

# Terrorism and Criminal Acts with Chemical & Biological Weapons

## *Assessing Risks of CBW Acquisition*

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# Overview

- **Part I:** *The threat*
- **Part II:** *Armament processes of non-state actors*
- **Part III:** *The control regimes*
- **Part IV:** *Conclusions*

Part I

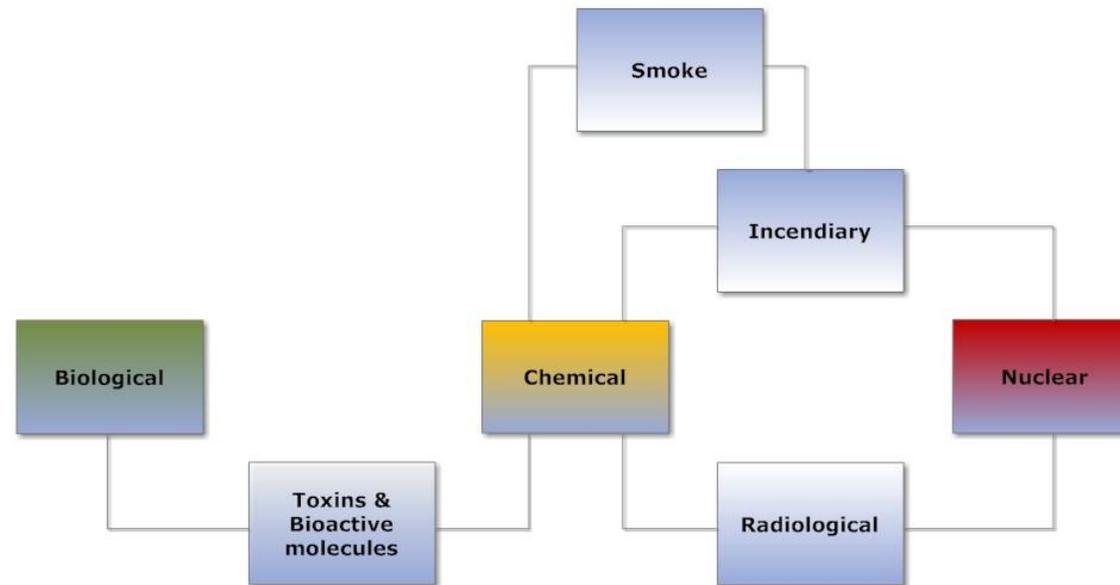
# THE THREAT

# The CBW threat spectrum

- War scenarios
- Terrorism
- Criminal acts
  
- Each will consider and have the availability of different CB agents, with different degrees of toxicity or pathogenicity
  - Depends on *intent*
  - Depends on *availability*
  - Depends on *technical skills* and *structure* of the organisation

# CBRN incidents

- Non-conventional weapon categories



- Most incidents are in the bottom two grey areas
  - Toxins
  - Radiological materials
- Agents in the bottom two grey areas are easier to acquire
  - Enable incidents involving individuals; small groupings
  - Opportunity may play a significant role in those incidents

# Perspectives on the CW threat

- Use of chemical weapons has been rare, but recurring
  - Modern chemical warfare began just over a century ago
    - World War 1 (Western and Eastern fronts)
    - Revolutionary war in Russia; Colonials wars in Africa and Asia
    - World War 2 (China)
    - South-East Asia (1960s & 1970s)
    - All other major CW use after World War 2 has taken place in the Middle East
  - Terrorist use of CW has been extremely rare; programmes limited and/or failures
    - Aum Shinrikyo (1994 – 95)
    - Al Qaeda in Iraq (2006 – 07)
    - Islamic State in Iraq and the Levant (ISIL) (2015 – 17)
  - In some instances used for assassination
    - Aum Shinrikyo (1994 – 95)
    - Murder of Kim Jong-nam (Malaysia, February 2017)
    - Assassination attempt on Sergey Skripal and his daughter Yulia (UK, March 2018)
- Concept of 'chemical weapon' is changing fast
  - Until end of Cold War: vast arsenals counted in tens of thousands of metric tonnes
  - Iran – Iraq war (1980 – 88): arsenals counted in thousands of metric tonnes
  - Syria civil war (2011 - ): arsenal counted in hundreds of tonnes
  - Terrorist use: kilogramme amounts at most
  - Assassinations: grammes
- Terrorist incidents with CW: less than ¼ of 1% of all recorded terrorist events

# Alternative uses of chemical agents

- **Against humans**
  - Potential for mass casualties exists
    - Not necessarily most likely scenario as agents are difficult to acquire
  - Off-the-shelf toxicants
    - Poisons for individual assassination
    - Acid attacks
    - Property damage
    - Exploitation of vulnerabilities in the food chain
- **Economic and societal disruption**
  - Disruption functioning of utilities, enterprises, public agencies
  - Wider range of chemical agents available
    - Several can be commercially obtained (e.g., pepper spray & mace)
  - Environmental pollution with industrial toxic chemicals
    - e.g. during strikes

# Opportunistic use of toxic agents

- **Emerging threat dimension**
  - Use of any available toxic chemical
    - Stores at industrial plants, water purification facilities, etc.
    - Toxic substances may be used in agriculture (pesticides, insecticides, herbicides & other anti-plant chemicals)
  - Core characteristics:
    - No development or production of the agent by the user
    - Attacks will cease after available stores have been depleted
  - Only development may be in area of delivery system
- **Examples:**
  - *Sri Lanka*: Tamil Tigers – chlorine from paper mill after munition ran out (1990)
  - *Iraq*: al Qaeda in Iraq (AQI) – chlorine in truck bombing campaign (2006-07)
  - *Iraq and Syria*: Islamic State in Iraq and the Levant (ISIL) – chlorine mortar bombs and improvised explosive devices (IEDs) (2014 - 17)

# Perspectives on the BW threat

- Use of biological and toxin weapons has so far been extremely rare
  - Since 1975, fewer than 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 demonstrate the potential for low-casualty — high-impact events
  - Most bioterror events do not involve actual agents (hoaxes)
- Nature poses by far 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), Ebola
  - AIDS in Africa: threat to social fabric of societies
  - Foot and Mouth Disease outbreak in the UK; Swine Fever in Taiwan, etc. (economic impact)

# Recent developments and the BW threat

- Since the demonstration of recombinant DNA techniques in early 1970s:
  - Explosion of biological research and biotechnology applications
  - Parallel development of concern about next-generation BW
  - Integration of several scientific disciplines
  - Synthetic biology offers a new dimension to the debate, but not a novel challenge
- From the perspective of terrorism involving biological agents
  - The acquisition process remains complex for the potentially most destructive agents
  - Synthetic biology adds another layer of complexity
  - Presently gravest challenge may come from (rogue) individuals with access to BSL-3/4 labs

# 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 agents available (Several can be commercially obtained)
  - Exploitation of fear and lack of adequate preparations
  - Effectiveness of hoaxes

# Acuteness of terrorist threat with CBW

- **Proliferation assessments**
  - After 11-09-01: sense of loss of control and manageability of problem
  - Heavy manipulation of public information to serve political and institutional interests (official statements, press, novels, etc.)
- **Vulnerability assessments**
  - Almost exclusive focus on mass destruction and casualties
    - (Military-type) agents with potential of greatest destruction or casualties
    - Access to or availability of agents and equipment is important component of threat equation (e.g., ISIL & Iraq)
    - Single massive attack is usually underlying assumption.
  - Emphasis on own weaknesses (only known factors)
    - Consequence management
    - Intelligence and detection
  - Less debate of other factors in threat equation (many unknowns)
    - E.g. structure of the armament dynamic inside a terrorist organization

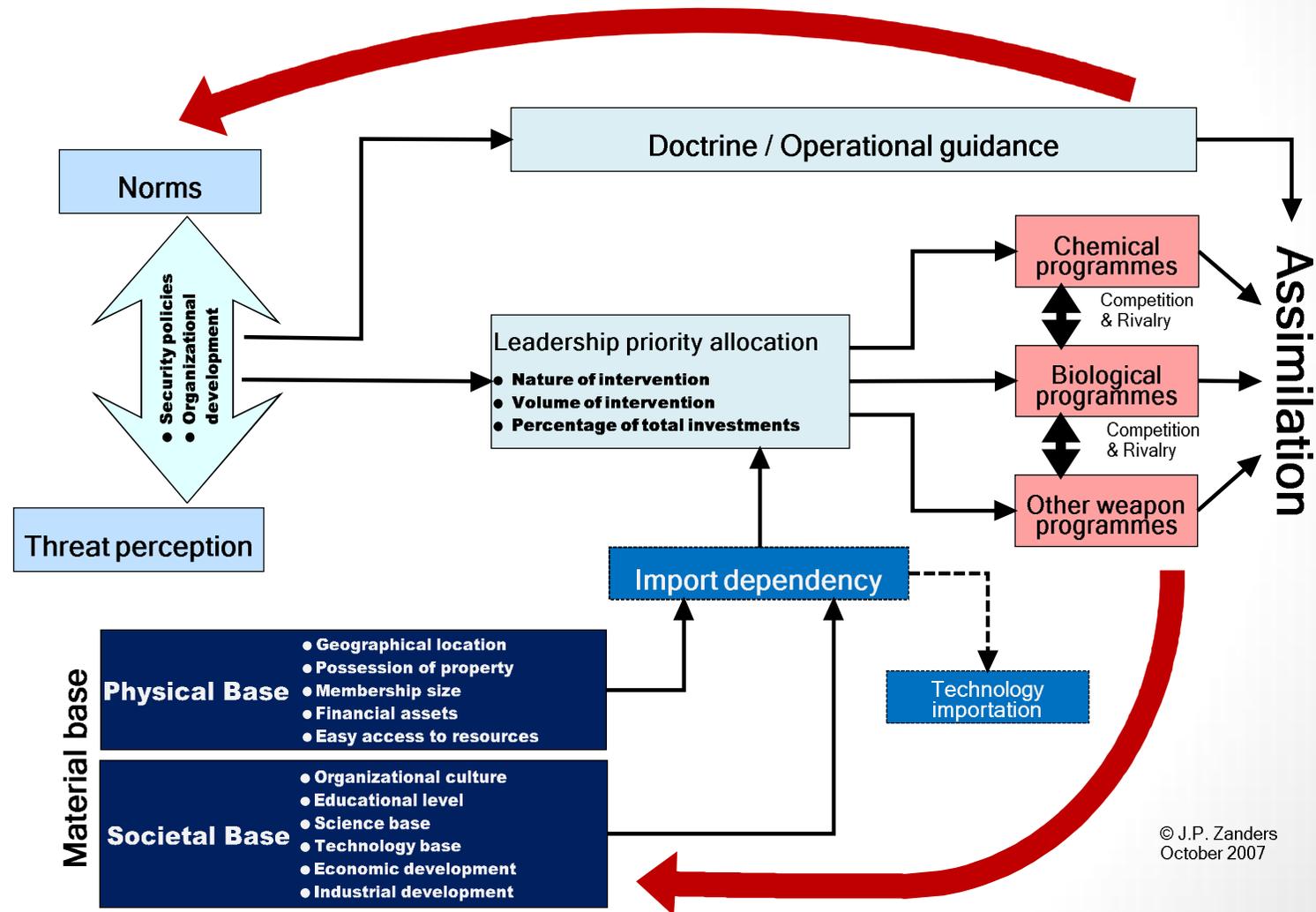
Part II

# ARMAMENT PROCESSES OF NON-STATE ACTORS

# Organising terrorism with chemical/biological agents for mass casualties

- **Highly (vertically) integrated organisation**
  - Charismatic leadership
- **Skills required within organisation**
  - Cannot be hired
  - Specialists must be convinced of organisation's ideology
- **Functional specialisation**
  - Different steps in armament dynamic each require specific skills
  - Places burden on recruitment of specialists
  - Absence has major impact on armament dynamic and ability to deploy and use weapons
- **Elaborate preparations needed (large footprint)**
  - Research facilities
  - Testing ranges
  - Production units
- **Logistical burden**
  - Technology acquisition (high import dependency)
  - Secure storage facilities
  - Weapon deployment
- **Dissemination may be technologically most challenging**

# The armament dynamic



# Armament dynamics: Explaining the few incidents

- **Goal—instrument relationship in selection of weaponry**
  - Large ambitions will lead to a selection of a wide variety of weaponry
    - A single type of weaponry is unable to achieve all goals
    - CB agents can only play certain roles
  - For more specific or time-limited ambitions, a single weapon category may suffice
    - Less inclination towards large investments in own development and production of weapons (e.g., complex CB agents)
- **Rivalry and competition**
  - However large the financial assets, resources are always limited
  - There will be competition / rivalry for the share of scarce resources among the people responsible for each of the programmes
  - Chemical and biological programmes are most likely to be run by different individuals
- **Even with nihilistic organisations, the question must be posed about the added value a particular type of weaponry has over another one (particularly in the light of their acquisition difficulties)**

Part III

# THE CONTROL REGIMES

# Sources of the norm against CBW

- **International treaties**
  - 1925 Geneva Protocol
    - Bans the use of CBW in war
  - 1972 Biological and Toxin Weapons Convention (BTWC)
    - Bans development, production and stockpiling of BW and toxins
    - Ban on use explicitly referred to at 4<sup>th</sup> Review Conference (1996)
  - 1993 Chemical Weapons Convention (CWC)
    - Bans development, production, stockpiling and use of toxins
- **UN Security Council resolutions**
  - UNSC Resolution 1540 (2004)
- **National laws**
  - To counter terrorism with CBW, emphasis is on national action
  - Demanded by BTWC (Article IV), CWC (Article VII), and UNSC Resolution 1540
- **Professional and scientific codes of ethics and conduct**
- **Industry standards and best practices**

# Types of national legislative measures

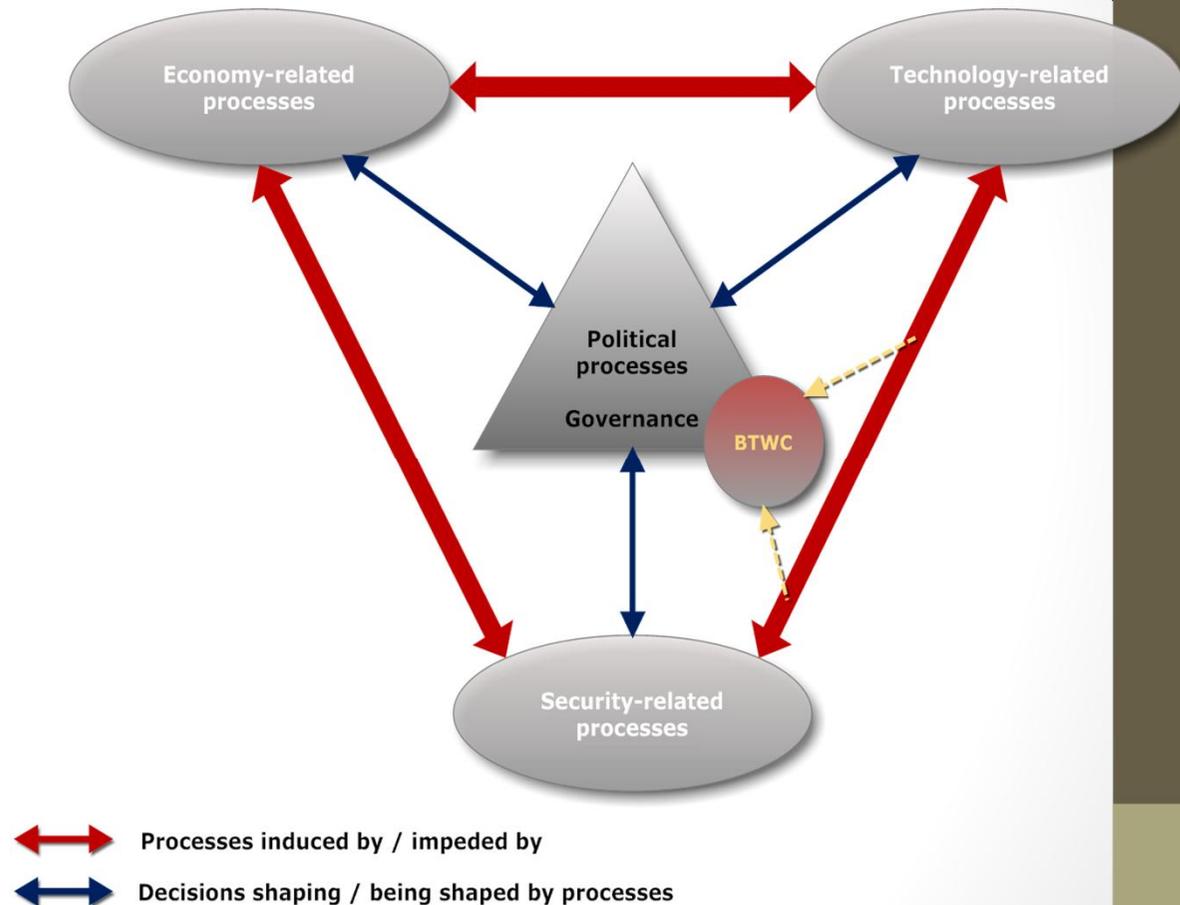
- 'Any necessary measures'
  - Wide range of legislative and regulatory tools available
- Penal legislation
  - Deterrence and prevention
- Criminal procedural legislation
  - Enable investigation and prosecution of CBW-related crimes
    - Before an incident (→ incorporation of the *General Purpose Criterion*)
    - After an incident
- Transfer controls
  - Import and export control legislation
  - Legislation governing domestic transfers of materials
  - Legislation must cover all actors involved in the transfer process
- Authorisation of legitimate chemical and biological activities
  - Registration and licensing of legal and natural persons and certain types of activity
  - Transport regulations
  - Chemical safety/security and biosafety/-security measures

# Challenges from opportunistic use for the CWC

- Insurgent use of CW: Awkward problem from a legal perspective
  - Use of CW by a non-state actor against another non-state actor on the territory of a State Party that is not in control of that territory
  - Problems for
    - Investigation of allegations
    - Attribution of responsibility
    - Sanctioning perpetrators (domestic penal law; international criminal law)
    - Scope of action for States Parties to CWC; UN Security Council
- Quasi universality of the CWC (193 States Parties)
  - Risk that States Parties, nationals from States Parties or entities operating from the territory of States Parties play a role in the acquisition of CW and preparations for their use by insurgents *is not beyond imagination*
    - Already several allegations to that effect related to the Syrian civil war since late 2012
  - This problem needs to be characterised, assessed, and if necessary, addressed by OPCW
    - For the future of the treaty regime, clear *refutation* is as important as confirmation

# What future role for disarmament?

- 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 CWC/BTWC*



Part IV

# CONCLUSIONS

# General conclusions

- Future major terrorist strike with CBW cannot be excluded
- However,
  - The acquisition process is complex for most destructive agents
  - CBW are never acquired alone, but form part of a wider armament dynamic/strategy
  - The armament process is not inevitable
    - Promoting factors
    - Counter-acting factors
    - Paradox: some promoting factors may actually contribute to the failure of the CW acquisition process (impact of feedback loops)
    - All entities that have pursued CBW have self-destructed
- The 'lesser' agents in the armament dynamic
  - Economic or environmental terrorism, assassination, and other (time-) limited goals
  - They come within the capabilities of more groups or individuals
    - Lower demands on operational guidance
    - Acquisition also less demanding
    - Lower need for functional specialisation
  - Less destructive (individual threats vs. societal/existential threats)
- Novel agents and processes
  - New applications for hostile purposes

# Terrorism with CBW: A genuine threat?

- **Not really in terms of mass casualties or destruction**
  - Disarmament has been successful and effective
  - States remain actively engaged in BTWC and CWC
  - BTWC and CWC are being updated in view of emerging challenges and threats
  - Any remaining weapon arsenals today are much smaller and cruder
- **Yet, challenges on the horizon**
  - New actors ➤ psychological dimension of small-scale, opportunistic CBW use
  - Challenges to international legal system
    - Situations not really foreseen in international treaties
    - Politicisation of international decision-making: multi-actor conflicts and transnational support bases
  - Developments in science and technology create potential for future agents
  - Can treaties evolve sufficiently fast to capture new realities?

# The Future: 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



# THE TRENCH

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