[Opening remarks, timeline]

The taboo against the use of poison and disease as weapons is longstanding. The Manu code in Hindu law and the Saracen code of warfare in Islamic law predate by centuries the earliest of the post-industrial revolution efforts at prohibition such as the 1874 Brussels declaration. Many of these historic prohibitions were simply declaratory in nature and as the taboo developed, practical efforts to counter the acquisition or use of these weapons were introduced.

In recent decades this taboo has become almost universal and it has served us well. Go back 70 years to the early post-WWII period and there were a number of overtly acknowledged chemical and/or biological weapons programmes. Now there are none. Any operational programme that exists now is covert.

There was a political scandal in the UK in 1968 when a Member of Parliament, Tam Dalyell, revealed that the UK had no offensive chemical weapons stockpile. That is barely 50 years ago and part of the political controversy was that Britain DIDN'T have chemical weapons – the assumption being that a global player like the UK should have such a stockpile. That is a simple illustration of how far the taboo has developed since then.

There is another set of events of roughly half a century ago that continue to subtly impact on modern-day policies. In 1963 and 1967 there were clear instances of use of chemical weapons during the Yemen civil war. Although the Egyptian government denied the use of such weapons, the evidence was found to be compelling by most analysts and by most governments. If there hadn't been the calls for Arab unity in 1967 after the Arab-Israeli war of that year, it is fairly clear that Saudi Arabia would have continued with its complaints to the UN Security Council on the matter. There is something notable about the Middle East region and chemical weapons as only a small fraction of all chemical weapons manufactured in the world were acquired in that region, yet all of the major uses of these weapons since WWII have been in this region – Yemen, Iran-Iraq war, Iraq internally, Syria internally. The perceived success of chemical weapons in the Yemen was almost certainly a spur towards other chemical weapons programmes in the region.

Go back 100 years, not just 50, and many people were predicting how the use of poisons would become widespread in warfare. These pessimistic predictions, of course, did not bear out.

While we should remain positive and congratulate ourselves on how much has been achieved, we must remain mindful that there are a range of substantial challenges to efforts to control the hostile uses of poisons and disease. These efforts take place in legal, political and scientific/technological contexts. Within each of these contexts, there are emerging threats and risks.

These contexts overlap, of course. The legal context is obviously connected with the political context as law, whether domestic or international, ultimately derives from political decision-making processes. Better understandings of the scientific/technological context should, in theory, inform better policy making, but the areas which are subject to a scientific/technological review are themselves chosen through political processes, making these areas highly interconnected.

As we have a number of presentations this afternoon focused on non-state threats, the focus within this presentation will be on state activities.

Within the legal context, universality of the key conventions significantly helps strengthen the norms they embody. Improved domestic implementation of these conventions derives in part from the generation of the expectation that the control of materials and technologies that could be used to make chemical or biological weapons is part of usual behaviour within an effective government. But a chain is only as good as its weakest link. Jurisdictions without effective controls open up a risk that these might be exploited to the detriment of all. But over-zealous controls that hinder peaceful uses of relevant materials and technologies hinder economic development. There is a need for balance here and ongoing review of measures taken.

Potential possessors outside of the Conventions have always had potential to undermine the otherwise global taboo. The accession of Syria to the CWC strengthens the global system against these weapons. But this accession only came about after the largest use of CBW in a quarter of a century. An investigation was carried out into this attack and showed definitively that the population had been exposed to sarin. However, the investigation gave no attribution for the attack. At the time of the investigation there was a widespread belief that the Assad regime was on its way out. The combination of a regime fighting for its very survival together with a ready supply of nerve agents is one that fills most security analysts with grave concerns. There was an entirely rational focus on eliminating the nerve agent capabilities as rapidly as possible. This was a tremendous success. If the Assad regime had fallen soon after, this would have been an even more tremendous success and would have illustrated to the world that last gasp efforts to sustain a dictatorship using abominable weapons would not succeed. Taking a global view, the horrors of the events in East Ghouta would have been offset by the enhancing of the taboo.

Unfortunately, that is not the position we are in today. There are some significant implications if no one is held to account for the use of sarin in East Ghouta. Moreover, the on-going use of chlorine and mustard weakens the underlying taboo against the hostile uses of poisons that the modern conventions embody. As it stands today, one lesson of Syria that could be drawn by other dictatorships is that a chemical weapons programme may buy you time within a civil war. Hopefully that is not a path of action that will be pursued by others, but if the major disincentives to producing chemical weapons and then to use them might be fear of being deposed by internal or external forces or getting caught by the international community and being brought to trial, then the Syria case has illustrated none of these disincentives.

This makes it vitally important that any future investigation activities should include opportunities for attribution at any time the evidence is sufficient for an investigation team to come to a conclusion on the matter. There are lessons to be learned here for future investigations of alleged use of chemical weapons.

This applies in the biological field as well. A major challenge within the regime to control biological weapons is the lack of a verification arrangement within the BWC and this therefore includes the lack of any BWC mechanism to investigate alleged use of biological weapons. There is the UN Secretary-General's investigation mechanism, but this remains contentious, with some BWC states parties suggesting that reliance on this mechanism is a distraction from creating a comprehensive verification system. As someone who is keen on BWC verification, my view is that we need to take

what practical steps that we can. The SGM, as this mechanism is sometimes known, is the only arrangement in existence that could be used for carrying out an investigation if an allegation of use of biological weapons were made today. Yet it exists primarily on paper and much work is needed to make it truly effective in the biological sphere. Much of the work needed is through national contributions to the roster of experts and the provision of training. Filling the skills gaps will be vital, but that comes down to political decisions about resource allocation, which leads us into the realm of the political context.

Within the political context, the events of 2013 brought a huge amount of political attention to CBW issues, most of which has now faded away. This brought some advantages and some disadvantages. A disadvantage that might not be obvious at first sight is that the high level political attention in 2013 brought with it a desire by high-level political figures to take rapid decisions. Yet the challenges we are facing are very long-term issues. Indeed, the challenge of preventing the hostile use of poison and disease will go on for longer than the lifetime of individual governments; longer, indeed, than the lifetimes of the people within this room. This is going to be perhaps the greatest political challenge.

The challenges of maintaining a biological-weapon-free world was the subject of another presentation this morning, so I shall focus on the chemical side in this context. One long-term threat could be complacency about the sustainability of a chemical-weapon-free world. Once the declared chemical weapons stockpiles, particularly those in Russia and the USA, have been destroyed, and these were supposed to be destroyed by the end of April 2012, the OPCW will enter what is known as the post-destruction phase. Preventing re-emergence of chemical weapons will become key. I use the term “preventing re-emergence” with some care, as the term non-proliferation carries with it a certain amount of political baggage from the nuclear field. The term “disarmament” also has some baggage associated with it, yet the CWC is undoubtedly a disarmament treaty as it eliminates, under verification, an entire class of weapons.

In a chemical-weapon-free world, what will be the level of assurance that will be required from the international verification system? This will be a political decision as much as a technical one. If violations are detected, there will be simple justification for continued expenditure on activities such as industry inspections. Yet if the CWC is truly successful as a tool to instil in people in power the norm that chemical weapons are not worth acquiring, there will be no detections of violations. This will be a tremendous measure of success, but this will bring with it a problem that will derive from that very success – the potential for a slow salami-slicing of the verification budget to the point at which it is then not capable of detecting violations. Complacency could become very dangerous.

Sustainable CBW control regimes require predictable and adequate funding – this will require maintaining political attention on the regimes. The challenge here is two-fold. The first is that the simplest way to bring political attention to any issue is to make it politically controversial. In other words, to politicize it. Such a course of action would have significant disbenefits. Indeed, we should be striving for a universal abhorrence of these weapons, not dividing opinion over them. The second challenge here is a very human one. Chemical and biological methods of warfare are particularly unpleasant means for humans to wreak devastation and destruction on themselves and on the planet. It can be difficult to analyse such dreadful aspects of humanity without being changed by them. Indeed, many people do not engage with these issues because of their distasteful nature and

this is of concern as the only way to manage the risks and threats is to engage with them. JBS Haldane expressed similar feelings in his classic work on air raid precautions prior to the Second World War: “I hate having to write this book. Air raids are not only wrong. They are loathsome and disgusting. If you had ever seen a child smashed by a bomb into something like a mixture of dirty rags and cat’s meat you would realize this fact as intensely as I do. And I sympathize with the attitude of those who feel that the whole business is so horrible that they will have nothing to do with it.” This is going to be a fundamental long-term challenge.

Also within the political context are other lessons from the Syria situation. There are countries that remain outside the CWC for now, but which might join in the future whether that be 5 years away or 20 years away. Some of these countries have at least possessed chemical weapons in the past. I gave the example of Egypt using chemical weapons during the Yemen civil war in the 1960s. The DPRK is another country widely believed to have at minimum explored the possibilities of a chemical weapons programme, and believed by some to have gone much further. Something that might at first glance seem like a technical challenge – retaining the skills available to the OPCW to deal with past or current possessors of chemical weapons when they join the CWC – is actually a challenge in the political context. The skills are out there at the moment, but their availability will be reduced over time as people with those skills move on to other roles. Retaining those skills is a deeply political resource question. Key to this would be modifications to the tenure policy imposed on the OPCW secretariat by the member states that means most staff cannot stay within the OPCW for more than 7 years. Modern management techniques are often focused on metrics and there are some intangible qualities for sustainability in this field that these techniques find difficult to measure. We need to recognise this.

In the science & technology context, the key issue is the dual-use nature of chemistry and the life sciences. The rapid advances in these fields bring new positive opportunities for peaceful uses, such as novel medical treatments and new detection methods, but also lead to new negative opportunities for hostile uses and so lead to changes in the nature of risks and threats the regimes may need to counter. Understanding of this changing context is a critical challenge. The CWC has within it a Scientific Advisory Board that reports to the OPCW Director-General. The BWC has no similar arrangement, and the creation of some form of S&T review process is high on the wish list of many of those preparing for the Eighth BWC Review Conference which will be held in November. There continues to be rapid developments in the life sciences. For example, the CRISPR gene editing tools had not even been imagined at the time of the Seventh BWC Review Conference in 2011. Science and technology developments move at a faster pace than the political developments that are meant to oversee them.

The CWC contains at its heart a deliberate ambiguity that was a late political compromise needed to achieve agreement on the whole package. The ambiguity has at its core the concept of “law enforcement” and the use of chemicals that do not kill, but do not also fall within the category of riot-control agents. Some have called this class of chemicals “incapacitating chemical agents” but this is an imprecise label. More recently the term “Central Nervous System-Acting Chemicals” has been used. This is more precise but still prone to be misunderstood. Concepts of using weapons that impact upon the nervous system to reduce the abilities of warriors, criminals or terrorists to fight have superficial attractions, but they have the potential to lever open that ambiguity in the CWC and fundamentally undermine the Convention. In the light of circumstances prevailing at the

time, the insertion of the ambiguity was worth it. It allowed the text of the CWC to be adopted by consensus, and for it thus to enter into force and be used as the tool to oversee the destruction of the declared stockpiles of chemical weapons and to drive the process forwards to a chemical-weapon-free world; a significant catalogue of achievements, without doubt. It would be easy to fill the entire time of a presentation like this on the subject of non-lethal chemicals in general, and "Central Nervous System-Acting Chemicals" in particular as the subject matter has a number of nuances that are difficult to explain and are sometimes counter-intuitive. Australia took a step at last year's OPCW Conference of the States Parties to try to start discussion of aerosolization of Central Nervous System-Acting Chemicals used in law enforcement scenarios. A key argument put forward was that when dispersed through the air, across a wide area, it is virtually impossible to control the doses received by each individual, leading to genuine risks of death or serious injury. The potential for the deliberate misuse of these chemicals is severe. Deliberate misuse could unravel the CWC and there is a need to tackle the relevant issues as the world moves to the post-destruction phase of the CWC and towards the possibility of a chemical-weapon-free world.

To wrap up, there are challenges in each of the three identified contexts – legal, political and science & technology. For each of these challenges there are potential responses to ensure efforts to control biological and chemical weapons remain relevant and effective.

Within the legal context, key risks and threats include potential possessor governments outside of the relevant Conventions, poor national controls on relevant materials and technologies; and lack of capacity to attribute attacks to the perpetrators. These risks and threats can be reduced by further efforts for universality, improved national implementation, and new efforts for investigation, including making the charges stick if anyone uses prohibited weapons. The need for improved investigation methods for alleged use of biological weapons is key. Perhaps the biggest threat to the sustainability of the regime to control chemical weapons is the ongoing use of poisons as weapons in Syria and there does not seem to be a clear answer about how to deal with this gradual undermining of the taboo.

Within the political context, key risks and threats include complacency – we have international Conventions to deal with these problems so that is now dealt with, inadequate funding, and the loss of skills through wastage. These risks and threats can be reduced by keeping the regimes effective and current, without politicizing them, in order to ensure predictable and adequate resource allocation, remembering that there are things that need supporting for which some modern management techniques such as use of performance indicators find difficult to measure.

Within the science & technology context, key risks and threats include rapid developments in chemistry and the life sciences that change the nature of the problems being tackled. There is also the ambiguity in the CWC surrounding "Central Nervous System-Acting Chemicals". These risks and threats can be reduced by ongoing review of developments as perceptions of implications of new methods within chemistry or the life sciences will change over time, the CRISPR gene editing methods are a good example of this. But reviews, no matter who carries them out, are of no use if they do not inform policy processes. The ambiguity within the CWC should be better recognized for what it is and efforts made to reduce its impact.