Terrorism and the Proliferation of Non-conventional Weapons: The Biological Dimension

Dr Jean Pascal Zanders
EU Institute for Security Studies

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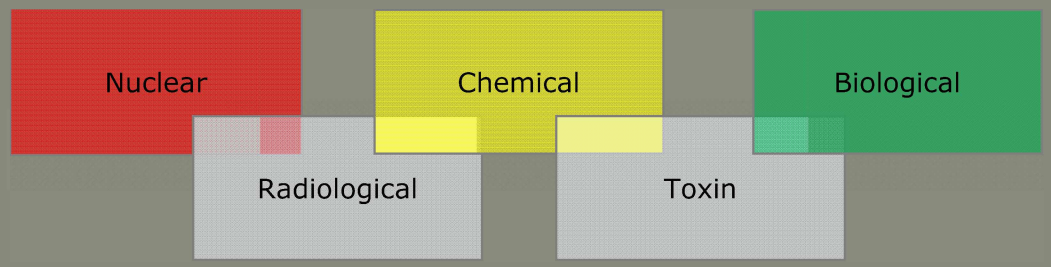
CBRN incidents

- ***Non-conventional weapon categories***



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

The biological threat spectrum

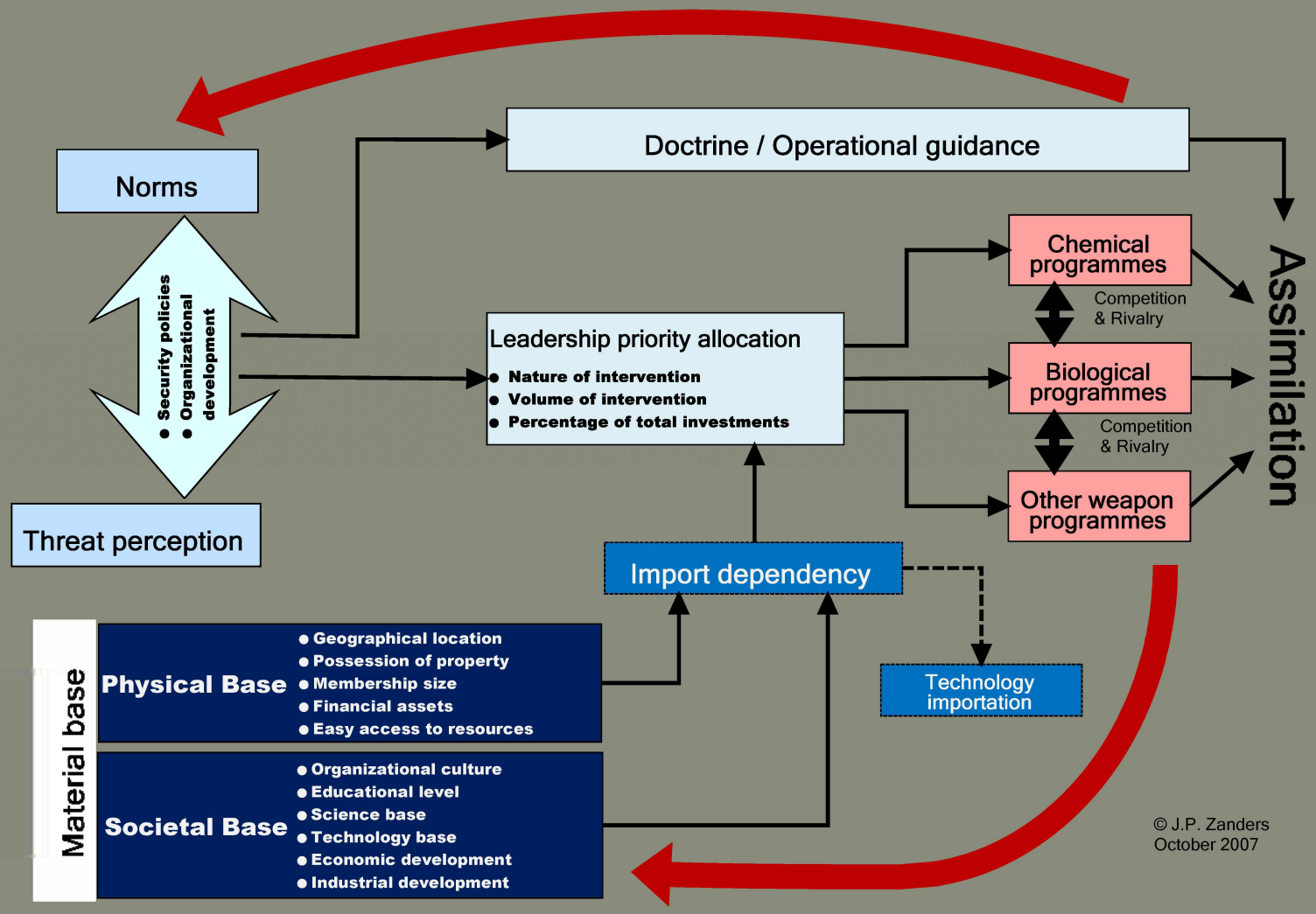
- ***War scenarios***
- ***Terrorism***
- ***Criminal acts***

- ***Consideration and availability of different biological agents***
  - Depends on intent
  - Depends on availability
  - Depends on technical skills and structure of the entity

Organising terrorism with 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 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)
  - Weapon deployment
- ***Dissemination may be technologically most challenging***

The armament dynamic



Norms

- ***Error to assume that terrorist organisation has no norms or values***
  - Organisation embedded in society that produced it
  - Certain values and norms will be deviant (reaction)
- ***Normative behaviour is correlated to goals***
  - Does organisation need broader societal appeal?
  - Which elements will be emphasised / suppressed?
- ***Norm-setting by leadership***
  - Accepted by rank and file (e.g., impact of charismatic leadership)
  - Indoctrination / brainwashing techniques
  - Limited scope for questioning
  - Isolation from broader society
  - Low tolerance for dissidence (punishment; physical elimination)
- ***Tension:***
  - Charisma is opposite of institutionalisation (needed for weapon programmes)
  - Source of set of group dynamics that may lead to group's demise

Threat perceptions

- ***Threat perception is inherent in a terrorist organisation***
  - Lives in active conflict with surrounding society
  - Threat = existential
    - Law enforcement / military operation may lead to elimination of organisation (no freedom from prosecution)
    - Possibility of competition from other organisations
    - Also on level of individual: shared experience
- ***Threat perceptions tend to increase***
  - Paranoia fed by isolation from society
  - Perceptions will increase when on verge of acquiring certain operational capabilities
    - Concerns about footprint of operational preparations
    - Response to real or perceived (re-)actions by law enforcement authorities
- ***Sometimes artificially inflated by leadership for internal control***
  - May become difficult to manage
  - Particularly if threats are linked to specific predicted events or dates

Security policies

- ***Significant field of tension between norms & threat perceptions***
  - Determines the security policies
    - Informs doctrinal / operational guidance development
  - Affects internal organisational development
    - How will the organisation structure itself to achieve goals?
    - How does it affect priority setting?
    - How does it inform choice of means to achieve goals?
- ***Prevailing norms will affect choice of means***
- ***Acquisition of capabilities affects normative behaviour***
  - Development of rationale to justify capabilities (to own members)
  - Growth of threat perceptions
    - Fear of discovery by outside world
    - Fear of treason / betrayal
    - Increases urgency of weapon programmes
  - Feedback loop from assimilation
- ***Rising threat perceptions affect normative restraint***
  - Certain courses of action become gradually acceptable
  - Acute existential threat may produce extreme (pre-emptive) actions

Material base

- ***Preconditions determining ability to set up BW armament dynamic***
- ***2 components***
  - Physical base:
    - Relates to host society
    - Virtually impossible for terrorist organisation to alter these factors
      - Move to different society
      - Set up branches in other societies
      - Options, however, have impact on organisational goals, local recruitment options, or ability to blend in society
  - Societal base:
    - Relates to terrorist organisation itself
    - May take a very long time to effect
- ***Shortcomings in the material base determine import dependency***
  - What cannot be developed or acquired domestically, must be acquired from outside the terrorist organisation

Physical base

- ***Where is the organisation located?***
- ***Does it own property?***
- ***Do cultural, educational, economic, scientific and technological characteristics of the host society promote the BC armament dynamic?***
- ***Ease of member recruitment***
  - Particularly regarding required skills
  - Skills cannot be (commercially) hired
  - Need to convince highly educated or trained individuals of organisational ideology (impact of functional specialisation)
- ***Ease of access to necessary resources (e.g., precursors; laboratory equipment, production technology)***
- ***Ease of accumulation of financial assets***
  - Wealthy host society
  - Tax breaks for certain types of organisation

Societal base

- ***Organisational culture***
  - Decision-making structure
  - Hierarchical structure, e.g.,
    - Vertical integration
    - Cell-based structure
    - Loose affiliation of subsidiary / associated structures
  - Leadership characteristics
- ***Level of education, science & technology within the organisation***
  - Will depend on recruitment strategies
  - Consideration of specific skills required for armament dynamic & operational planning and execution of attacks (functional specialisation)
- ***Economic development***
  - Acquisition and management of financial and human assets
- ***Industrial development***
  - Setting up of necessary infrastructure for research and development
  - Establishment and running of production facilities
  - Establishment of technology acquisition infrastructure and procedures (e.g., front companies and legitimate businesses)

Leadership priority allocation

- ***BC armament dynamic does note exist for its own sake***
  - What are the terrorist organisation's strategic (top-level) goals?
- ***What instruments does it seek to acquire / develop in pursuit of those goals?***
  - How does it mobilise its resources in function of those goals?
  - How does it distribute its resources over the different programmes supporting those goals?
  - Loose affiliation of subsidiary / associated structures
- ***Which are the criteria for distribution of (always limited) resources?***
  - Purely managerial considerations?
  - Favouritism by leadership?
  - Impact of stimulation or emergence of competition among different programmes
  - Relative influence on decision procedures of senior members
- ***How are decisions influenced by external developments (e.g., emergence of a clear existential threat)***

Weapon programmes

- ***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
    - BC 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 BC 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)***

Development of operational guidance

- *Informed by ambitions of the terrorist organisation*
  - Influenced by normative standards
  - Influenced by threat perceptions and their interaction with normative standards
- *Top-level goals*
  - How does it wish to achieve them?
  - Which types of weaponry are required to achieve these goals?
    - Do BC agents serve these goals, and if so, how?
  - Can the group achieve or otherwise acquire these weapons?
    - If not, necessary adaptation of top-level goals
- *Tactical goals*
  - Breakdown into sub-goals and target identification
  - Operational planning
  - How does it organise its forces to employ those weapons?
    - Force structures
    - Identification of specialised skills
    - Training
- *Adaptation*
  - Weapon development may create strategic and tactical opportunities
  - Complications in weapon development impose constraints
  - Impact of evolution in threat perceptions and their interaction with prevailing norms

Assimilation

- ***The degree to which the developed weapons and the operational guidance are integrated with each other***
- ***Variations at any stage of the armament programme will affect the nature and degree of assimilation***

- ***This outcome affects:***
  - The quality of the weaponry (BC agents) developed
  - The type of weaponry developed
  - The volume of weaponry produced
  - The ability to deploy and use the weaponry successfully (success being defined in function of the goals)
  - The sophistication of such deployment and use

Rajneesh cult (USA – 1984)

- ***Goal: influence local elections***
- ***Use of salmonella (food poisoning)***
  - Over 750 people incapacitated
  - Solution poured over food in salad bars
- ***Outcome: failure***
  - test run
  - attack on eve of elections did not take place
  - Cult basically dissolved

Aum Shinrikyo (Japan – 1990-95)

- ***Goal: Take over government of Japan***
- ***Development of wide array of weaponry + large military force***
  - CB agents intended to destabilise society (provocation of Armageddon)
  - Major CB research, development and production programme
  - Sarin attacks in Matsumoto (1994) and Tokyo (1995); assassination attempts with VX
    - Matsumoto: 7 fatalities; about 600 injured
    - Tokyo: 13 fatalities; 5500 other casualties (a large majority psychological distress)
- ***BW programme***
  - Attempted cultivation of *clostridium botulinum* and *anthrax* bacteria
  - Attempt to buy *Q fever* from Japanese culture collection
  - Attempt to obtain *Ebola* virus from Zaire during natural outbreak there
  - Attempt to release anthrax in Tokyo in June 1993
  - No reported casualties
- ***Outcome: failure***
  - Strategic goals never attained
  - Both sarin attacks were tactical operations to thwart threats against cult
  - Biological weapon programme never produced a usable agent, even on research level
  - Cult dismantled; leaders arrested and tried

Mail-delivered anthrax spores (USA – 2001)

- ***Perpetrator still unknown; agent from US bio-defence laboratory***
  - Bruce Ivins: A convenient end to an inconvenient truth?
- ***Goal: unknown, speculation about boost to US bio-defence programmes in wake of Al Qaeda strikes against USA***
  - Targets were members of Congress (Democrats) → made opposition to spending increases unlikely
  - Targets were mass media outlets → maximise publicity
- ***Use of small amount of anthrax spores (sophisticated preparation)***
  - 22 casualties, including 5 fatalities
- ***Outcome:***
  - Targeted members of media and Congress escaped unhurt
  - Mass hysteria in the USA
  - Anthrax spores ended up in mail in Europe and Asia

Advantages of terrorism with BW

- ***Potential of mass casualties***
- ***Use for economic warfare***
  - Disruption of functioning of infrastructure
  - Strikes against agriculture and food chain
- ***Certainty of terrorising effect***
  - Hoaxes may be as efficient as actual use
  - BW terror (as opposed to terrorism with BW)
- ***Stealthiness***
  - Allows escape of perpetrators
  - Allows deniability (if relevant)
  - Reinforces terrorising effect

Disadvantages of terrorism with BW

- ***Lack of control over effects after release***
  - Impact of local climate and topography
  - However, less of an issue inside buildings (air conditioning) or enclosed spaces (e.g., arenas)
- ***Time-delayed effects***
  - Effects are not instantaneous or simultaneous
  - Symptoms appear after a while
  - No instant spectacular media coverage
- ***Moral revulsion***
  - Psychologically different level of violence
  - Whatever support exists will be difficult to sustain
  - What about 'new terrorism'?
  - Use may lead to demise of terrorist organization (e.g., Aum)

Alternative use of biological agents

- ***Against humans***
  - Potential for mass casualties exists
  - Not necessarily most likely scenario as agents are 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
    - Several can be commercially obtained
  - Exploitation of fear and lack of adequate preparations
  - Effectiveness of hoaxes

Acuteness of the terrorist threat with BW

- ***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) agents with potential of greatest destruction or casualties
    - Access to or availability of agents and equipment is important component of threat equation (e.g., USSR, Iraq)
    - Cutting-edge science and technology is major threat consideration
  - 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

General conclusions

- ***Future major terrorist strike with BW cannot be excluded***
- ***However,***
  - The acquisition process is complex for the potentially most destructive agents
  - The armament process is not inevitable
    - Promoting factors
    - Counter-acting factors
    - Paradox: some promoting factors may actually contribute to the failure of the BW acquisition process (impact of feedback loops)
- ***The 'lesser' agents in the armament dynamic***
  - Economic or environmental terrorism, assassination, and other more (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

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  www.iss.europa.eu

- ***E-mail***

  jean-pascal.zanders@iss.europa.eu