to adopt a deterrence posture with CW. A violation of the convention or a chemical threat by a non-state party consequently creates a highly asymmetrical security condition with potential relative gains, to which a state party must seek an adequate answer through alternative measures. The goal of universal adherence is one mechanism to reduce the relative gains a state might hope to achieve by defecting from the treaty regime.

### **The Option of Disarmament in the Global/Regional Interface**

Security questions manifest themselves in different ways depending on whether they are viewed from a global or regional perspective. For example, despite their enormous divergence in capabilities, it is conceivably easier for a small country such as Belgium and a behemoth like China to reach consensus on the security benefits of the CWC, than for instance between Iran and Iraq. Policy-makers will therefore often argue that insights and solutions offered by global and regional approaches to security are mutually exclusive. The security dilemma and the resultant security deficit may be all the more acute on the regional level if manifest adversary security relationships exist between states. The global level allows for abstraction, which makes it possible to break down security into its constituent elements and deal with each issue independently. Precisely this abstraction makes the choice by a state to pursue absolute gains easier. The regional level of analysis and policy-making lacks much of that abstraction and consequently

preserves the atmosphere of relative gains concerns. In particular, the distribution of capabilities becomes a less theoretical concept in security relations because the states in question often share borders. Even in the case of non-contiguous countries the quality of particular weapon systems will force states to supplement their traditional perimeter defence with over-the-horizon assets. The threat perceptions can be particularly acute on the regional level so that joining a particular disarmament regime may involve security risks too great to take (i.e. relative losses) if other issues are not addressed simultaneously.

The impact of regional geopolitics on arms control and disarmament is still little understood. This is partially the consequence of the difficulties in comprehending the security dynamics on the intra-regional and inter-regional levels. For example, in the late 1950s and early 1960s India was committed to the development of nuclear energy for peaceful purposes only and remained so despite fierce parliamentary criticism after the Indian military debacle against China in 1962. The policy broke down after China exploded its first nuclear device in 1964. Ten years later, India conducted its so-called peaceful nuclear explosion. While the step can be viewed as a judicious exercise in deterrence, combined with domestic political developments in India it caused great anxiety in neighbouring Pakistan, leading to the initiation of its own nuclear weapon programme.<sup>4</sup> This created an awkward triangular nuclear deterrence relationship in South Asia, especially since China hardly considers itself to be part of that region. Yet the Indian ability to target some of the Chinese missiles affects the Sino-Russian security equation. When the Pakistanis later expressed the view that the nuclear bomb would place them in the forefront of the Islamic world,<sup>5</sup> it added another threat level for, for instance, Israel in the Middle East. This example demonstrates that international security is indeed a seamless web and intra-regional issues may easily become inter-regional or even global concerns.

Establishing these boundaries is another factor complicating the understanding of arms control and disarmament on the regional level. The United Nations, for instance, encourages regional arms control measures, but has so far deliberately avoided formulating a precise definition of what constitutes a region.<sup>6</sup> The psychological reality of regional security subsystems cannot be dismissed. 'Region' has been defined as a distinct and significant subsystem of security relations among a set of states, whose fate is that they have been locked into geographical proximity with each other.<sup>7</sup> Closeness may thus increase the acuteness of political and military threat perceptions. The Middle East provides a prime example of the complexities involved in applying the definition. In its broadest sense, the Middle East stretches from Mauritania on the Atlantic coast to Iran in Southwest Asia and reaches as far south as the Sudan and Ethiopia. Deep political, ethnic,

cultural and religious fault lines run through this vast territory. It may make sense to delineate geopolitical regions in function of the cleavage to be analysed. However, for regional approaches to security and arms control, the proposition may be unrealistic. These fault lines, alone or in combination, may impel armament dynamics and therefore block moves towards confidence building and restraint. The proposed definition also does not explain how to differentiate between states that belong to a particular region and those that fall outside it despite their geographical proximity with each other. Sub-Saharan countries, for instance, are not usually considered in the security equations of the Middle East. To summarize, patterns of amity and enmity cannot be predicted from a simple consideration of the distribution of power. Other elements play a role, such as border disputes, ethnic affinity, ideological alignments or longstanding historical links.

A useful heuristic device is the 'regional security complex', which comprises a group of states within some particular geographical area whose primary security concerns link together sufficiently closely so that their national securities cannot realistically be considered apart from one another.<sup>8</sup> It points to the intense interdependence among a set of states that distinguishes that particular set from neighbouring ones. That interdependence can be expressed both in terms of rivalry – for instance, the China–India–Pakistan triangle – and of shared interests, as in the Nordic security set-up. The relationships are durable, but not perpetual.

The regional security complex thus consists of a set of security relationships that stands out from the general background because of its relatively strong, inward-looking character. Consequently, the outward security interactions with the neighbouring states are relatively weak. In this way it becomes possible to identify the boundaries of a complex based on the criterion of 'relative indifference'. Relative indifference explains why the accumulation of particular kinds of weapons affects the threat perception of the countries within the region and why they are viewed with far less concern outside that region. For example, the characteristics of the armament dynamics in the Middle East and sub-Saharan Africa are fundamentally different. Yet, no threat imbalance seems to be perceived between the two regions. In other words, some psychological constructs appear to function that enable the peoples involved to identify what countries should be included in the region and what countries can be excluded or play only a marginal role. States will consequently be much more responsive to changes affecting their relative position inside the regional security complex than to such changes with respect to outside actors. Regional security complexes are also demarcated by buffer states between them. Afghanistan, for example, separates the Middle East from the South Asian security complex. This explains why Iran has developed its

economic and trade relations with states around the Caspian Sea and Afghanistan and seeks to exploit the natural resources in the Indian Ocean, while the bulk of its military forces face westward to Iraq and the Gulf. A regional security complex may enclose some smaller states, whose importance is derived from patterns of alignment within the complex. Furthermore, a total lack of balance may sometimes typify the relationship inside the complex. This is, for instance, very clear if one views China, which has far greater security concerns in the north, versus India and Pakistan. Finally, the intervention of outside powers can heavily influence the distribution of power within the regional security complex.

Arms control and disarmament make up one subset of security policies that aim at reducing threats and increasing stability. Within a regional security complex they can play a major contributing role if security policies are directed towards the maintenance of the status quo. In friendly relationships arms control and disarmament will confirm the prevalent security environment; in antagonistic ones they will promote confidence building and increase regional stability. Arms control and disarmament become much more complicated propositions if they are pursued to change antagonistic relationships into more amicable ones. In and of themselves these security strategies cannot reverse such a relationship because of the fear that they could provide the adversary with relative gains. They can only take root in an environment conducive to such a reversal. When the turning point has been reached – that is, when the political actors begin to value absolute gains over relative ones – they will promote and accelerate the transition towards more amicable interactions.<sup>9</sup>

Regional policy-makers face the choice between global, regional or even bilateral approaches. The track record does not provide unambiguous answers as to the preferability of the level on which the arms control or disarmament strategies should be pursued. In the nuclear field, the process has moved since the 1960s through a complex mix of global and bilateral measures.<sup>10</sup> The regional level played an important role through the creation of nuclear weapon-free zones (NWFZ), whereby subsets of states opted to maintain the status quo regarding non-possession and tried to restrict the room for manoeuvre for nuclear-weapon states in their particular geographical area. The negotiations of the 1972 Biological and Toxin Weapons Convention (BTWC) were mostly a global affair. The East–West context was then the dominant paradigm, but the neutral and non-aligned countries nonetheless had a major impact on the deliberations. The treaty-making process of the CWC combined bilateralism, regionalism and globalism. Although the negotiating format was definitely a global one, it took a bilateral breakthrough between the United States and the Soviet Union in 1989 to move the multilateral talks in Geneva forward. In contrast,



the global imperative ensured that the idea of chemical-weapon-free zones (CWFZ) was stillborn in the 1980s.

For nuclear, chemical and biological weapons, arms control and disarmament have an inescapable global dimension. The degree of universality is an important indicator of the relevance and strength of a global treaty and non-states parties will undergo growing international pressure to join it. However, the greater the universality of the treaty the greater the regional relative gain a state may acquire by not joining or defecting from the agreement. Nevertheless, because of the growing strength of the international norm, the opportunity costs for maintaining the armament dynamic in defiance of that norm will continue to rise, forcing abandonment when the state is no longer willing to expend the required political capital. This is one aspect of how an international treaty can address the security deficit sufficiently so that a state can confidently renounce any present or future quest for such a military capability.<sup>11</sup>

For all its merits, this process as presented generates two major problems. First, from the perspective of the global regime all states are considered equal units essentially facing a simple choice: either they join the treaty regime or they do not. The latter option, however, is met with disapprobation. States possessing no weapons covered by the treaty or for which the threat with such weapons is virtually non-existent thus come under strong pressure to enter the treaty regime. Yet implementation may involve considerable financial cost, especially if the agreement contains elaborate verification mechanisms and creates an international organization to oversee implementation. Since such a state cannot achieve an absolute gain by joining the treaty regime because the weapons in question do not constitute a part of its security deficit, compensation in another – perhaps non-military – domain may well be the only incentive to become a state party. Second, the like-unit status of states as a consequence of the abstraction on the global level may also obscure the unequal distribution of capabilities and gains affecting the security equations on the regional or sub-regional levels. If the treaty offers no adequate substitute to the function the class of weapons plays in the way a state can address its security deficit, then that state will refuse to become a party. Existential threats and fear of relative losses can be critical factors in regional security complexes. The shifts of the discussions between the global, regional and sub-regional levels are therefore probably a necessary part of the negotiation process in order to achieve an effective disarmament regime.

### **Functional Equivalence and its Impact on Disarmament**

A global disarmament treaty has to embrace a variety of existing security

relations. States may have active security interactions with each other or not. Within a given set of security interactions all, some or none of the participating states may possess the arms category under consideration. For each state the reasons for possessing or not possessing these weapons may differ. The relative importance attached to the arsenal furthermore depends on whether the state in question views itself as a global, regional or sub-regional actor.

As the global security debate allows for a considerable degree of abstraction it becomes possible to break down security into its elements and consider each one independently. Hence the separation of the forums dealing with, for example, nuclear, chemical, biological and conventional arms control and disarmament. Such isolation of a security issue as a consequence of the abstraction is not a given factor. For example, when the United States moved towards acquiring an offensive nerve-agent capability in the late 1940s, this was not in response to a specific Soviet chemical threat. Rather, the explosion of the Soviet atomic device in 1949 ended the US nuclear monopoly and undermined the deterrent function of the US atomic bombs. The event caused a general re-examination of the US security policy, which was based on massive retaliation against any Soviet aggression. The new chemical arsenal received a deterrence-by-denial role against the massed armour and manpower of the Soviet bloc and not that of an intra-war in-kind deterrence to prevent the USSR from resorting to unconventional warfare. That position conflicted with the standing *in-retaliation-only policy* regarding CW and the highest military and political circles seriously discussed renunciation of that policy. Chemical weapons were not a determinant of the US security posture, but rather a substitute for insufficient conventional power. They became marginalized again when tactical nuclear and improved conventional weapons, which were also more prestigious to the US Army and morally less objectionable, became available in the mid-1950s. In this example, CW served as a temporary stopgap for salient security deficits in the conventional and nuclear fields.<sup>12</sup> The equation in which US military planners wished to place them was a highly asymmetrical one. In the Soviet Union, the post-Second World War doctrinal significance of CW was limited and the weapons most likely had a defensive role.<sup>13</sup> This difference of doctrinal functions between the two countries would have made it extremely difficult to segregate CW from the overall military equation and submit them for arms control. Functional equivalence for CW between the United States and the Soviet Union only began to emerge in the 1970s when the US Army began considering new chemical munitions for in-kind deterrence. It placed them in direct relationship to the Soviet CW arsenal, which found some increased importance as part of the development of non-nuclear war-fighting strategies in the 1970s and 1980s.

Functional equivalence of a particular class of weaponry between two or more political entities is attained when these political entities assign this class of weaponry a similar function in their respective military doctrines. Weaponry in functional equivalence is thus characterized by the fact that any change in its constitution in one political entity would be countered by a similar change in an adversarial political entity. Conversely, changes in the constitution of weaponry not in functional equivalence in one political entity would elicit an asymmetrical or no response from an adversary. A class of weaponry in functional equivalence between the major political entities concerned can be isolated as a security issue and thereby fulfil an underlying precondition for sustainable arms control or disarmament. In other words, it is an important catalyst in the right security environment rather than an independent promoter of arms control and disarmament. If absent the weapons category cannot be isolated and submitted for negotiations because it retains significant supplementary value to meet the security deficit of a given state.

Two major routes to functional equivalence exist. First, a particular class of weapons can be introduced for the explicit purpose of countering a particular deployment by the adversary side. For example, NATO deployed Pershing II and cruise missiles in Europe in the 1980s to counterbalance Soviet intermediate-range nuclear forces. Within a relatively brief span of time they were eliminated by means of negotiations. The condition is manifestly present in the reductions of intercontinental ballistic missiles (ICBM) and other strategic delivery vehicles. Functional equivalence was probably stated formally for the first time in the joint Vladivostok statement of 24 November 1974 when the United States and the Soviet Union agreed that they were entitled to a certain aggregate number of strategic delivery vehicles, comprising ICBMs, submarine-launched ballistic missiles and heavy bombers as a foundation for further arms limitation talks.<sup>14</sup> Functional equivalence of ballistic missile defences enabled the conclusion of the 1972 Anti-Ballistic Missile Treaty. Unsurprisingly, this bilateral treaty is today under great strain because of the perception of an emergent missile threat from developing countries. No functional equivalence with respect to either missiles or missile defence systems exists between the United States and any of the developing countries in question.

Second, functional equivalence can emerge as a result of functional shift within the military doctrine of a country. Functional shift is an (unintentional) outcome of the assimilation of a weapon system into mainstream military doctrine: the political, bureaucratic, economic, technological and military pressures which led to the integration of a weapon system into mainstream military doctrine must continue to operate

to maintain such integration. Weapon systems can acquire different doctrinal functions, thus prolonging their operational life. The process may also lead to function specialization, whereby a weapon system is assigned to or adapted for more narrowly defined missions. As noted above, CW in the United States underwent such a functional shift between the late 1940s and the 1970s. The moral, legal and political difficulties the proponents of CW encountered in integrating these weapons into mainstream military doctrine, as well as the emergence of new nuclear and conventional weapons that could perform the same tasks at lower opportunity costs to the military planners, over time led them to advocate the far more specialized role of in-kind deterrence. Functional equivalence was achieved during the 1970s and 1980s because the US chemical munitions were placed in a direct relation to the Soviet chemical arsenal.<sup>15</sup> As with the Vladivostok statement, the condition was implicitly recognized by both sides in the 1989 US-Soviet Memorandum of Understanding on Chemical Weapons.<sup>16</sup> Shortly afterwards, President George Bush announced US readiness to destroy 80 per cent of the US chemical stockpile if the Soviet Union was prepared to cut its arsenal to an equal level and all of its CW if all nations capable of building CW were to sign the future disarmament treaty.<sup>17</sup> The latter condition can be interpreted as an attempt to establish a formal condition of functional equivalence with other states.

Functional equivalence creates the context for an absolute gain, making co-operation possible. No party in the equation has an incentive to alter the status quo since other countries would counter the change with a similar move, while raising the opportunity costs to maintain the increased capability. Functional equivalence thus opens opportunities for arms control or disarmament because no further relative gain in terms of the function of the weaponry concerned can be obtained. By isolating an arms category and submitting it to an international arms control or disarmament regime states parties can achieve absolute gains. It reduces the security deficit produced by that particular class of weapons as well as the opportunity costs for maintaining a response to the threat.

The condition of functional equivalence is, as noted above, not an independent promoter of arms control or disarmament, but a necessary catalyst if the security environment is conducive to such policies. Especially if the threat of a military confrontation is acute, a state can feel that, despite functional equivalence, the reduction or elimination of a particular class of weaponry would lead to a relative loss and thus magnify the security deficit. If functional equivalence is not present for a particular class of weaponry, countries may still seek relative gains in terms of the function of the weapon concerned in order to increase their own security to the detriment of the

adversary. In such circumstances, co-operation is difficult, if not impossible, and arms control and disarmament are improbable because the adversaries cannot isolate the class of arms as a constituting element of the threat. This reinforces the motivation for armament.

Looking at global arms control and disarmament treaties from the perspective of regional security, the condition of functional equivalence can manifest itself in three different ways:

1. *Functional equivalence is irrelevant.* The weaponry under consideration does not enter the security equation because no state possesses it or fears its use from outside powers. Entering an arms control or disarmament treaty presents no significant gains, but also no losses. However, if a cost is involved in the implementation, then that cost has to be compensated sufficiently so as to provide an incentive. The NPT, the BTWC and the CWC all contain an article offering international co-operation and assistance for non-prohibited purposes. The irrelevancy of functional equivalence can also manifest itself when states find a consensus that a particular type of weaponry has little or no military use and can be dispensed with before it increases security deficits. The conclusion of the BTWC in 1972 is such an example. However, many analysts and policy-makers today discern a function shift for BW as a consequence of scientific developments and easy access to production technologies. These extrinsic challenges place the convention, which lacks verification and adequate enforcement provisions, under great strain, because the attraction of increasing relative gains may tempt states to defect from the treaty.
2. *Functional equivalence is non-existent.* The type of weaponry under consideration is part of the regional security equation, but only some regional actors possess it. This gives them a major relative advantage over their neighbours, which they cannot achieve by any other means. Adversaries may also have deployed the weaponry, but assigned it different functions in their military doctrines so that no direct link between the respective capabilities is perceived. In either case, states can base their security calculations on relative gains expectations, so that the preconditions for arms control or disarmament do not materialize.
3. *Functional equivalence is present.* Arms control or disarmament becomes possible, because no further relative gains in terms of the function of the weaponry under consideration are possible. Through co-operation in the arms control or disarmament regime all parties can achieve absolute gains. However, the catalytic properties of functional

equivalence will only manifest themselves if the overall security environment is conducive to the reduction of the arms category under consideration.

The condition of functional equivalence a state perceives itself to be in will determine its expectations as regards the security benefits offered by the arms control or disarmament treaty. These different expectations can lead to divergent interpretations of the agreement and cause friction among states parties. This is exactly what is happening with respect to the implementation of Article XI of the CWC.

### **Article XI: The Regional Appeal of a Global Convention**

Article XI of the CWC deals with the right of states parties to have access to certain chemical compounds and technologies with important application in the civilian chemical industry, but which could also be used for purposes prohibited by the convention.<sup>18</sup> Before the end of the Cold War Article XI was not generally considered a predominant issue. The replacement of the bipolar global security system by a multipolar one caused a major revision of the security interests of states in many parts of the world. This process has been fed and in turn reinforced by a growing assertiveness about economic and societal progress in developing countries.

The elimination of CW is of course a security question in the first place. Article I prohibits states parties from engaging in any preparations for waging chemical warfare, to use CW or to retain CW stockpiles. Chemical munitions and related facilities must be destroyed under international supervision. As the possibility of chemical warfare between the two superpowers and their allies receded, the threat of the use of CW in regional wars or by terrorist groupings grew. Article I is sufficiently wide to cover the shift: states parties are also prohibited to assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a state party under the CWC. However, contrary to the detailed specifications how to eliminate CW and related facilities, the convention does not indicate how states parties must fulfil this particular obligation. It leaves ample scope for diverging interpretations. On the one hand, many industrialized states perceive the need to maintain national export controls on commodities that may be diverted for the production of CW. They co-ordinate their respective policies in the Australia Group, an informal consultative body created in 1985 after it became clear that Iraq was using CW in its war with Iran and had acquired its CW production capability mostly from Western companies. The Australia Group has developed a list of chemical warfare agents and precursors to chemical warfare agents, which the participating states have

incorporated in their national export control legislation. These export control policies in principle make no distinction between states parties and non-states parties.

On the other hand, the CWC establishes its own export control system for those chemicals and groups of chemicals that pose the greatest risk to the convention.<sup>19</sup> Therefore, developing countries argue that no supplementary measures are required especially as regards other states parties. The lists used by the Australia Group participants and the ones contained in the CWC overlap only partially so that the Australia Group also maintains trade restrictions on chemicals not listed in the CWC. The developing countries support their arguments by referring to Article XI, which requests states parties to implement the CWC in a manner which avoids hampering the economic or technological development of states parties, and international co-operation in the field of chemical activities for purposes not prohibited under the convention. To this end states parties are asked to review their national export controls so as to make them consistent with the objects and purposes of the convention. The tension between the industrialized and developing countries poses a formidable challenge to the implementation of the CWC and the future of the treaty regime. At a deeper level the interpretations reflect the diverse security expectations from the convention states parties from different regions have.

As noted above, a global disarmament treaty encompasses various conditions of functional equivalence. Viewed from the perspective of regional security, this results in the expression of different security requirements and expectations from the disarmament regime. These can be revealed by projecting the heuristic device of the regional security complex onto the global map of the participation in the CWC treaty regime. Barry Buzan identified five major regional security complexes in the developing world: the Middle East, South America, South Asia, Southeast Asia and Southern Africa.<sup>20</sup> As of May 1998, 166 states had signed the CWC (85%), but 59 states (30%) had not yet ratified it. Twenty-six states (13%) remained non-signatories, distributed as follows (see map):<sup>21</sup>

Africa:	Angola, Botswana, Egypt, Eritrea, Libya, Mozambique, São Tomé and Príncipe, Somalia, Sudan
Asia:	Iraq, Korea (North), Lebanon, Syria, Taiwan
Europe:	Andorra, Serbia
Central America:	Antigua and Barbuda, Barbados, Belize
Pacific:	Kiribati, Niue, Palau, Solomon Islands, Tonga, Tuvalu, Vanuatu.





If all small island and atoll states are excluded from this list,<sup>22</sup> then two thirds of the remaining 17 non-signatory states lie inside the regional security complexes as circumscribed by Buzan.<sup>23</sup> All these states are in the Middle East and Africa and are distinctly divided in the two regional security complexes:

Middle East: Egypt, Eritrea, Iraq, Lebanon, Libya, Somalia,  
Sudan and Syria

Southern Africa: Angola, Botswana and Mozambique.

The regions consist of a mix of ratifying, signatory and non-signatory states. All states between these two regional security complexes, with the sole exception of São Tomé and Príncipe, have either signed or ratified the CWC. This is also the case for all buffer states between the other regional security complexes. Such distribution is consistent with the presence of functional equivalence regarding CW and its functioning as a catalyst in arms control and disarmament processes.

In the Middle East, two security conditions dominate. The state (or the political regime) faces an existential threat as a consequence of internal political instability and war or antagonistic security relationships with other states. In the former case, disarmament or any other international security regime has very low national security priority. In the latter, functional equivalence is non-existent. From the Arab perspective, Israel's nuclear monopoly constitutes a prime threat to regional security and has to be removed before any other arms control or disarmament measure can be considered. Constrained by limited scientific and technological capabilities and the NPT, several Arab states have pursued a CW capability to deter Israel and have progressively improved the means of delivery. They remain unwilling to relinquish the chemical warfare option unless Israel signs the NPT. At the Conference on Disarmament in Geneva, Egypt emphatically stated during the closing stages of the negotiations that the CWC must cover issues vital to its national security and interests.<sup>24</sup> Egypt, together with several other Arab 'front line' states, has so far refused to sign the CWC and insists on the linkage of all security issues. However, unstated in the Arab positions are the antagonistic relationships among themselves and the historical fact that since the Second World War Arab states have been the ones that used CW against fellow Arabs, Kurds and Iranians. This fragmentation in the regional security complex with its swiftly changing alliances perpetuates the hostile political climate. A deep-rooted lack of trust prevents engagement in multilateral co-operative security regimes. The inequality in the domestic capability to acquire particular types of weaponry as well as the extent of motives for seeking such weapons, ranging from real

external threats or expansionism to domestic prestige of the political leadership, make the emergence of functional equivalence between any two states, let alone among all states, extremely difficult.

Israel, on the other hand, views its nuclear capacity as an instrument of last resort to avoid its annihilation. From that perspective, nuclear weapons are not part of an equation with the Arab chemical capabilities. Whatever CW Israel may possess,<sup>25</sup> in view of the absence of even opaque statements,<sup>26</sup> they would most likely function as an in-kind deterrent rather than as a strategic instrument for war prevention. To Israel, Arab CW together with the overwhelming superiority in manpower and conventional weapons are just part of the overarching existential threat it experiences. In addition, Israel fears weapon developments in non-contiguous states such as Iraq and Iran, with whom it has particularly antagonistic relationships. From its perspective, it faces a summation of threats posed by individual countries, which have to be dealt with individually. Bilateral peace accords with neighbouring states will therefore not necessarily lead to fundamental changes in its military posture. While a policy of selective deterrence, whereby some countries are informed that they are not the targets of certain types of weapon, can offer a way out of the political stalemate, it does not contribute to the creation of a condition of functional equivalence. Consequently, Israel is hardly in a position to commit itself to arms control or disarmament agreements. Israel signed the CWC in January 1993, but the gambit met with no response from the Arab states central to its security predicament with the exception of Jordan, with whom it had signed a bilateral peace treaty. If anything, Israel perceives an increased CW threat from its neighbours since then and has announced its refusal to ratify the convention.<sup>27</sup>

Two major characteristics of these states are their fundamental dissatisfaction with the geopolitical status quo and to a great extent their reliance on self-help.<sup>28</sup> Abiding by the CWC can place any country in an acute security dilemma: *each state party commits itself individually to the treaty regime and not to other states, irrespective of whether these have acceded to the CWC or not.* It renounces CW under all circumstances, including in-kind retaliation, and even agrees to desist from a CW deterrence posture. A treaty violation or a chemical threat by a non-state party will consequently create a highly asymmetrical security condition, whereby the appropriate response must be sought in alternative measures. Despite existential threats and recent use or risk of use of CW in the area, the Gulf monarchies – Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates – have recognized their security dependency and rely on outside powers to balance their security deficit. Their choice for international co-operation is reflected in the high percentage of states parties

to the CWC in defiance of calls by the Arab League not to join the treaty until other issues with Israel are resolved. The negative security assurances extended by the convention – for instance, each state party has the right to request and receive assistance and protection against the use or threat of use of CW<sup>29</sup> – concretize the absolute gains the Gulf monarchies seek in an international security regime.<sup>30</sup> Article XI guarantees unimpaired development of their oil-based economies. Geographic distance from the core of the Arab–Israeli contention seems to play a major role in the positions adopted by the Maghreb countries, too. Morocco, Algeria and Tunisia are (together with South Africa) the main importers and the only exporters of Schedule 2 and 3 chemicals.<sup>31</sup> Ratification ensured that their economies will not suffer from the trade embargo on scheduled chemicals to be imposed by the CWC and that they can benefit from the technology transfers.

In other words, the relevance of Article XI to the decision by a state to join the CWC is determined by that state's proximity to a central cleavage within a regional security complex. At the core, the asymmetry between major arms categories and the lack of functional equivalence between weapons of a same class prevent progress towards arms control and disarmament, because in the given antagonistic environment such a move would lead to an increase in the security deficit. Great suspicion persists that the adversary could obtain a decisive relative gain by breaching the agreement. At the peripheries of the regional security complex, the asymmetries and lack of functional equivalence still prevail, but as a consequence of the reduced saliency of the existential threat, the security guarantees extended by the treaty can sufficiently offset the security deficit. Article XI consequently obtains greater relative importance because it holds out the prospect of absolute gains for the state concerned. In the case of the Middle East, assessment of these gains proved of greater value than Arab solidarity against Israel. For some states, such as Iraq and Libya, defiance in the face of international isolation gives an added incentive to maintain CW armament programmes. These, however, do not appear to influence the threat assessments of neighbouring states. In fact, for the Gulf monarchies it reinforces the appreciation of the security dependency on outside powers and the need for international co-operation.<sup>32</sup>

Unlike the Middle East, a CW threat in the Southern African security complex was never clear-cut. While it is now known that South Africa initiated an extensive CW programme in the 1980s reportedly as a consequence of repeated allegations of CW use in Angola,<sup>33</sup> this programme was shrouded in such secrecy that the impossibility to communicate its doctrinal function to an adversary would have largely nullified its deterrent value. Intelligence reports gave different appraisals about the likelihood of

CW deployment by South Africa. Declaratory policy rejected chemical warfare as a means of waging war, but stopped short of stating that the country did not possess CW.<sup>34</sup> During the 1970s and 1980s South Africa was accused of using or supplying rebels with CW in the conflicts in neighbouring countries, including Mozambique. It denied all charges. Today, this dominant regional power has changed its political regime and is slowly consolidating its new democratic foundations. Its relations with the former front line states have improved dramatically. It has signed and ratified the CWC, so that any remnants of a CW programme will be removed under international supervision. As noted above, South Africa has great economic interests in the trade of Schedule 2 and 3 chemicals, so that in the absence of a credible CW threat Article XI offers substantial absolute gains. Many allegations of CW use surfaced in the course of the internal wars in Angola and Mozambique, but the extent to which these have influenced policy not to sign the CWC is unclear. Both countries are in the process of nation building and consequently momentarily have limited interest in international security co-operation. The structure of their economies is such that any gains under Article XI could easily be offset by the costs of participating in the implementation of the convention. They have, together with Botswana,<sup>35</sup> repeatedly expressed their support for the CWC. In addition, Angola has clarified that the issue of the CWC has been postponed until the new government is installed, which will include members of the former opposition, so that ratification is an expression of national consensus.<sup>36</sup> As far as can be judged, the condition of functional equivalence is irrelevant to the Southern African security complex. With the exception of South Africa, the incentive which Article XI offers to join the treaty regime is marginal at best, and the lack of clear gains may explain in part why some countries demonstrate little urgency in becoming states parties. However, unlike, for example, Libya and Egypt, they have publicly supported the goals of the convention and can reasonably be expected to join the treaty regime in a not too distant future.

All countries but one between the Middle Eastern and South African regional security complexes have either signed or ratified the CWC. Even the sole non-signatory state, the small islands group of São Tomé and Príncipe, is on record as supporting the principles of the convention.<sup>37</sup> However, it does not face any serious external security threat and does not have an economy that would be affected by the treaty. The financial cost of its participation in the implementation of the CWC is thus absolute.<sup>38</sup> All other countries in this area are noticeably free from accusations of proliferation or allegations of use.<sup>39</sup> The condition of functional equivalence is consequently irrelevant. From the security perspective, the CWC presents these states with no significant gains, but also with no losses. Several of

these Central African states have thus stressed the importance of Article XI in their decision to sign up to the convention and at meetings of the Preparatory Commission (PrepCom) for the Organisation for the Prohibition of Chemical Weapons (OPCW) they have argued for its concrete implementation. Consequently, they have also expressed great reservations about the continued functioning of the Australia Group after entry into force of the CWC.<sup>40</sup> To them, the incentives in Article XI are central in the rationale for joining the treaty regime. In the past few years, several Central African states have experienced serious political instability, which complicates ratification processes. Some states that have expressed a strong link between the CWC and their economic development, such as Cameroon and Kenya, have already deposited their instruments of ratification.

It may appear remarkable that no other regional security complex besides the Middle East and Southern Africa has non-signatory states despite antagonistic security relationships among its members. Too little verifiable information is available to make a judgement about the condition of functional equivalence of CW with any degree of confidence. However, in two complexes, namely the South Asian and South American ones, states had agreed to accept a formal condition of functional equivalence just before the CWC was opened for signature in January 1993. On 5 September 1991 Argentina, Brazil and Chile signed the Joint Declaration on the Complete Prohibition of Chemical and Biological Weapons in Mendoza, Argentina.<sup>41</sup> Bolivia, Ecuador, Paraguay and Uruguay also signed the document afterwards.<sup>42</sup> On 4 December 1991 the five Andean countries – Bolivia, Colombia, Ecuador, Peru and Venezuela – in Cartagena De Indias, Columbia, signed the Declaration on the Renunciation of Weapons of Mass Destruction.<sup>43</sup> Thus with the exception of the small states of Guyana and Suriname (French Guyana is a department of France), all South American states had entered into at least one multilateral agreement in which they committed themselves not to develop, produce, acquire in any way, stockpile or retain, transfer directly or indirectly, or use CW before the conclusion of the negotiations on the CWC. As of May 1998, all but two of them (Bolivia and Columbia) have also ratified the convention. Guyana and Suriname also ratified the CWC.

In South Asia India and Pakistan similarly signed the 'Joint Declaration on Complete Prohibition of Chemical Weapons' on 19 August 1992.<sup>44</sup> Both states have signed the CWC. India has also ratified it and publicly declared its possession of CW. Its ratification commits India to the verified destruction of its CW arsenal within the time frames established by the convention. This bilateral agreement must have played a major role in India's ratification, irrespective of Pakistan's future actions. The hostile

relations between the two countries continue to lead to military border clashes. In 1996 a senior Pakistani officer thinking in terms of relative gains called for a retaliatory CW capability despite the joint declaration and the CWC.<sup>45</sup> Meanwhile Pakistan has also ratified the convention, proving the utility of a formalized condition of functional equivalence.

In both the South American and South Asian security complexes states declared a formal condition of functional equivalence by pledging not to acquire or retain CW. They replicated in a regional and multilateral setting what the United States and the Soviet Union had originally done in 1989 in a bilateral context. The reciprocal pledge subsequently allowed each state to commit itself individually to the CWC disarmament regime: each state party remains bound by the convention irrespective of what action another country, whether a state party or not, takes. Such a formalized condition of functional equivalence contributes significantly to the goal of universality. On the one hand, it can affirm an existing condition of functional equivalence. On the other hand, where functional equivalence is irrelevant, uncertain or non-existent in a regional security environment otherwise conducive to more amicable interactions, formalization will permit the isolation of the arms category and its submission to a co-operative arms control or disarmament regime. Basically, by undertaking a reciprocal pledge states declare that they will not seek relative gains in terms of the function of the weaponry under consideration. Each state consequently obtains an absolute gain because an aspect of the security deficit is removed. Under such conditions incentives, like those contained in Article XI, contribute to universality of a global treaty because they increase the projected absolute gain for each state, which, in turn, strengthens the initial inclination to enter into a regional multilateral contract.

## Conclusions

The CWC is a global disarmament treaty. Universality greatly strengthens its internal norm and raises the opportunity costs for maintaining CW. Each state, however, faces a security deficit and its interest in joining an international security regime is determined by the absolute gains the agreement can offer to reduce that security deficit. This cost/benefit assessment can be negative, especially in those cases in which the political leadership feels compelled to define national security in terms of relative gains. Such circumstances may occur because, among other reasons, a state faces an external threat to its very existence or the political leadership seeks to enhance its domestic legitimacy or international standing.

The introduction of functional equivalence as an indispensable catalyst for arms control or disarmament and the application of the heuristic device

of the regional security complex to the CWC have revealed the diversity of reasons why states have joined the treaty and the gains they expect to obtain. Regional security complexes accentuate the fact that not every country is pitted against every other country. The concept thus dispenses with the need to investigate spurious security relationships that could theoretically exist between states inside and outside the complex. It also allows differentiation of the motives of states to join security regimes such as arms control and disarmament agreements. A great difference in state behaviour can be anticipated if the security policies are directed towards the maintenance of the status quo in friendly or antagonistic security relationships or if they are pursued to alter the balance of power inside the regional security complex. Functional equivalence is key to arms control and disarmament because it permits states to isolate a particular security issue and submit it to negotiation. However, the different ways in which functional equivalence can manifest itself influences how states define their security interests regarding the arms category under consideration.

If functional equivalence was the outcome of a process of functional shift in mainstream military doctrine of one or more powers or the result of the deployment of a particular type of weaponry with the explicit purpose of countering a similar deployment by an adversary, these states will focus primarily on the treaty provisions dealing with the elimination or management of that weaponry. Chemical weapons became the object of in-kind deterrence in the East–West context, and the former adversaries developed a major interest in the verified elimination of the respective stockpiles and CW-related infrastructure. While the current East–West security environment virtually ended the risk of chemical warfare, the perception of new functions for CW in the arsenals of developing countries or as instruments of terrorism has led to an adjustment of the security deficit and a corresponding reinforcement of emphasis on the security provisions in the CWC by countries in the industrialized world. This accounts for the stress on the precedence of Article I over Article XI and the recasting of the CWC as a non-proliferation regime.

Functional equivalence may manifest itself differently depending on whether or not the states under consideration are part of a regional security complex. In the case of CW functional equivalence was found to be irrelevant outside regional security complexes. These states demonstrated great if not prime interest in Article XI because of the right it grants to benefit from international trade, technology transfers and scientific interactions that can promote economic and societal development. Any impingement on that right affects the expectations for absolute gains these states have of the CWC. Insufficient or negative absolute gains, especially in view of the financial cost incurred to implement the convention, lessens

the interest in the CWC and may to some extent account for the lack of urgency of some signatory states outside security complexes to ratify. The lack of a CW threat or past experience with chemical warfare reinforces this position. The acquisition of CW by a neighbouring country which is part of a regional security complex does not increase security concerns in the same way it would if both states were in the regional security complex, because the country outside the complex knows that it is not the target of such armament policies.

Inside regional security complexes a variety of circumstances may arise. If the weaponry under consideration forms part of the security equation but the condition of functional equivalence is not present, then it cannot be isolated for submission to negotiations because its removal would increase the security deficit of the possessor state and amount to a relative loss in terms of the function of the weapon. Security interactions within a regional security complex may be hostile to the extent that states experience existential threats. Under such circumstances arms control and disarmament are improbable propositions because these states calculate their security in terms of relative gains. Even though functional equivalence may be present, the security environment is not conducive to international co-operation and, because relative gains concerns exist, will promote reliance on self-help. Under those circumstances, the incentives offered by Article XI of the CWC are irrelevant to the discussion of universality. In fact, these states feel that the positive and negative security guarantees offered by the CWC are insufficient to address their respective security deficits.

However, such antagonistic security interactions are not equally salient across the regional security complex. Geographical distance from the core of the conflict appears to correlate with preparedness to engage in international co-operation. Other national interests, such as economic and societal development, obtain greater relative importance. Incentives in these areas in combination with security assurances to protect the state party from violations or threats can offer peripheral states sufficient absolute gains to join the treaty regime. International co-operation thus becomes an added value to the overall security posture. The expectations of the CWC are consequently entirely defined by the expectations of international co-operation. Chemical weapons are part of the security equation in the region to which the peripheral states belong and they have committed themselves to the treaty regime to address that particular threat through other means. International co-operation is one way to offset a security deficit. If such international co-operation fails, these states stand to lose most by joining the CWC.

Finally, the condition of functional equivalence can be either irrelevant or blurred inside a regional security complex. Because states have to



commit themselves individually to the treaty regime irrespective of the actions of others, they do not wish to place themselves at a relative disadvantage. To dispense with that risk of relative loss and to allow each state to enjoy its absolute gains, countries in such a regional security complex can take the intermediate step of entering into a contract with each other. They pledge that they will not seek a relative gain in terms of the function of the weapon in question. This formal condition of functional equivalence, which in itself is an expression of a security environment conducive to arms control or disarmament, permits states to commit themselves in full confidence to the global regime.

Considering state behaviour from the perspective of a global disarmament treaty fails to take into account the impact of local or regional security dynamics on the cost/benefit assessment of each state. While the CWC in its entirety may be universal, each individual provision in the convention may not have global relevance. Depending on geographical location and security environment, states can have different appreciations of the relative importance of the articles in the CWC. Because all states parties are treated as equal under the CWC, irrespective of their relative position in the international system or whether they are CW possessors or not, countries will press for their national interest based on their assessment of the relative importance of the provisions. The CWC consequently holds the potential for a major clash of interests, which can prevent its effective functioning. This will be particularly the case if interested parties or groups of interested parties explicitly or implicitly assume that their interpretations or claims are universal simply because the convention in its entirety is global.

The debate on the relative importance of Articles I and XI of the CWC is a debate on the fundamental ideological assumptions concerning the nature of international security and co-operation. However, in a global regime, the positions regarding security and development cannot be mutually exclusive but rather have to be ones of gradation. The prevailing security conditions in a given region, together with the assessment by a state of its capability to survive or enhance its position in a hostile environment, play a basic role in the decision to join a co-operative security arrangement. Only as the cost/benefit analysis of the impact of the convention on the security deficit becomes less negative, does the relative importance of Article XI grow because states can focus more on securing absolute gains. Developing countries with a greater interest in Article XI can adopt policies of greater voluntary transparency in all of the areas covered by the CWC in order to allay the security concerns of other states parties. Industrialized countries, which have expressed grave concern about proliferation and consequently about the relative gains to be acquired by staying outside the

treaty or defecting from it, must recognize that their security will benefit not only from the destruction of CW arsenals and the related infrastructure but also from a higher degree of universality. To achieve the latter, they must accommodate the different expectations which states that have not lived under the spectre of chemical warfare may have from the CWC.

## NOTES

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1. G.N. Snyder, 'The Security Dilemma in Alliance Politics', *World Politics*, Vol.36 (1984), p.461.
2. B. Buzan, *An Introduction to Strategic Studies: Military Technology and International Relations* (London: Macmillan Press in association with the International Institute for Strategic Studies, 1987), p.73.
3. Under Article XVI, §2 of the CWC a state party has the right to withdraw from the convention if it decides that extraordinary events, related to the subject-matter of the CWC, have jeopardized its supreme interests. It must give other states parties a 90-day advance warning so that they would not be confronted with an adverse security situation created by the withdrawal. Moreover, during this time span, the other states parties can attempt to convince the withdrawing country to rescind its decision, for instance, by offering supplementary assistance against the use or threat of use of CW under Article X of the CWC. W. Krutzsch and R. Trapp, *A Commentary on the Chemical Weapons Convention* (Dordrecht: Martinus Nijhoff Publishers, 1994), p.248.
4. P.S. Ghosh, 'A Third World Perspective on Nuclear Disarmament', in D. Carlton and C. Schaerf (eds.), *Reassessing Arms Control* (London: Macmillan, 1985), pp.90-6.
5. S.P. Cohen, 'Controlling Weapons of Mass Destruction in South Asia: An American Perspective', in S.A. Stahl and G. Kemp (eds.), *Arms Control and Weapons Proliferation in the Middle East and South Asia* (London: Macmillan, 1992), p.207.
6. D. Bourantonis and M. Evriviades, 'Disarmament and Arms Limitation: The Case for Regionalism', *Contemporary Security Policy*, Vol.17, No.2 (Aug. 1996), p.285.
7. B. Buzan, *People, States & Fear* (New York: Harvester Wheatsheaf, 1991), p.188.
8. The notion of regional security complex is discussed in detail in Buzan (note 7), chapter 5.
9. This conclusion runs counter to one of the recommendations in the 'Guidelines and recommendations for regional approaches to disarmament within the context of global security' by the UN Disarmament Commission: '26. Regional arrangements for disarmament and arms limitation can produce a favourable atmosphere conducive to political settlement of regional disputes or conflicts.' Document reproduced in *The United Nations Disarmament Yearbook* (New York: United Nations, Centre for Disarmament Affairs, 1994), p.110.
10. The global level includes the Partial Test Ban Treaty (PTBT), the Nuclear Non-Proliferation Treaty (NPT), and the Comprehensive Test Ban Treaty (CTBT). Examples of bilateral approaches are the Strategic Arms Limitation Talks (SALT) I and II, the Strategic Arms Reduction Talks (START) and the Intermediate-Range Nuclear Forces (INF) agreements.
11. A treaty can also include provisions aimed at reducing the relative gain a state might hope to obtain by defecting from or not joining the treaty and in turn contribute to the goal of universality. Article X of the CWC, which states that nothing in the CWC will be interpreted as impeding the right of a state party to provide itself with means of protection against chemical weapons, is one such example.

12. J.P. Zanders, 'Dynamics of Chemical Armament. Towards a Theory of Proliferation', PhD Thesis, Vrije Universiteit Brussel, Brussels, Feb. 1996, pp.88–110.
13. J. Krause and C.K. Mallory, *Chemical Weapons in Soviet Military Doctrine* (Boulder: Westview Press, 1992), p.110.
14. J. Goldblat, 'Disarmament Negotiations in 1974', in SIPRI, *World Armaments and Disarmament: SIPRI Yearbook 1975* (Stockholm: Almqvist & Wiksell, 1975), p.419.
15. For example, in a book published as late as the mid-1960s a major proponent of chemical armament, General J.H. Rothschild, former commander of the US Army Chemical Corps Research and Development Command, did not once advance in-kind deterrence as an argument for the expansion of the role of CW. In fact, the chapter dealing with the Soviet Union was a mere ten pages and large sections in it were about biological warfare and civil defence. J.H. Rothschild, *Tomorrow's Weapons* (New York: McGraw-Hill, 1964). The incident that appears to have prompted the functional shift towards in-kind deterrence was the 1973 Yom Kippur War, when it was discovered that Arab Soviet-supplied tanks were specially equipped to operate not only in a chemical, but also in a nuclear and biological, environment. The Soviet chemical threat became a major argument for selling the concept of new binary chemical munitions to Congress and the public.
16. United States Information Service, *U.S.–Soviet Relations: Agreements Achieved During the Baker–Shevardnadze Talks (September 22–23, 1989)* (Brussels: US Embassy, Sept. 1989), p.3.
17. United States Information Service, *President Bush Addresses U.N. General Assembly: U.S. Ready to Destroy CW if Soviets, Others Join in Effort* (Brussels: US Embassy, 26 Sept. 1989), pp.3–4.
18. ARTICLE XI: ECONOMIC AND TECHNOLOGICAL DEVELOPMENT
  1. The provisions of this Convention shall be implemented in a manner which avoids hampering the economic or technological development of States Parties, and international co-operation in the field of chemical activities for purposes not prohibited under this Convention including the international exchange of scientific and technical information and chemicals and equipment for the production, processing or use of chemicals for purposes not prohibited under this Convention.
  2. Subject to the provisions of this Convention and without prejudice to the principles and applicable rules of international law, the States Parties shall:
    - (a) Have the right, individually or collectively, to conduct research with, to develop, produce, acquire, retain, transfer, and use chemicals;
    - (b) Undertake to facilitate, and have 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 this Convention;
    - (c) Not maintain among themselves any restrictions, including those in any international agreements, incompatible with the obligations undertaken under this Convention, which would restrict or impede trade and the development and promotion of scientific and technological knowledge in the field of chemistry for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes;
    - (d) Not use this Convention as grounds for applying any measures other than those provided for, or permitted, under this Convention nor use any other international agreement for pursuing an objective inconsistent with this Convention;
    - (e) Undertake to review their existing national regulations in the field of trade in chemicals in order to render them consistent with the object and purpose of this Convention.
19. The convention categorizes chemical compounds of particular concern in schedules depending on their relative importance for the production of CW agents or for legitimate civilian manufacturing processes. Apart from their significance for verification and reporting routines, the three schedules also form the basis of an export control regime among states parties and between states parties and non-states parties. The overriding criterion is that none of the transactions may contravene the basic purpose of the CWC. End use is the object of

routine reporting by the National Authority of a state party, or, if the need arises, of verification inspections.

In a nutshell, Schedule 1 chemicals can be transferred between any two states parties for no other purposes than research, medicine, pharmaceuticals or protection and in quantities defined under the General Provisions of Part VI of the Verification Annex. These chemicals cannot be retransferred to a third state. Both state parties involved must notify the Technical Secretariat not less than 30 days before any such transfer. Moreover, all states parties have to submit detailed annual reports regarding the transfer of Schedule 1 chemicals to the Technical Secretariat. Three years after the CWC's entry into force, states parties will be allowed to transfer Schedule 2 chemicals only among themselves. Verification Annex, Part VII, C. These transactions, however, are not subjected to stringent quantitative conditions or reporting requirements similar to those for Schedule 1 chemicals. During those three years, states parties may still transfer such chemicals to non-parties if they obtain an end-use certificate specifying *inter alia* the conditions laid down in the article. The transfer of Schedule 3 chemicals is only discussed in relation to non-states parties: there are no quantitative limits, but the exporting state party must ensure that they will not be used for purposes prohibited by the convention and will require an end-use certificate of which the treaty imposes the minimum stipulations. Five years after the entry into force of the CWC the Conference of the States Parties will consider the need to establish other measures regarding the transfer of Schedule 3 chemicals to non-states parties.

20. Buzan (note 7), p.210.
21. Included in the list of non-signatory states are Taiwan, which is not recognized as an independent state by the United Nations and therefore cannot deposit its instruments of ratification despite its willingness to do so, and Niue, whose foreign and security affairs are taken care of by New Zealand, but which is nonetheless party to the Treaty of Rarotonga. All calculations are thus based on a total of 194 states. Jordan acceded to the CWC on 29 October 1997 without having first signed the convention. For the present discussion, Jordan is counted as having both signed and ratified the CWC.
22. Antigua and Barbuda, Barbados, Kiribati, Niue, Palau, Sao Tome and Principe, Solomon Islands, Tonga, Tuvalu and Vanuatu.
23. The states falling outside the regional security complexes are: Andorra, Belize, Korea (North), Serbia and Taiwan. The last three have repeatedly been associated with CW armament programmes and arguably lie in local security complexes (Balkans, Korean peninsula, Taiwan-China). Such problems with the empirical application of the concept of the regional security complex explain why the present authors use it as a heuristic device only.
24. Statement by Mr. Zahran, Egypt, Conference on Disarmament document CD/PV.634 (22 Aug. 1992), p.19.
25. In 1993 US, UK and Russian intelligence assessments qualified Israel's CW capability as probable, having a programme and having CW respectively. J.P. Zanders, *Chemical-Warfare Weapons Proliferation in the Gulf Region and the Strategic Balance after Operation Desert Storm*. Pole-Papers, Vol.2, No.2 (Brussels: Centrum voor Polemologie, Vrije Universiteit Brussel, 1995), p.7, Table 1 'Comparison of intelligence assessments'.
26. A statement entitled 'Israel's position about chemical and biological weapons' released via the Israeli embassy in Brussels on the occasion of the 2nd Annual Conference on Chemical Warfare at the Free University of Brussels on 16 March 1990 said: 'Israel is firmly opposed to the acquisition stockpiling and use of chemical and biological weapons'. An accompanying anonymous analysis entitled 'The proliferation of chemical weapons in the Middle East', dated 11 March 1990, did not hint at possible in-kind retaliation, but listed Israel's expectations in the field of international co-operation under the future CWC. In the run up to Iraq's invasion of Kuwait in Aug. 1990, Israel was the target of Iraqi President Saddam Hussein's invective, which, so it was believed, hinted at missile strikes with chemical agents. Both official reactions and press commentaries did not mention in-kind retaliation, but referred to the need for political solutions and Israel's two-tiered deterrence, based on pre-emptive or counter-strikes and passive defences. See also Jerusalem Domestic

- Service, 0400GMT 3 April 1990 (in English), 'Prepared for chemical attack', Foreign Broadcast Information Service, *Daily Report—Near East and South Asia*, FBIS-NES-90-065; Yedi'ot Aharonot, 3 April 1990 (in Hebrew), in 'Should Take Saddam Seriously', FBIS-NES-90-065. In contrast, the scenario that a chemical attack may elicit a nuclear response if often discussed. G. Kemp and R.E. Harkavy, *Strategic Geography and the Changing Middle East* (Washington, DC: Carnegie Endowment for International Peace in co-operation with Brookings Institution Press, 1997), p.267; and H. Hough, 'Could Israel's Nuclear Assets Survive a First Strike?', *Jane's Intelligence Review*, Vol.9, No.9 (Sept. 1997), p.407.
27. Eytan Bentsur, Director General of the Ministry of Foreign Affairs of Israel, at the Conference on Disarmament. Mission Permanente d'Israël auprès de l'Office des Nations Unies et des Organisations Internationales à Genève, Geneva, 4 Sept. 1997, pp.7-8.
  28. These two characteristics are common to all countries in the Middle East systematically associated with CW programmes. Zanders (note 25), pp.6-11.
  29. Article X, 8 of the CWC.
  30. Interviews with a senior official of the Foreign Ministry and senior military officers, Kuwait City, April 1994.
  31. M. Kifleyesus, 'Article XI, The Driving Force for African CWC Ratification', paper presented at the 7th Workshop of the Pugwash Study Group on the Implementation of the Chemical and Biological Weapons Convention, Noordwijk, The Netherlands, 6-8 June 1997.
  32. Interviews (note 30).
  33. E. Leklem and L. Boulden, 'Exorcising Project B: Pretoria Probes Its Shady Chemical Past', *Jane's Intelligence Review*, Vol.9, No.8 (Sept. 1997), pp.372-5.
  34. G.M. Burck and C.C. Flowerree, *International Handbook on Chemical Weapons Proliferation* (New York: Greenwood Press, 1991), pp.459-60.
  35. Botswana is an internally stable country, but has displayed marginal interest in the CWC because the most visible objective of the convention, the elimination of CW and the threat of use of CW, has no bearing on its security perceptions. Following discussions with OPCW representatives, which focused on the absolute gains the country may obtain under the CWC, Botswana has indicated that it may become a state party. Private communication with an OPCW official, The Hague, 20 May 1998.
  36. Kifleyesus (note 31).
  37. *Ibid.*
  38. It should be noted that the atoll states in the Pacific that have not signed the CWC also have no relevant chemical industries.
  39. Note, for example, the lack of entries in Burck and Flowerree (note 34). Only in the case of Chad were there some unconfirmed allegations of Libyan use of CW in 1986-87.
  40. See: The African Group position on Article XI issues, Preparatory Commission (PrepCom) Document PC-VIII/B/WP.6, 8 Aug. 1994; Statement by the Representative of Nigeria on behalf of the African Group presented at the opening of the Tenth Session of the Preparatory Commission for the OPCW on 3 April 1995, PrepCom Document PC-X/14, 3 April 1995; Statement by the Delegation of Cameroon at the Thirteenth Session of the Preparatory Commission for the Organisation for the Prohibition of Chemical Weapons, PrepCom Document PC-XIII/17, 20 March 1996; Statement made by the African Group at the Fourteenth Plenary Session of the Preparatory Commission for the OPCW, 24 July 1996, PrepCom Document PC-XIV/28, 24 Jul. 1996; Statement by the Delegation of Uganda, PrepCom Document PC-XV/20\* (reissue), 18 Dec. 1996; Statement by the Delegation of Zimbabwe at the Sixteenth Plenary Session of the Preparatory Commission for the Organisation for the Prohibition of Chemical Weapons, 9-15 April, 1997, The Hague, PrepCom Document PC-XVI/26, 11 April 1997; and Statement by the Delegation of Kenya at the Sixteenth Plenary Session of the Preparatory Commission for the Organisation for the Prohibition of Chemical Weapons, 9-15 April, 1997, The Hague, PrepCom Document PC-XVI/28, 14 April 1997.
  41. *Disarmament*, Vol.15, No.1 (1992), pp.132-3.
  42. Statement by Mr Amorim, Brazil, Conference on Disarmament Document CD/PV.635, 3 Sept. 1992, p.24.
  43. Letter dated 7 January 1992 from the Representatives of Bolivia, Colombia, Ecuador, Peru

and Venezuela addressed to the Secretary-General of the Conference on Disarmament transmitting the text of the Cartagena Declaration on renunciation of weapons of mass destruction, signed at Cartagena de Indias, Colombia on 4 December 1991 by the five Heads of State of the Member Countries of the Andean Group, Conference on Disarmament document CD/1114, 9 Jan. 1992.

44. Joint Declaration by the Republic of India and the Islamic Republic of Pakistan on Complete Prohibition of Chemical Weapons, signed at New Delhi, India, 19 Aug. 1992.
45. F. Jilani (Brigadier), 'Indian Chemical Warfare Capability', *NDC Journal*, Vol.9, No.1 (National Defence College: Islamabad, 1996), pp.71-3.