

Distinguished representatives, colleagues, let me first stress that I am very honoured to be invited to contribute to this event. May I thank the organisers and sponsors very much,

In the next 15 minutes I would like to draw a picture of possible developments of confidence building in the BWC. To that end I will briefly introduce the term confidence and its sources, and will then mainly concentrate on transparency as one of these sources. Finally I am going to consider the possible involvement of new actors and mechanisms in confidence building.

Confidence is a term that is used throughout from the level of private arrangements, via societal and economic contexts (contracts), but of course also in the field of international relations. The main function of agreements is, besides the 'technical' overcoming of specified problems, the fostering of mutual trust in compliance with treaty obligations. Obviously there is a central role of information, but neither will it be possible to access all relevant information, nor is the judgement of such information—the decision if it is sufficient to build confidence—a scientific exercise. This is even more evident, since many parties will have different understandings of compliance. Accordingly confidence can hardly be measured in a binary system, but will rather be perceived as gradually changing when trust in compliant behaviour is growing or decreasing.

Trying to get an idea about confidence in the BWC regime one would basically have to measure that level in every single member state. On a general level it can be stated that whenever there exists an arrangement, a contract or an international treaty there was obviously a ground level of confidence when it was agreed. On the other hand, the stakeholders must have seen the need for a mutual system to enhance confidence in compliance.

Confidence is, however, not only fostered by knowledge enabling to make qualified guesses on the level of implementation of the *prohibitive* obligations, but also by factors that have no direct link with the technical requirements of arms control. Among these factors are the perception of parties as being subject to a just treatment and the perception that those parties with the greatest BW-relevant capacities are really committed to the treaty obligations.

If the success of a treaty is an indicator for the level of confidence, we might face a satisfactory level of confidence in the BWC. There were offensive BW programmes before the BWC came into force; and we *have* then seen offensive programmes while it was in force, among them a very large one. But now we have since 25 years not witnessed a BW programme (the ricin-programme in the non-BWC member Syria can be discussed as a case, however).

That BW programmes were seldom developed after the coming into force of the BWC might rather be a result of the limited military value of BW (still we don't know much about the scenarios in which the Soviet bio weapons could have been used). Today there are reasons to believe that there are no offensive programmes anywhere in the world. It is certainly worth learning about military defence programmes, but it is also true that few states have the means or the interest to run critical programs. Hence, biological arms control is today, as far as we know, preventive arms control. However, the idea that there are no BW programmes is based on the unorganised information gathering we have to rely on.

With the possible absence of illicit military activities, confidence building does in many cases concentrate on civil academic or commercial activities with dual-use potential and will try to identify growing misuse potentials and qualified questions about applications and actors (this

touches the debate about dual-use research of concern (DURC) that others have touched upon in more detail earlier today).

The widespread dual-use phenomenon and the involvement of many civil facilities is a characteristic of biological arms control, which is probably more distinctive here than in any other arms control field. At least since a number of years, if not back to the early 1970s, the potential for misuse of civil technology and civil research is in the focus, even if the buzzwords biosafety and biosecurity popped up only in the recent years. The trend that the direction of technology diffusion is nowadays rather from civil innovation systems to the military sphere has been known in the bio field for many years.

Besides the fast development of the ground laying technology, its methods and scientific capabilities, the spread of capacities to ever more states is a major change to the early 1970s. Back then only in relatively few states in northern America, Western and Eastern Europe and in the USSR relevant capacities in biotechnology were present. Today biotechnology with its imminent and widely spread dual-use potential is a global multi-billion dollar business, still fast growing in many places – and still not developed in many others. This spread might be reason for concerns from an arms control perspective, but the amalgamation with economic interests can also not be rationalised away.

With a much smaller geographical spread of biotechnology and with the block confrontation of the Cold War one of the obligations of the BWC was possibly less central than it appears today: the obligation for technical cooperation under article X. However, there can't be confidence without the perception of a just treatment of all members as partners with equal chances in the indigenous development of one of the most important industries of our time. For the development of confidence on this provision information plays again a central role, although the questions raised in this context differ from those concerning articles I and III. But here as well transparency is quintessential in helping to base the debate on empirical data.

That there is a problem with transparency in the BWC on different levels is not a secret, really. Given that transparency is main source for confidence (for both the prohibitive and obligatory provisions of the treaty) the look on confidence mainly deals with the question of how to enhance transparency.

## **Types and sources of transparency**

One can think of transparency in different types and as being fed by different sources.

Types of transparency can be defined by its different ranges, namely greater or smaller groups of actors that have access to the information in a transparency system. Starting with the greatest possible extent, *public transparency* reaches the public as a whole, while in *inter-state transparency systems* only the parties of a treaty are provided with information. The CBM mechanism is an example for such a practice (although some states make their CBMs transparent for the public sphere). I don't want to talk much about CBMs. We all know that the number of states participating in this mechanism is not satisfactory. I hope, however, that during this talk it will become clear why they should play a central role in the BWC's future. A third type of transparency besides the public and inter-governmental transparency, is the exclusive access to information by just one actor (typically a state) when a phenomenon is being made transparent by (and only for) that single actor.

Since transparency is (or should be) a practical exercise, it is maybe helpful to concentrate on the different technical means that are applied in the three different transparency systems. I propose to differentiate in between national technical means (NTMs), international technical means (ITMs), and public technical means (PTMs).

First, *NTMs* are technical means under the exclusive ownership of single states, hence also the gathered information is exclusively with that state. Their use leads to the single actor type of transparency.

Second, *ITMs* (not established in the BWC regime) are those technical means that States Parties allow treaty organisations to use.

Third, *PTMs* are the technical means that rely on open sources and are used to the end to release the gathered information to the public sphere. Their range has grown significantly over the past years. The digital revolution allows access to a broad range of information. For example:

- Real time epidemiologic information
- Information on biotechnological capacities, products, and research projects
- Free (including commercial) satellite images – here is also a link to the reconnaissance revolution in the last 20 years
- Patent databases
- Trade data (dual-use goods and biotech end-products)
- Scientific publications (PubMed and other databases)
- Digital meta information about companies and research facilities
- Exchanges on social media
- ... This list can be expanded any further;
- And besides the use of this universe of existing data that can be identified and filtered from Big Data it is also thinkable that innovative ways to measure environmental data with newly developed technology can contribute to transparency.

The use of these PTMs produces no proof, but will enable actors to ask qualified questions.

Just three examples for questions that occurred when working on our current project on the identification of compliance relevant parameters that can be accessed via open sources:

- Why are the security perimeters of a certain facility with known dual-use character being modernised (information accessed by google.earth images)?
- Why do we see certain relevant research activities at institutes that are linked to the military information accessed by PubMed or turn up in google and twitter?
- How can the consumption of unusual amounts of biological growth media in a county be explained (information accessed via UN COMTRADE database)?

It is hence no verification, but it is much more than what is actually being done in the regime.

In an ideal world the mentioned information sources would be accessed at the widest possible extent as ITMs to contribute to a verification mechanism. In the BWC, however, we had to realise that ITMs will not be implemented in the foreseeable future. Since confidence building by enhancing transparency is quintessential for the function of the regime other actors will have to play the role that in other cases is allocated to International Organisations.

I would like to briefly come back to a more theoretical reasoning of transparency to answer the question which actors could/should do so. Transparency can also be described by looking at the direction of the distribution of information: Information can be provided actively by states or biotech stakeholders, or they can be extracted out of the (mostly) electronic/digital universe of information. This can be called passive transparency.

## **Active transparency**

As parties, states would be at the forefront of stakeholders who would be asked to actively provide information to enhance confidence. In the BWC the related mechanism are the CBMs. But also other actors can contribute to active transparency building. For a look into the future it might be helpful to look into the roots of the regime: Already back in 1964 the Pugwash CBW-group had initiated a voluntary inspection mechanism. Participating were commercial and academic facilities from eastern and western European facilities (indeed only one larger non-western biotech production facility in Yugoslavia was involved). The project was later continued by the then newly founded Stockholm International Peace Research Institute (SIPRI). The aim of the overall project was to prove that on-site verification is possible without endangering commercial secrets. A lesson that was learned but seems to have been forgotten is that commercial actors could get involved in active transparency building, also on a voluntary base.

## **Passive transparency**

The passive extraction of relevant information is also not a new idea—neither in other contexts nor in the BWC. When the BWC was negotiated in the early 1970s the just mentioned SIPRI was also innovative in the development of passive transparency tools, and demonstrated the value of Open Source information already back then. By the application of innovative investigative tools the SIPRI researchers already showed that even non-governmental actors could gather relevant information. In 1971 the mechanism was meant as proof that these methods could contribute to a then debated verification mechanism.

And indeed, when it came to the question which would be the best confidence building mechanism, the development of a formal verification mechanism based on on-site inspections was for many years seen as the silver bullet—possibly, it still is. But there is obviously the need to identify alternatives.

In this context it has to be stated that 40 years after SIPRI's engagement the possibilities to enhance passive transparency by the use of the above mentioned open source information has grown exponentially. Some states may have the capacities to use these information in Open-source intelligence (OSINT) procedures, but many others will not be able to do so on a global scale. This is the reason why often international organisations are installed for information gathering. This is also not to come here (please surprise me at the Review Conference).

Civil society actors should in a best case scenario be a corrective and/or undertake parallel independent control activities. NGOs could be watchdogs, but not the only actors in the production of transparency. However, there are also cases as in the landmines and cluster munition regimes where in the absence of a formal verification system civil society actors do what has been called “Quasi verification” by a number of States Parties. In biological arms control they might also be able (or be enabled) to play a more central role, as long as no information system becomes institutionalised.

The current development of capacities in applying PTMs in passive transparency building might be a “technical” environment that fosters new formats and civil society monitoring networks. With the idea that relevant information will be recognised in a regime regardless by what type of actor it was gathered, NGOs could play a greater role in confidence building in biological arms control.

However, this also means that states should do as much as they can to proof their commitment with the treaty provisions. And that means first of all, better participation in the CBM mechanism. May I add that I don't think that any state would lose anything if its CBM submission is being made public.

If every actor—state, private, and civil society—improves confidence by enhancing transparency through the use of the specific means at its disposal and therewith contributes to an open, evidence-based debate about compliance relevant factors, I am optimistic that biological arms control will remain successfully based on the BWC for at least another 40 years.