

Biological & Toxin Weapons Convention

Historical perspective and actual application

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The Trench

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Part 1

DISEASE: DELIBERATE & CIVILISATIONAL CHALLENGE

What is biological warfare?

Intentional application against *humans, animals* or *plants* for hostile purposes of

- *Disease-causing micro-organisms* (e.g., bacteria);
- *Other entities that can replicate themselves* (e.g., viruses, infectious nucleic acids and prions)
- *Toxins*, poisonous substances produced by living organisms (and their synthetically manufactured counterparts), including
 - micro-organisms (e.g., botulinum toxin),
 - plants (e.g., ricin derived from castor beans), and
 - animals (e.g., snake venom)

The BW threat spectrum

- War scenarios
- Terrorism
- Criminal acts

- Each will consider and have the availability of different biological or toxin agents, with different degrees of pathogenicity or toxicity
 - Depends on *intent*
 - Depends on *availability*
 - Depends on *technical skills* and *structure* of the organisation

Alternative uses of biological agents

- **Against humans**
 - Potential for mass casualties exists, but not necessarily most likely scenario as agents difficult to acquire
 - Incapacitation
 - Wider range of agents available
 - Easier to collect from nature and cultivate
 - Delivery uncomplicated
 - Lower requirements for skills and functional specialisation
- **Against animals and plants**
 - Economic impact
 - Agents easier to acquire; less of a risk to perpetrator
 - Easy to deploy
 - Many vulnerabilities in the food chain
- **Economic and societal disruption**
 - Goal is to disrupt functioning of utilities, commercial enterprises, public agencies
 - Wider range of biological agents available
 - Exploitation of fear and lack of adequate preparations
 - Effectiveness of *hoaxes*

Disease and warfare

- Before the 20th century, more people died from disease than from combat operations in war
 - Poor sanitary conditions; low quality nourishment
 - Poor knowledge of disease propagation
 - Limited forms of disease treatment; key types of medication not discovered until well into the 20th century
- Exploration and confrontation of cultures
 - Early civilisational expansion (from about 8,000 BCE)
 - Repeated colonisation waves into the Pacific Islands by southeast Asian populations
 - Expansion of early societies in Antiquity
 - Trade routes ranged from east Asia to west Europe on Eurasian continent
 - Peoples living in isolation from Eurasian cultures were suddenly confronted with diseases they had never encountered before, e.g.
 - Indian civilisations of Central and South America following the Spanish conquests
 - Populations on Pacific Islands: for instance, *lilabalavu* in Fiji following the wrecking of the US schooner *Argo* in 1800. The series of epidemic outbreaks that followed reduced the Fijian population from about 210,000 to 85,000 in 1921.

Deliberate disease

- Rare before knowledge of disease propagation
 - Some acts definitely contributed to epidemics, but may not have been intended to spread disease
 - Exploitation of prevailing conception of disease, but would not be considered biological warfare today
- Early intent came with understanding that disease invades the body
 - (Alleged) distribution of blankets infected with smallpox virus among American Indian tribes in the Great Lakes area (1763)
 - New Hebrides (Vanuatu):
 - 19th century: Freebooters would capture a native until he/she caught measles or whooping cough and then reintroduce them into their villages, leading to mass die-offs of natives.
 - Apparently an act of reprisal for refusal to subjugate to colonials or pirates
- Modern biological warfare
 - Acts of sabotage in World War 1
 - Major preparations during 1930s and World War 2
 - Japanese use and experiments during World War 2
 - Major BW programmes during the Cold War

Perspectives on the BW threat

- Use of biological and toxin weapons has so far been extremely rare
 - Since 1975, < 100 persons have been killed through deliberate disease
 - Most cases involved toxins
 - Most cases were criminal in nature
 - Major terrorist BTW programmes have been total failures (Rajneesh Cult; Aum Shinrikyo)
 - However, anthrax letters (USA, 2001) demonstrate the potential for low-casualty — high-impact events
 - Most bioterror events do not involve actual agents (hoaxes)
- We have arrived in a post-proliferation stage
 - Biotechnology (equipment, processes, products, knowledge) has become universal
 - Developing countries (Cuba, India, Indonesia, Iran, Malaysia, Pakistan, etc.) have become original sources of innovation and, in some cases, technology exports

Nature poses the greatest challenge

- Infectious diseases are responsible for
 - > 13 million deaths annually (\approx number of fatalities in the Twin Towers attacks on 9/11 every two hours)
 - $\frac{1}{4}$ of all deaths worldwide
 - $\frac{1}{2}$ of all deaths in developing countries
- 1918: Spanish Flu caused more fatalities worldwide than World War 1
- Emerging diseases: SARS; West Nile Virus; Avian flu (H5N1 and H7N9), Zika
- AIDS in Africa: threat to social fabric of societies
- Ebola in West Africa
 - Pointed to shortcomings in international assistance
 - Impacted on consideration of implementation of BTWC Article VII on emergency assistance
- Economic impact of non-human disease outbreaks:
 - Swine Fever outbreaks in Taiwan (1994 – 2001)
 - Foot and Mouth Disease outbreak in the UK (2001)

Modern biological weapons and warfare: Confluence of several trends

- **The first wave: The scientific understanding of disease**
 - Three critical characteristics of disease uncovered in 19th century:
 - Infectious disease is caused by an agent (pathogen)
 - The agent can be transmitted from one living organism to another (infectiveness)
 - One agent is responsible for one disease only
 - Manipulation of the pathogen
 - Isolation
 - Cultivation (while maintaining its infectiveness)
 - Production in large quantities
 - Effective dissemination
- **The new industrial revolution**
 - Biotechnology & informatics are the driving force
 - Major impact on all aspects of life in developed and developing countries
 - Biotechnology has accelerated development of societies (emerging economies)
 - Convergence with other scientific disciplines (e.g., chemistry, informatics, etc.)
- **Military application of new scientific and technological developments has become commonplace (= exploitation of 'dual-use' potential)**
 - Pressures to exploit new biology and biotechnology for military goals will grow
 - Many arguments in favour framed in humanitarian discourse (e.g., so-called non-lethal weaponry → convergence with chemistry for incapacitating agents)

Potential for future weapon development

- Biology and biotechnology allow for the manipulation of disease on the sub-cellular level (genes, biochemical processes, etc.)
 - May make the effects of biological agents more controllable
 - May produce agents with higher infectivity or ability to overcome medical defences
- Interference with the natural immune system rather than dissemination of pathogen may become new mode of attack
- Improvements in analytical and production processes:
 - Higher quality & higher quantities in smaller units
 - Technologies become common place (classroom equipment; bio-hacker laboratories)
- Possible application of synthetic biology and nanotechnology in agent design or dissemination technology, as well as in defence, protection and prophylaxis
- May contribute to novel ways of agent dissemination
 - Aerosol techniques
 - Targeting of specific genes

Part 2

BW DISARMAMENT AND ITS CHALLENGES

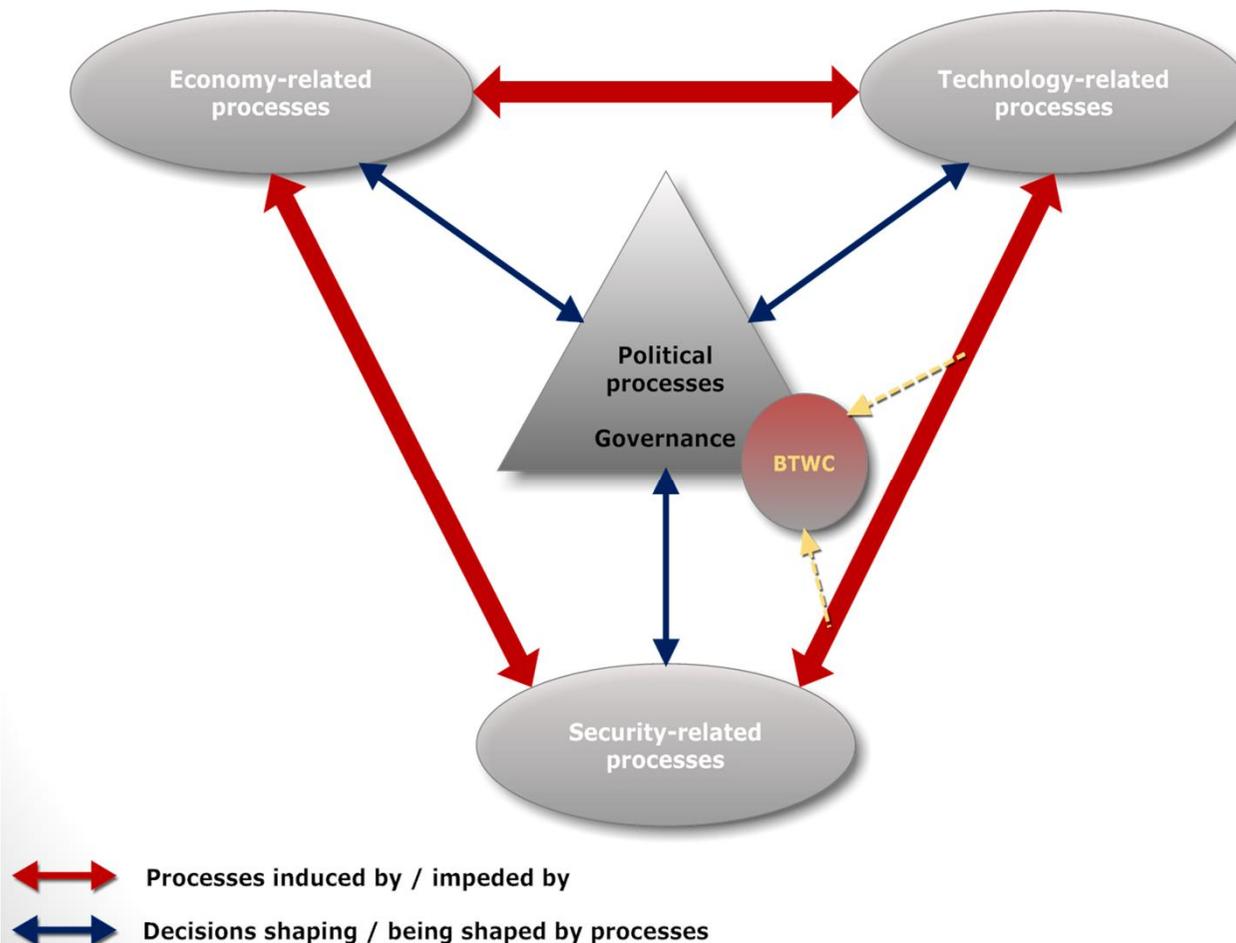
Main prohibitions against BW

- 1925 Geneva Protocol
 - Prohibits the use in armed conflict of chemical and biological weapons (CBW)
- 1972 Biological and Toxin Weapons Convention (BTWC)
 - Comprehensive ban on development, production and possession of biological weapons (BW) and toxins
 - Ban on BW use in Geneva Protocol + Final Declaration of 4th Review Conference (1996)
- 1993 Chemical Weapons Convention (CWC)
 - Comprehensive ban on development, production, possession, and use of chemical weapons (CW)
 - The definition of chemical weapon also includes toxins
 - Links up with the BTWC

The BTWC as keeper of the norm

- **Strong norm**
 - Today, no state admits to BW programme & holdings
 - Quasi universality:
 - 181 States Parties → 3rd most successful weapon control treaty in force after CWC and NPT
 - Role in customary international law
 - States Parties committed to BTWC:
 - Assessment of the state of the norm + updating at RevCons
 - Annual activities since 3rd RevCon (1991)
- **Intrinsically weak**
 - No formal verification & compliance enforcement mechanisms
 - No international institution for implementation oversight and enforcement
 - Implementation Support Unit (ISU) supportive of State Party activity, but no functional substitute for international organisation
 - Inability to incorporate verification tools into BTWC
 - CBMs, VEREX (1992–93), Ad Hoc Group (1995–2001)
 - Slow process to deal with new challenges (scientific & technological developments; new actors)
 - On-going frustration over unmet expectations in areas of security or development

The BTWC in a fast-changing security environment

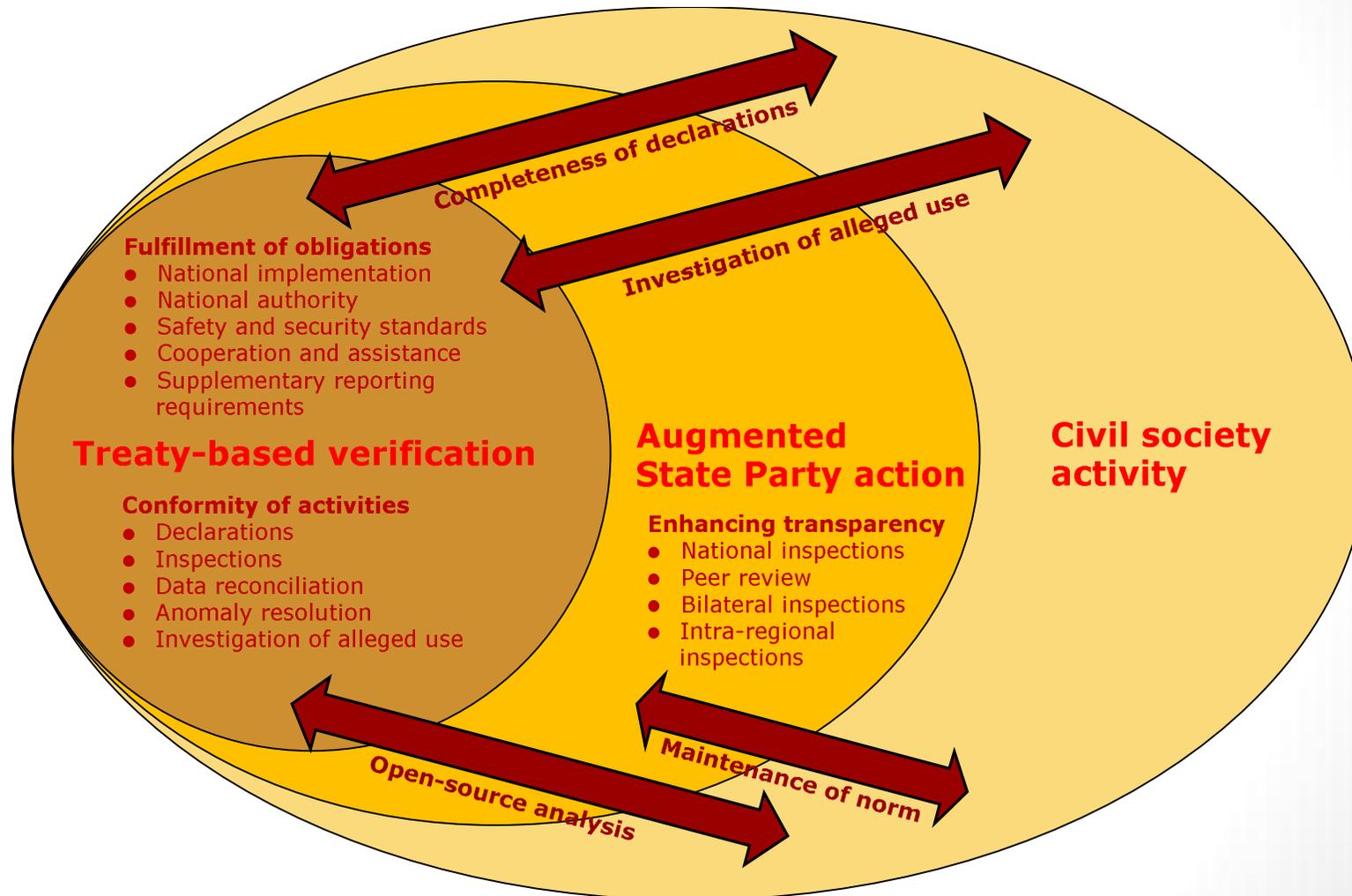


- No unified model for governance of weapon control anymore
- New stakeholders and security actors
- Increased role of non-state national & transnational actors
- Shifting relative balances of powers (economy, politics, military) and multiple power centres (polycentrism)
- Geographical decentralisation of business and industry activities
- South-south trade patterns and impact on technology diffusion
- *Declining role of states in shaping developments, but many states reject formal governance responsibilities for non-state actors under BTWC*

Formal verification

- **Centrality of international organisation**
 - Division of labour between IO and individual states parties
 - Verification of activities
 - Verification of treaty obligations (e.g., implementation legislation)
 - Investigation of alleged use of prohibited weapons in armed conflict
- **States can enhance the verification system**
 - On bilateral or regional basis
 - Supplementary verification activities
 - Assistance
 - Open sources and national intelligence
 - Options for bilateral consultations or action through IO
- **Civil society: supplementary roles**
 - Analysis and reporting on national compliance
 - Open source analysis and reporting
 - Raising concerns about the integrity of the norm (e.g. incapacitants & CWC)

Actor roles in a formal verification regime (e.g. CWC)

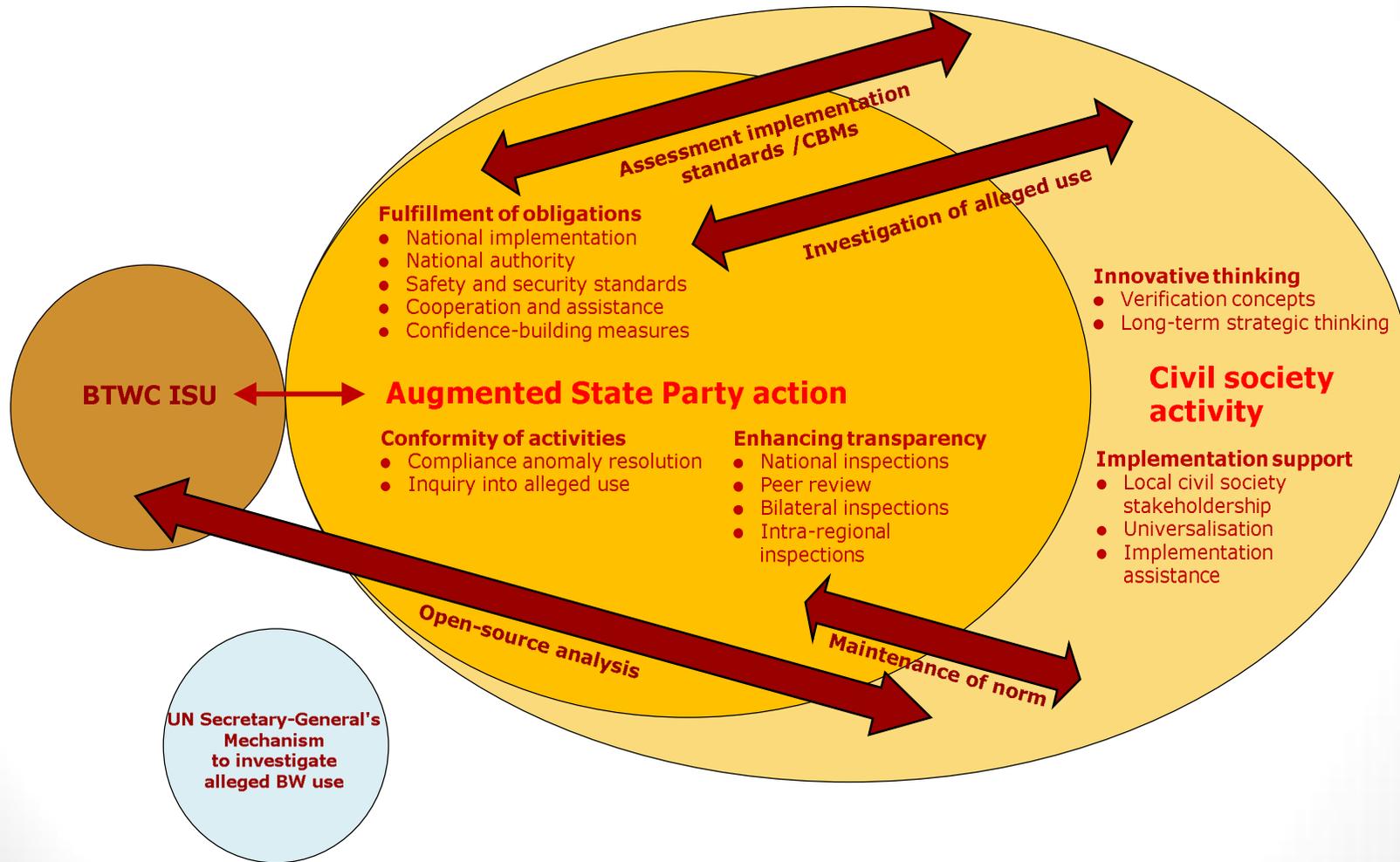


Based on a concept by Stian Holen, October 2012

Verification in the BTWC context

- All transparency-related activities originate with the states parties
 - No formal verification system
 - Confidence-building measures (CBMs)
 - Can be undertaken bilaterally (with reporting to state party meetings)
 - No sanction if a state party remains passive
 - Investigation of alleged use
 - UN Secretary-General retains full autonomy to initiate an investigation
 - States Parties have possibility to consult with each other in case of compliance concerns (Art. V), but retain right to take complaint to UN Security Council (Art. VI, 1)
- No international organisation
 - *Implementation Support Unit (ISU)* assists states parties with meetings, coordinates CBM collection and facilitates interactions between states parties in areas such as cooperation and assistance
 - ISU is part of UNODA, not an independent structure (even though ownership of the BTWC is with States Parties)
- Triple role for civil society possible
 - Similar functions as with formal verification system
 - Active involvement in universalisation and implementation assistance, including building local civil society activity (e.g. via education and outreach)
 - Innovative thinking on future of the BTWC, including options for a formal verification system

Stakeholder roles in a BTWC transparency regime



Shifting expectations from verification

- The BTWC is unverifiable
 - Standard mantra, but why?
 - E.g., UK proposals of 1968-69: rejected in BTWC, but now part of the broader regime against BW
- Cold war understandings of disarmament and verification & related procedures
 - Difficulties in dealing with dual-use characteristics of technologies
 - No verification substitutes (e.g., visible & countable delivery systems)
 - Unease with roles of multiple stakeholders in the process
 - State is often more protective of stakeholder interests than the stakeholders
- Shift away from focus on weapon as a problem (disarmament) to focus on possessor of enabling technologies (non-proliferation)
 - Rogue state discourse (no trust) + emphasis on regime change in rogue states
 - Addressing terrorism challenges
- Shift away from parity in military arsenals (*adequacy*) to utility of weapons and hence capability to address challenges & threats (*effectiveness*)

Adequacy vs. effectiveness – 1

- Draft protocol as negotiated by the Ad Hoc Group
 - Focus on compliance monitoring (was not a 'verification' protocol)
 - Enhanced transparency of relevant areas of dual-use civilian and military activities
 - New technologies & processes in research and industry made proposed reporting thresholds and action triggers irrelevant
 - Did not address new security challenges (e.g., terrorism, rogue state behaviour, etc.)
 - Therefore, did and could not produce greater confidence in treaty adherence
- Relative relevancy of BW in security considerations has shifted
 - BW disarmament was possible in the 1970s because of only marginal benefits of BW over nuclear and other weapons
 - Today: arms reductions and disarmament in many areas
 - CW banned; prospect of nuclear reductions / disarmament
 - In terrorism context, even minute amounts of BW becomes highly relevant
 - E.g., anthrax letters

Adequacy vs. effectiveness – 2

- Core question now being asked: How will security be guaranteed?
 - How can a rogue state / terrorist be deterred?
 - What are my defences & protection? How adequate are they? How confident can I be in their adequacy?
 - *Biodefence & threat analysis produces circular logic*: must be kept secret not to reveal weaknesses, but how can I be sure that a potential adversary is not exploiting dual-use technologies for offensive purposes, if it also keeps that programme secret?
 - How does one know that a country's industry and research is not involved in BW-related activities?
 - How much risk to lose confidential information, etc., is one prepared to run with regards to one's own biodefence and civilian activities in order to get relevant data from other states?
- US decision in 2001
 - Focus on cause-based challenges; no scope for enhanced transparency
 - Termination AHG negotiations; new foci in intersessional activities
 - Emphasis on *actionable* measures, immediately implementable by individual states
 - Also reflected in UNSC Resolution 1540 (2004)
 - Better to compromise '*certainty*' than '*security*'
 - Consequently: rejection of *equality & partnership* at the heart of any multilateral verification regime

Part 3

CONCLUDING THOUGHTS

Preventing biological weapons

- Logical point of entry: weapons and their application
 - However, treaties only govern inter-state behaviour
 - Biological warfare (states) / terrorism / crime
 - need for domestic (criminal, penal) legislation
 - *Prevention of terrorism*:
 - also responsibility of the individual
- Possible additional points of entry
 - Prevention of disease (irrespective of origin of outbreak)
 - Preserving biology and biotechnology for peaceful purposes (societal advancement, economic development, health security, food security, etc.)
 - Environmental security (impact of accidental or purposeful introduction of organisms in new biotopes or of modified organisms)

Towards a multi-layered & multi-sectorial governance model?

- **Weapon control**
 - Multilateral agreements (Geneva protocol, BTWC, CWC)
 - Proliferation prevention arrangements (Australia Group, PSI, Global Partnership, etc.)
 - UN agencies: UNSC, UNODA, 1540 Committee, UNEP, UNDA, etc.
 - National laws and regulations (criminal, penal, trade, safety, etc.)
- **Disease prevention**
 - WHO, FAO, OIE + their regional organisations/initiatives
- **Crime and terrorism**
 - UNSC Resolutions (1540, terrorism resolutions, etc.)
 - Interpol, Europol, etc.
- **International transfers**
 - WTO, WCO, etc.
- **Economic actors**
 - Companies (national, multinational, transnational)
 - Research institutions
 - Individuals
- **Instruments of collective & individual governance**
 - Codes of conduct; Professional codes; Ethics
 - Awareness-raising & education
 - Whistle-blower protection schemes



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