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

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CBRN incidents

n Non-conventional weapon categories

n Most incidents are in the grey areas
  n Toxins
  n Radiological materials

n Agents in grey areas are easier to acquire
  n Enable incidents involving individuals; small groupings
  n 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
  - Failure to do so has major impact on both 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
  - Security policies
  - Organizational development
- Leadership priority allocation
  - Nature of intervention
    - Volume of intervention
    - Percentage of total investments
- Doctrine / Operational guidance
- Chemical programmes
  - Competition & Rivalry
- Biological programmes
  - Competition & Rivalry
- Other weapon programmes
- Assimilation

Material base
- Physical Base
  - Geographical location
  - Possession of property
  - Membership size
  - Financial assets
  - Easy access to resources
- Societal Base
  - Organizational culture
  - Educational level
  - Science base
  - Technology base
  - Economic development
  - Industrial development

Import dependency

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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

n Preconditions determining ability to set up BW armament dynamic

n 2 components

  n Physical base:
    n Relates to host society
    n Virtually impossible for terrorist organisation to alter these factors
      ß Move to different society
      ß Set up branches in other societies
      ß Options, however, have impact on organisational goals, local recruitment options, or ability to blend in society

  n Societal base:
    n Relates to terrorist organisation itself
    n May take a very long time to effect

n Shortcomings in the material base determine import dependency

  n 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 not 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, but 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

- The possibility of a 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