

A silver metal spiral binding is visible on the left side of the page, with the wire looping through a series of holes.

Armament and Disarmament in a Changing Security Environment

Week 1

- Introduction to the course
- Review of core concepts

Jean Pascal Zanders

IHEID

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Part 1

INTRODUCTION TO THE
COURSE

Purpose of the course

- To discuss armament and disarmament in the interface between theory and empirical analysis
- To build a bridge between armament and international relation theories
- To attempt to deal with a rapidly changing security environment and shifting paradigms
- 2 major components:
 - Study of armament dynamics as a domestic process
 - Study of disarmament dynamics as an international process

Approach

- Construction of an analytical model drawing on a broad range of theories
 - Analysis of existing armament theories
 - Assimilation model
- Integration of armament and IR theories
 - Impact of armament/disarmament on international security
 - Impact of security interactions on armament/disarmament
- Critical analysis of the application of the insights to a variety of security conditions

Preliminary understandings

- Emphasis is on ability to operationalize concepts
- Definitions are tested for their applicability
- No (meta)theoretical debate about their being right or wrong
- Crossing of boundaries between theoretical schools

Lectures

- Interactive: you are encouraged to participate in or initiate discussions
- Core of the course is not in the literature
 - Each lecture builds on the previous one
 - Your attendance is critical to your success
 - Come and see me if you have questions (the earlier the better)
 - La Voie-Creuse 16 (Office 328)
 - Fridays 10-12 or by prior arrangement
- Slide presentations are posted to the IHEID website ahead of lecture

Exam

- Individual written analysis
 - Topic selection by Friday 2 May 2008 at the latest
 - Feel free to come and discuss topic selection
 - Submission by Monday 19 May 2008 at noon
 - Electronic format or hard copy
 - *No late submissions accepted!*
- Individual in-depth discussion of analysis
 - Will last about 30 minutes
 - Any day during week 26–30 May 2008
 - Make your appointment well in advance

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Part 2

Review of basic terms

Armament versus arms control / disarmament

- Armament:
 - Process of increasing the quantities of weapon holdings or replacing existing holdings with new ones
 - Domestic processes
 - May be induced / legitimized by external factors
- Arms control (inc. arms reductions):
 - Management of levels of weapons within specified quantitative of qualitative boundaries
 - Essentially requires international cooperation
- Disarmament:
 - Reduction of levels of specified weapon categories to zero
 - Essentially requires international cooperation

Main armament theories

- Armament theories deal with domestic processes
- Realist schools of thought
 - Anarchy; threats; power maximization
 - Creation of the security dilemma
 - Derived from IR theory; hardly any consideration of domestic imperatives
- Domestic imperatives
 - Mere acknowledgement of international context
 - Domestic constituencies, bureaucracies, institutional interests, etc. drive the armament dynamic
 - Processes of sub-optimization; follow-on imperatives
- Technological imperatives
 - Mere acknowledgement of international context
 - Technology drives modernization; imposes its own logic

Armament versus proliferation

- Is there a difference?
 - Armament: a domestic process
 - Proliferation: transfer of technology from a possessor to a non-possessor
 - ‘Horizontal proliferation’: lateral spread
 - ‘Vertical proliferation’: weapon acquisition and improvement (= armament?)
- Paradigm difference
- Value judgment about desirability
 - Influence from the nuclear field

Arms control / disarmament versus non-proliferation

- Fundamentally different parameters
 - Objectivity versus subjectivity
 - In goals
 - In assessments
 - Cooperation versus unilateralism
- Non-proliferation strategies lack finality
- Subjectivity means that there is no standard non-proliferation approach

Absolute versus relative gains

- Absolute gains
 - The total reward received by a state in response to an action and
 - Is measured by comparing the security condition of the state to that of itself at a different time
 - No interest in what other states achieve
- Relative gains
 - Create advantages when they allow the state that benefits more to secure additional gains in the future
 - They influence other outcomes in the same or other security-related domains.
 - Great interest in what other states achieve \ important impact on the security dilemma

Global versus regional security

- Security expectations may differ significantly depending on whether a state views itself as a global or regional actor
- The nature and intensity of security interactions may differ significantly depending on whether they occur on the global or regional level
- The level under consideration impacts on
 - Acuteness of the security dilemma
 - Absolute or relative gains expectations
 - Willingness for security cooperation

Armament and Disarmament in a Changing Security Environment

Week 2

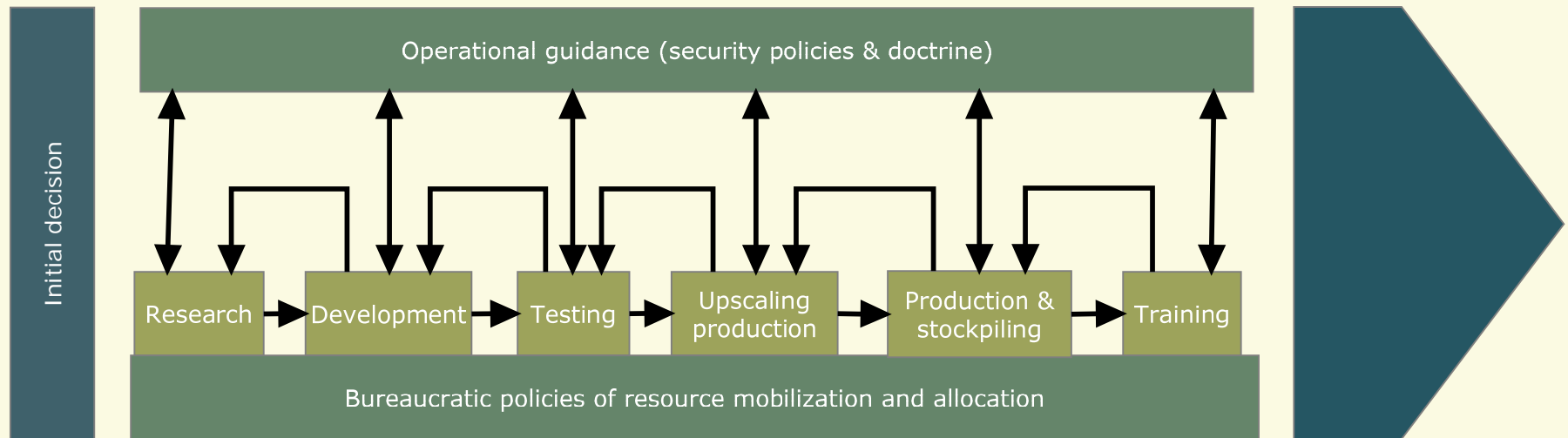
- Armament theories

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What is armament?

- *Structured process* of
 - increasing the quantities of weapon holdings;
 - replacing existing weapons with new ones (replenishment); and/or
 - replacing existing holdings with (same or new) qualitatively improved weapons.
- The process is dynamic (hence: armament dynamic)
- The process takes place within an organized entity (state, organization) or may be undertaken by an individual

Armament dynamic: a basic scheme



Main armament theories

- Realist schools of thought
 - Self-preservation in an anarchic international system
- Domestic imperatives
 - Bureaucratic policies drive the armament dynamic
- Technological imperatives
 - Technological innovation is an autonomous source of armament

The action—reaction model (1)

- Rooted in realist schools of thought in IR
- External threat is the prime motivator
 - Armament is to protect a state from the threat posed by other states (anarchy!)
 - Arms assist in increasing a state's power, and thus in achieving its security
- Basic functioning
 - Move & counter-move
 - Suggestion of orderly sequence

The action—reaction model (2)

- Anticipation of weapon development in adversary state
 - No longer ‘reaction’ to what exists, but to what *may* exist
 - Self-reinforcing pattern as a consequence of long lead times in weapon development
 - Weapon accumulation beyond levels of what would otherwise be expected
- Later realist analyses
 - Accept a certain impact of technological innovation
 - Still little room for domestic sources of the armament dynamic, because the focus is on *motivation* (i.e., feeling threatened)
 - Model also applied to the maintenance of the status quo

The action—reaction model (3)

- Security dilemma
 - In anarchic environment, power maximization & concerns about relative positions (neo-realism)
 - Produces less security in other state(s) → also power maximization & experience of less security in first state
 - Armament = instrument of state survival
- Deterrence theory
 - Goal is not to engage in war
 - Deterrence by punishment (retaliation)
 - Deterrence by denial (raising costs for aggression)
 - Flawed theory
 - Rational unitary actors assumed
 - Rooted in behaviourism (fear produces rational behaviour)
 - How much is required to deter?

The institutional imperative models

- Still *recognition* of anarchic international system, but focus is on
 - bureaucratic self-interest of key actors
 - close association of military, industry and policy makers
- Highly critical of the action-reaction models
 - Identification of parochial interests in the name of ‘national interest’
 - Routine technical & bureaucratic procedures for R&D in MoDs
- Security dilemma
 - Anticipatory spiral of technological innovation
 - Design improvements required to counter future adversary technologies
 - Speeds up process of obsolescence, creating need for replacements & maintaining vested interests in the armament dynamic
- Need to explain success of less-dominant bureaucratic units too
 - Follow-on imperative as motor for sustained incremental weapon innovation
 - Processes of sub-optimization, function shift & function specialization

The technological imperative models

- Mere *recognition* of anarchic international system
 - Technology viewed as autonomous force of weapon innovation
 - (Possibility of) scientific breakthroughs prevent strategic balances
- Highly critical of the both other models
 - Realists do not take impact of technology into account
 - Incremental technological improvements do not drive the dynamic
 - Technology is said to produce significant changes in strategies and organization of military forces
- Technological imperative involves a self-sustaining process
 - Technological innovation pressures are present in all advanced societies
 - Complexities of weapons generate complexities in support systems, allowing for even more complex weapon systems, and so on
 - Technological advance becomes original source of innovation ('Eigendynamik')
- Essentially a qualitative process
 - Has led to fewer weapons of higher quality
 - Affects the entire spectrum of military technology
 - Longer lead times for technology development; shorter life-cycle of weapons

Operation of the technological imperative

- Long lead times (15-20 years) → long-haul technological push
 - Takes much longer than electoral cycles
 - Unaffected by political fluctuations
- Follow-on imperative
 - Efforts at product improvement part of professional routine
 - Offensive weapon development requires investigation of defences
 - Defensive weapon development requires means to overcome such defences
- Confluence of initially unrelated technology developments (e.g., SDI)
- Worst-case analysis and planning
- Outcome: policy becomes a function of technology
 - Question is whether it is possible to deploy latest weaponry
 - Question is no longer whether it is desirable to maintain the leading technological edge across the entire military spectrum

Common elements

- Analysis of domestic processes
- The models try to explain *why* states arm
 - Each major school identifies different *principal* causes for the armament dynamic
 - In doing so, they may also reveal *how* states arm themselves (i.e., how they ‘structure the armament dynamic’)

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Week 3

- Problems with traditional armament theories

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Armament theories: 3 main schools

- Realist schools of thought
- Domestic imperatives
- Technological imperatives

Problems with traditional armament theories

- Reflection of the bipolarity of the cold war
- Based on major weapon systems
 - In some cases the analysis is nothing more than a weapon biography
- Based on existing weapon systems
 - Often only applicable to the case study
 - Based on ‘success stories’
 - Failure difficult to explain
- Low on predictive power
 - Impossible to foretell which system will be chosen over another

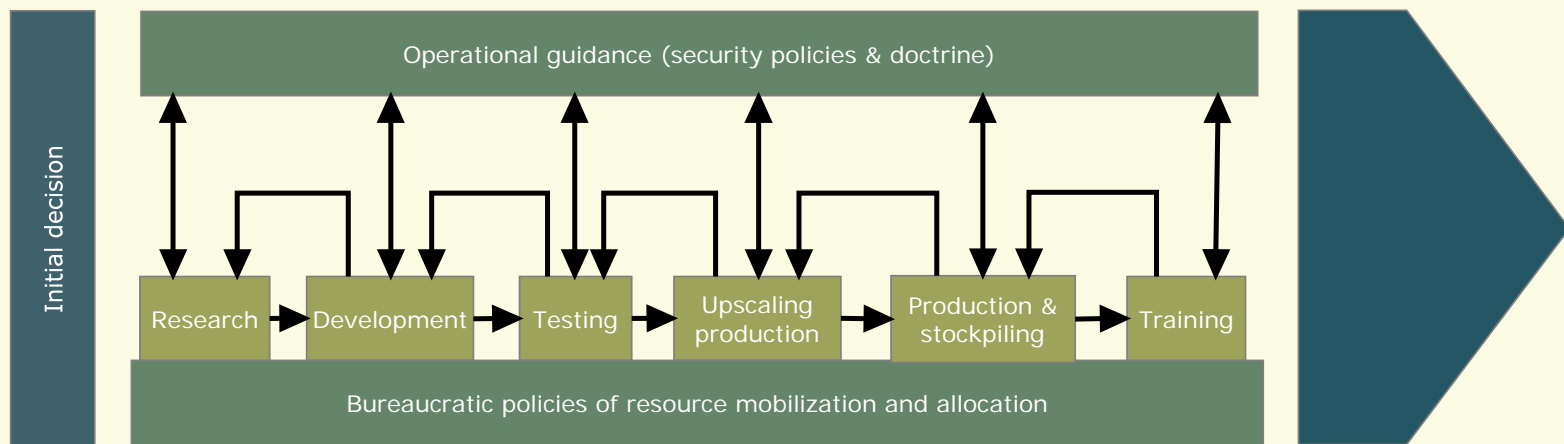
CBW programmes and traditional armament theories

- Action-reaction models
 - External threat present
 - Little empirical evidence that this drove the armament dynamic in the late 1940s and early 1950s
- Institutional-imperative models
 - Key parameters are virtually absent
 - Explains institutional survival; some processes are clearly present
 - Cannot explain expansion of institutional roles
- Technological-imperative models
 - Key parameters are virtually absent
 - Technological innovation played an important role, but was not original source of the armament dynamic

Nevertheless ...

- Elements of all three schools clearly present
 - Highlight different aspects of the CBW armament dynamic
- Is it possible to view explanations by each school as complementary?
 - If so, how to integrate them?
- Need to focus on process, and not just motivation
 - How is the armament dynamic structured?
 - How is failure of the armament dynamic explained?
 - How to identify obstacles in the armament dynamic and mechanisms to overcome them?
 - How to use the insights for analysis in other cases?

Thinking of armament as a decision process

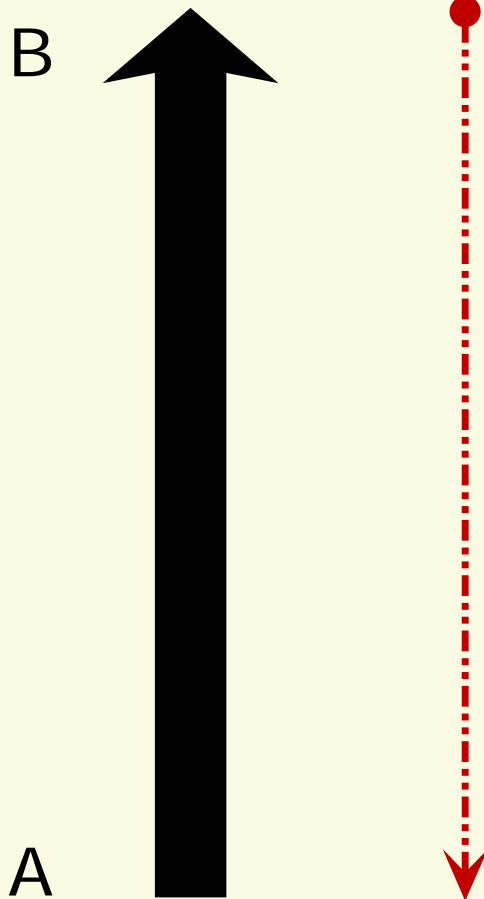


A



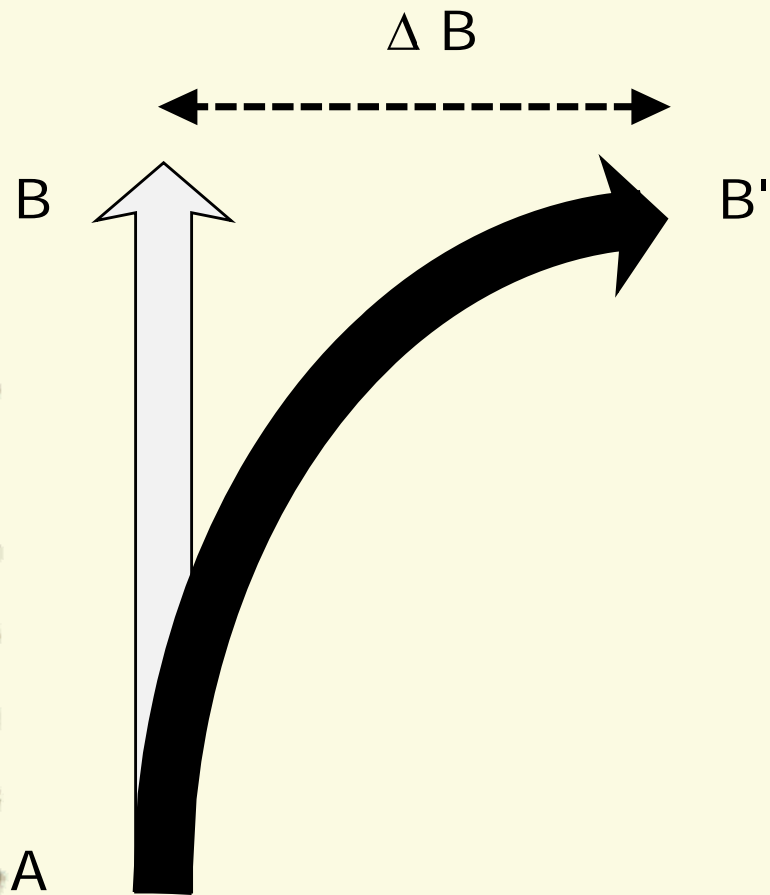
B

Linear [regressive] analysis



- Description of the armament dynamic from the initial decision (A) to the weapon system (B)
- However, B = known outcome
- In traditional studies, analysis is therefore often a reconstruction of the armament dynamic from B to A (= weapon biography)
 - Insights only relevant to the weapon system under consideration
 - Misses moments of critical choices when alternative outcomes might have been possible
 - Because of focus on 'success' stories, analysis cannot explain failure

Non-linear [progression] analysis



- Departure point = initial decision (A)
- Focus is on the weapon system as the outcome of political decision processes
- The interest is in what the weapon system has become (B') in relation to the original concept (B)
- Goal of the analysis is to explain the variation (ΔB) between the original concept (B) and the actual weapon system (B')

The meaning of the variation (ΔB)

- As the armament dynamic progresses, its promoters will encounter certain *impediments*
 - Decisions need to be made to overcome or circumvent the impediment
 - Overcoming or circumventing the impediment entails *opportunity costs*
- Opportunity cost = any cost in terms of foregoing alternatives in the pursuit of a certain action (i.e., a decision to overcome a particular impediment in a certain way may close off present or future options)
 - May manifest itself immediately or have a delayed impact
 - May manifest itself within the armament dynamic or in wider policy spheres
- **ΔB = the aggregate of all opportunity costs paid in the effort to achieve B**
 - *Basic assumption*: promoter of armament dynamic has an interest in keeping ΔB as small as possible

Outcomes

$$\Delta B = 0$$

This occurs if B equals B', in other words, the weapon system has been achieved as originally conceived without any (uncalculated) opportunity costs.

$$\Delta B = \infty$$

This occurs if the aggregate opportunity cost is too high a price to pay, in other words, for whatever reason or combination of reasons, the weapon system is not produced or deployed. B' is consequently not achieved.

$$0 < \Delta B < \infty$$

This reflects the deployed weapon system as the outcome of all opportunity costs paid.

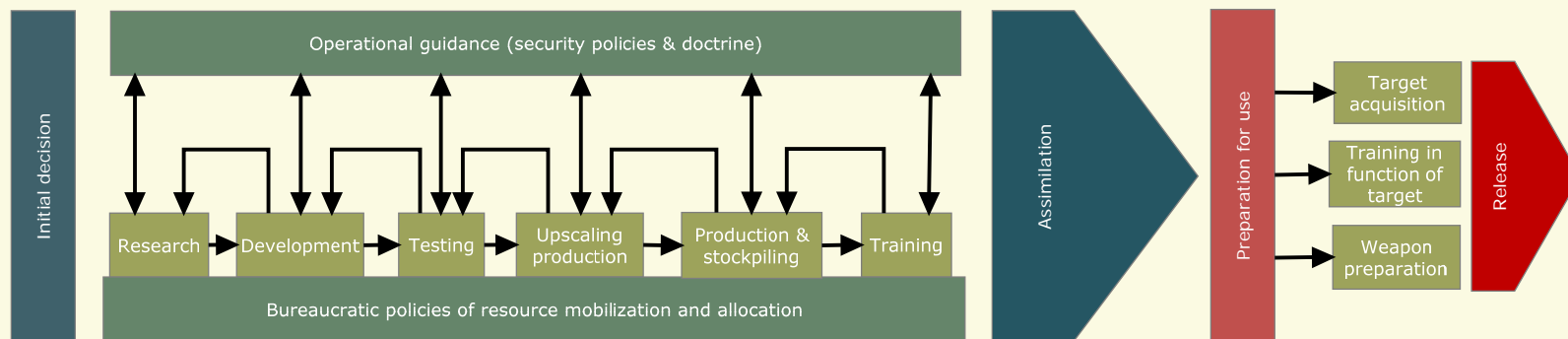
Examples of opportunity costs

- Finding fiscal resources
- Priority allocation of resources to overcome technical difficulties
- Pressures for arms control or from international humanitarian law, public opinion
- Political opportunism
- Convincing the military of the programme's utility
- Overcoming environmental concerns
- Etc.

Assimilation

Assimilation is the *process* by which for a particular type of weaponry *military and political imperatives*, as constrained by the political entity's *material base*, become *reconciled* with each other so the weaponry becomes an integral part of *current mainstream military doctrine*.

Armament seen as a process of assimilation



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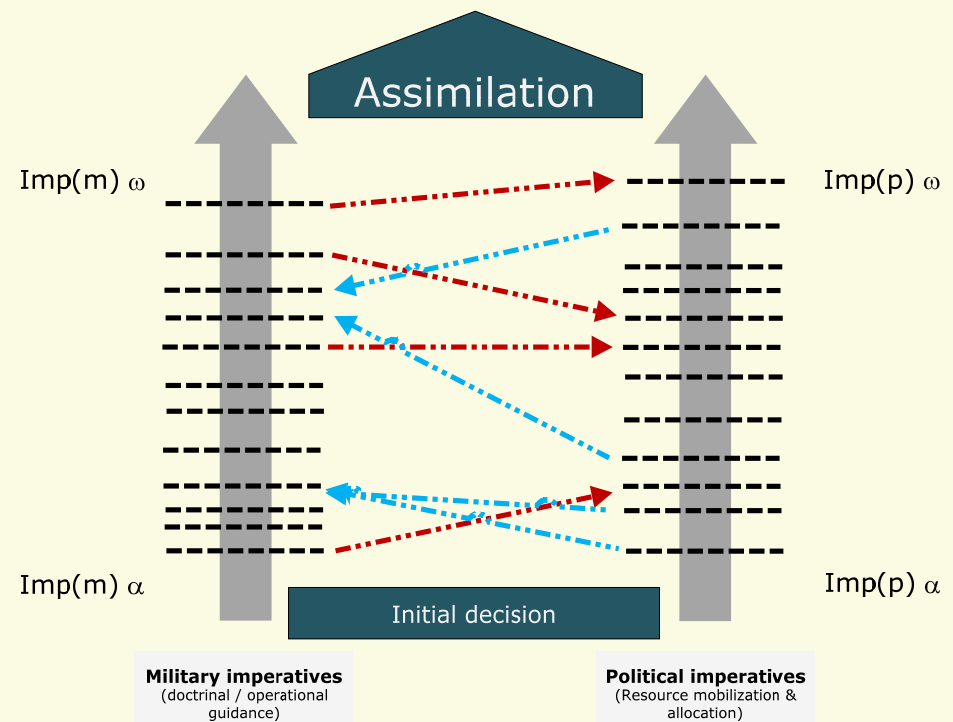
Week 4

- Constructing the 'assimilation' model

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Assimilation

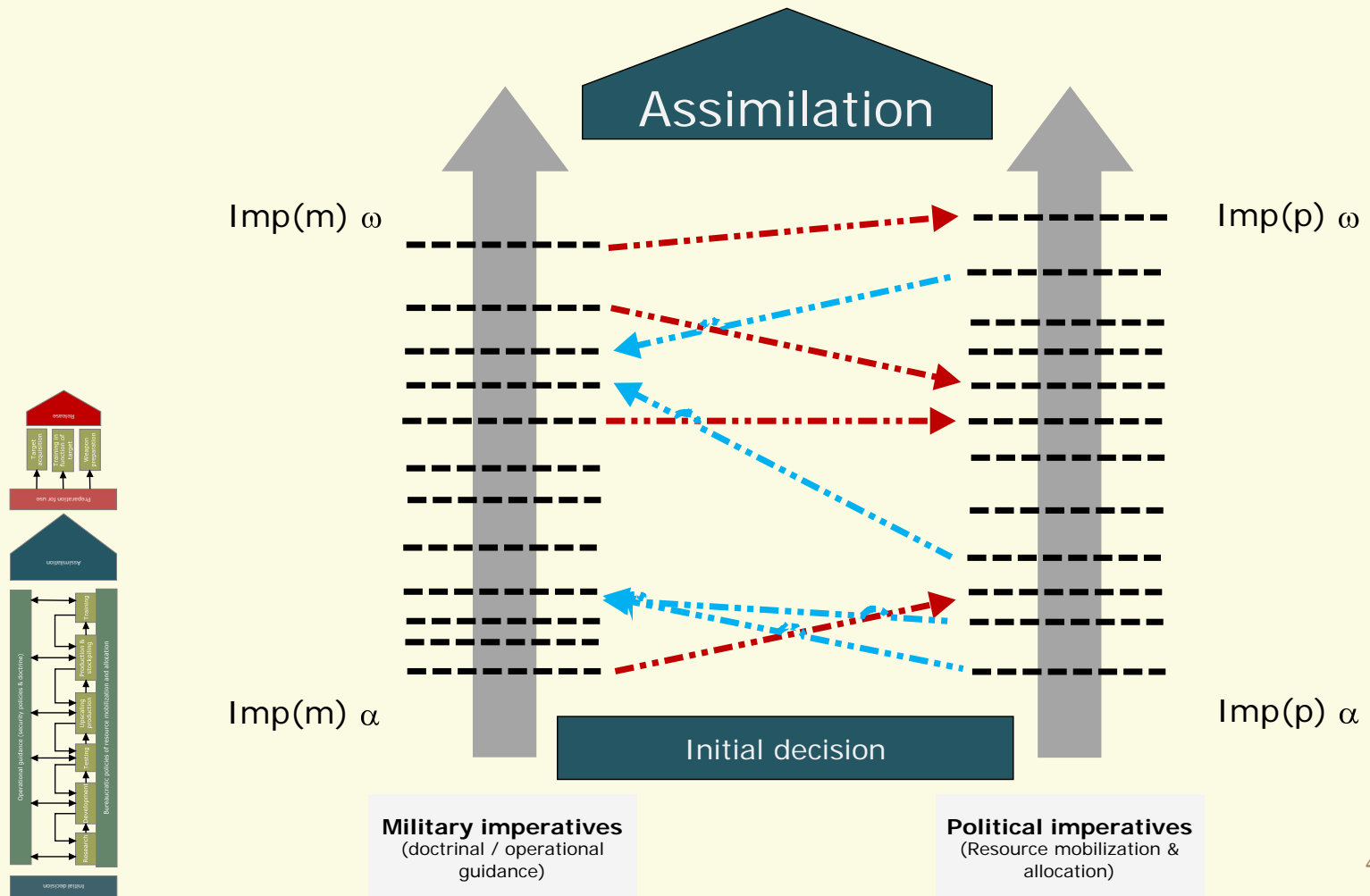
Assimilation is the *process* by which for a particular type of weaponry the *military and political imperatives*, as constrained by the political entity's *material base*, become *reconciled* with each other, so that the weaponry becomes an integral part of *current mainstream military doctrine*.



How does the 'reconciliation' take place?

- Recall the meaning of the variation (ΔB):
 - As the armament dynamic progresses, its promoters will encounter certain *impediments*
 - Decisions need to be made to overcome or circumvent the impediment
 - Overcoming or circumventing the impediment entails *opportunity costs*
 - ΔB = the aggregate of all opportunity costs paid in the effort to achieve B
- Political imperatives: may create impediments on the military track
- Military imperatives: may create impediments on the political track
 - Resolving the impediments (by paying opportunity costs) on the respective tracks will reconcile the imperatives

Dual decision-making tracks



A closer look at the impediments

- An ‘impediment’ must be seen as a barrier that threatens the continuation of the armament dynamic
 - The promoters of the armament dynamic must mobilize resources to overcome or circumvent the barrier
 - The mobilization of resources causes opportunity costs
 - Certain impediments are unique to the ‘military imperatives’ track; other ones to the ‘political imperatives’ track
- A particular type of impediment can
 - Occur once
 - Be present throughout the armament dynamic
 - Manifest itself more than once during the course of the armament dynamic, although the precise context and therefore its impact may differ
- The organization of the ways and means of surmounting the impediments = *structuring the armament dynamic*



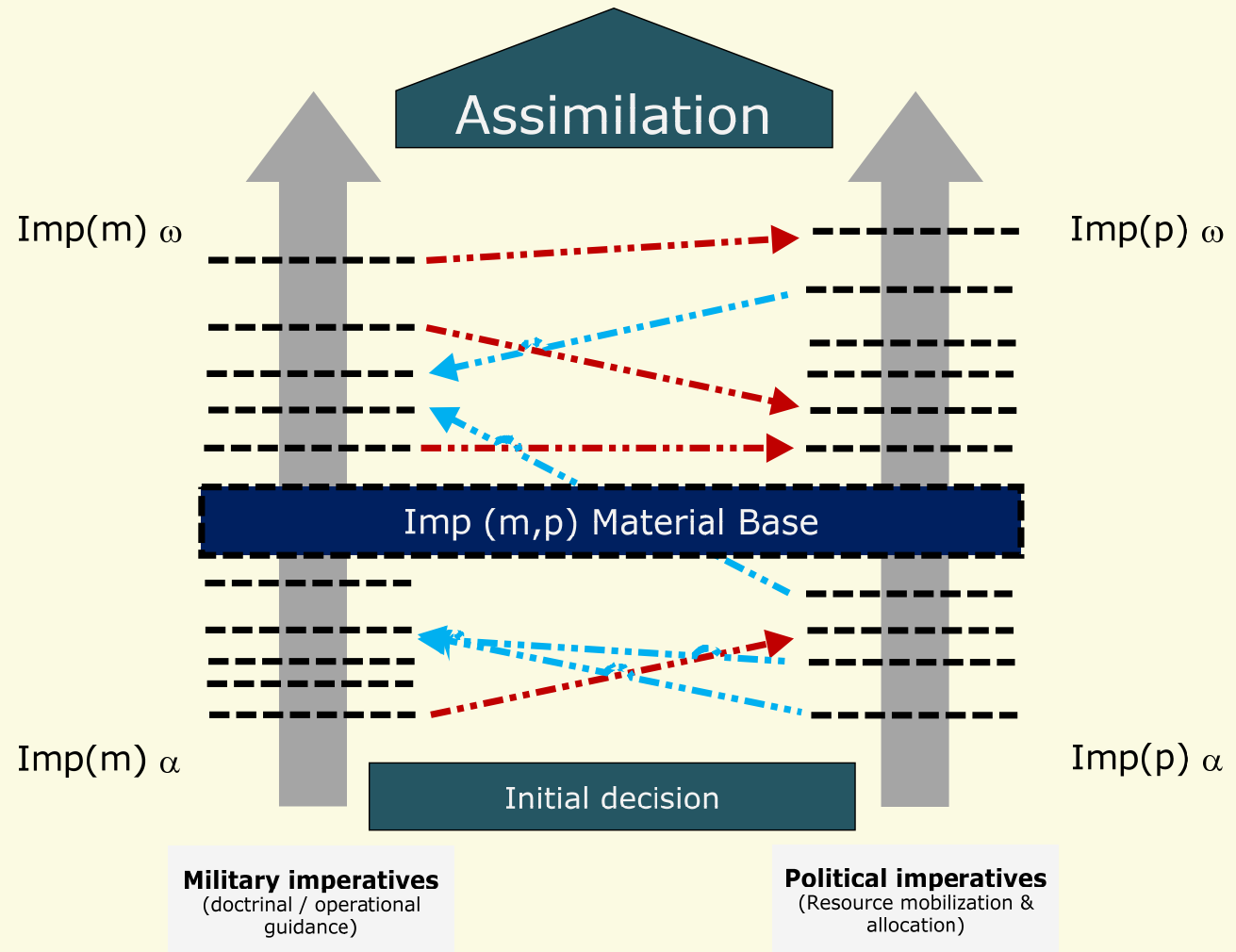
Examples of impediments

- A scientific or technological challenge
- Limited financial resources and competing priorities
- Moral and legal constraints
- Lack of certain primary resources or expertise
- Staffing shortages
- Etc.

The material base as an enabler or impediment

- Particularly important independent variable as it cuts through both the political and military imperatives tracks
- Two major components
 - **Physical base** (essentially unchangeable variables)
 - Geographical location; territorial size
 - Population size
 - Presence of natural resources; easy access to natural resources
 - **Societal base** (variables that can be changed over a long period)
 - Political culture
 - Level of education
 - Scientific and technological base
 - Industrial development and economic strength
- The incorporation of a particular weapon system can be viewed as an expression of a level of development

Material base



Revealing the impediments

- To operationalize the assimilation model, it is necessary to:
 - Identify the nature of the impediments
 - Determine their relative weight under given circumstances
- Methodology: Three types of comparative analysis:
 - *Synchronic analysis* between different political entities
 - Comparing 2 political entities at the same period
 - *Diachronic analysis* of analogous armament programmes within a single political entity
 - Comparing 2 distinct stages of development inside a single political entity
 - *Integration of the synchronic and diachronic approaches*
 - Comparing 2 political entities at a similar level of development

Synchronic comparative analysis

- Contrast two different political entities at the same period in time (e.g., today, in 1950, in 1925)
- Will identify and reveal qualitative information about thresholds mostly relating to:
 - Physical base (resources, etc.)
 - Societal base (political system, levels of education, science & technology, industrial & economic development, etc.)
 - Decision-making processes
 - Perceptions of threat and adherence to international norms
 - Etc.
- Select one political entity about which much information is available as reference point

Diachronic comparative analysis

- Contrast two different periods on the history line of a single political entity (e.g., the CW programme in the USA before and after World War 2)
- Will identify new impediments and reveal qualitative information about impediments mostly relating to:
 - Changes in the quality of elements in the societal base (e.g., differences in the quality of democracy; impact of technological progress; emergence of new actors, etc.)
 - Changes in decision-making methods (e.g., growing impact of civilian security experts; emergence of political theories that structure thought processes)
 - Evolutions in perceptions of threat and adherence to international norms
 - Etc.
- Timeline is split at a point relevant to the armament dynamic under consideration
- Political entity is selected in function of available information about decision-making processes and the relevant armament dynamic

Combined synchronic and diachronic comparative analysis

- A political entity seeking a particular type of weaponry today is projected onto the history line of a reference political entity
 - Intersection occurs at a point where the reference political entity had a similar level of development as the political entity seeking the weaponry today
 - Reveals information about the types of problems that the political entity seeking the weaponry today might encounter
 - Also reveals information about the types of solutions that are possible
- Analysis of discrete bits of information about the armament dynamic in function of the impediments and their relative importance to the political entity under review enables informed judgment about the nature and status of the armament dynamic

Analysis with the assimilation model

- Any two political entities can be compared
 - Applicable to any type of political entity (state, terrorist organization, etc.)
 - All impediments are assumed to be present
 - Relative importance of the impediments is key to analysis
 - An impediment is furthermore characterized by its relative impact depending on a specific context
 - It may have a different impact at different times in a given political entity
 - It may have different impacts in two or more political entities
 - No correlation between type of governance of a political entity & interest in particular weapons (e.g., CBW)
 - ‘Rogue state’ concept does not apply!
 - Type of governance does have impact on how the political entity structures its armament dynamic
- Does not explain *why*, but *how* political entities arm
- Limited predictive power, but gives detailed insight into how the project may develop

Towards proliferation analysis

- Enables ‘black box’ approach in analysis
 - Discrete bits of information can be situated on scheme of armament dynamic
 - The scheme will suggest possible relationships
 - Assimilation model suggests search for other necessary information items
 - Presence or absence important for judgement of a particular armament dynamic is underway
 - Requirement to look for the broader context in which the armament dynamic is embedded
- The ‘black box’ approach is one of the foundations for proliferation analysis

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Week 5

- Proliferation analysis and the 'assimilation' model

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Proliferation studies

- Focus traditionally on supply-side
- View of proliferation as a lateral spread of weapons and technology
 - Impact of the 1968 NPT
- Suggestion of a continuum
 - Technology acquisition leads to weapon development and deployment, and possibly to use
- Once proliferator, always proliferator?
 - How does knowledge of past programmes influence perceptions of current state behaviour?

Supply-side perspective

- Is the traditional focus of proliferation studies
- Focus traditionally on objects (e.g., weapons, equipment)
 - The fact that the objects exist defines an important part of the threat
- Influence of *regressive* analysis of armament dynamic
 - Possession or determination to possess weapon is assumed
 - All other elements are interpreted in function of the certainty of the final goal

Demand-side perspective

- Focus on internal decision-making processes
 - **Problem:** often little known about these processes
- Appreciation of the complexity of the decision-making process (opportunity costs)
 - Failures
 - Reversals of decisions
 - Importance of the material base
- *Progression* analysis of the armament dynamic is required

Definition of proliferation

- *Proliferation* occurs when a political entity decides to acquire a certain weapon capability where such a capability does not yet exist *provided this decision is followed by an armament dynamic.*
- Conversely, *deproliferation* occurs as soon as the political commitment to that decision ceases to be renewed or if that political entity explicitly reverses that decision.

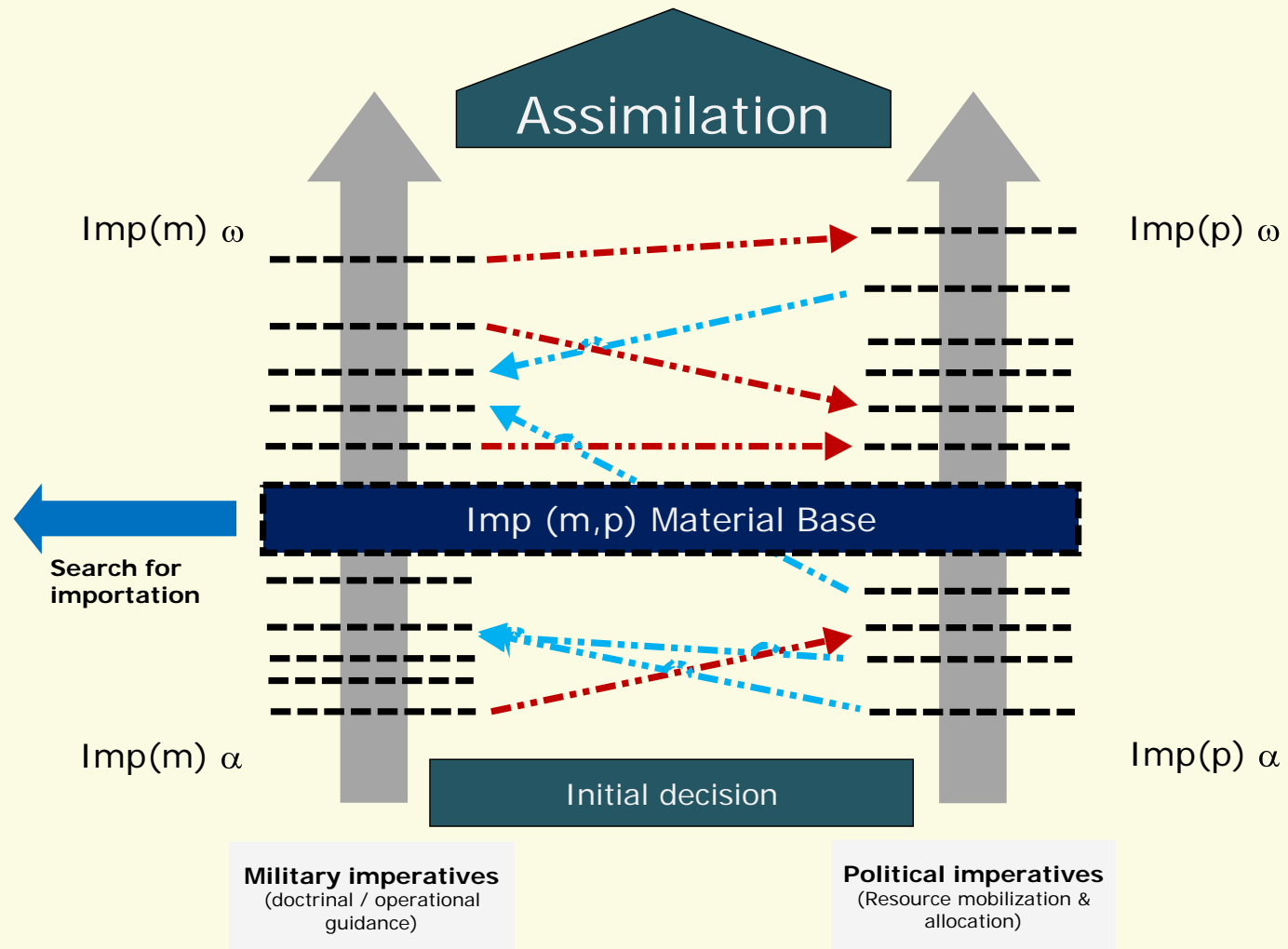
Application of the assimilation model to proliferation studies

- Looks at internal dynamic of armament (= demand side)
- Applies to any type of armament dynamic (or any other technological programme), irrespective of degree of complexity or intensity
- Applies to any type of political entity
 - States
 - Terrorist organizations
- Gives detailed insight into the preconditions for a specific armament dynamic and how the project may develop (= progression analysis)

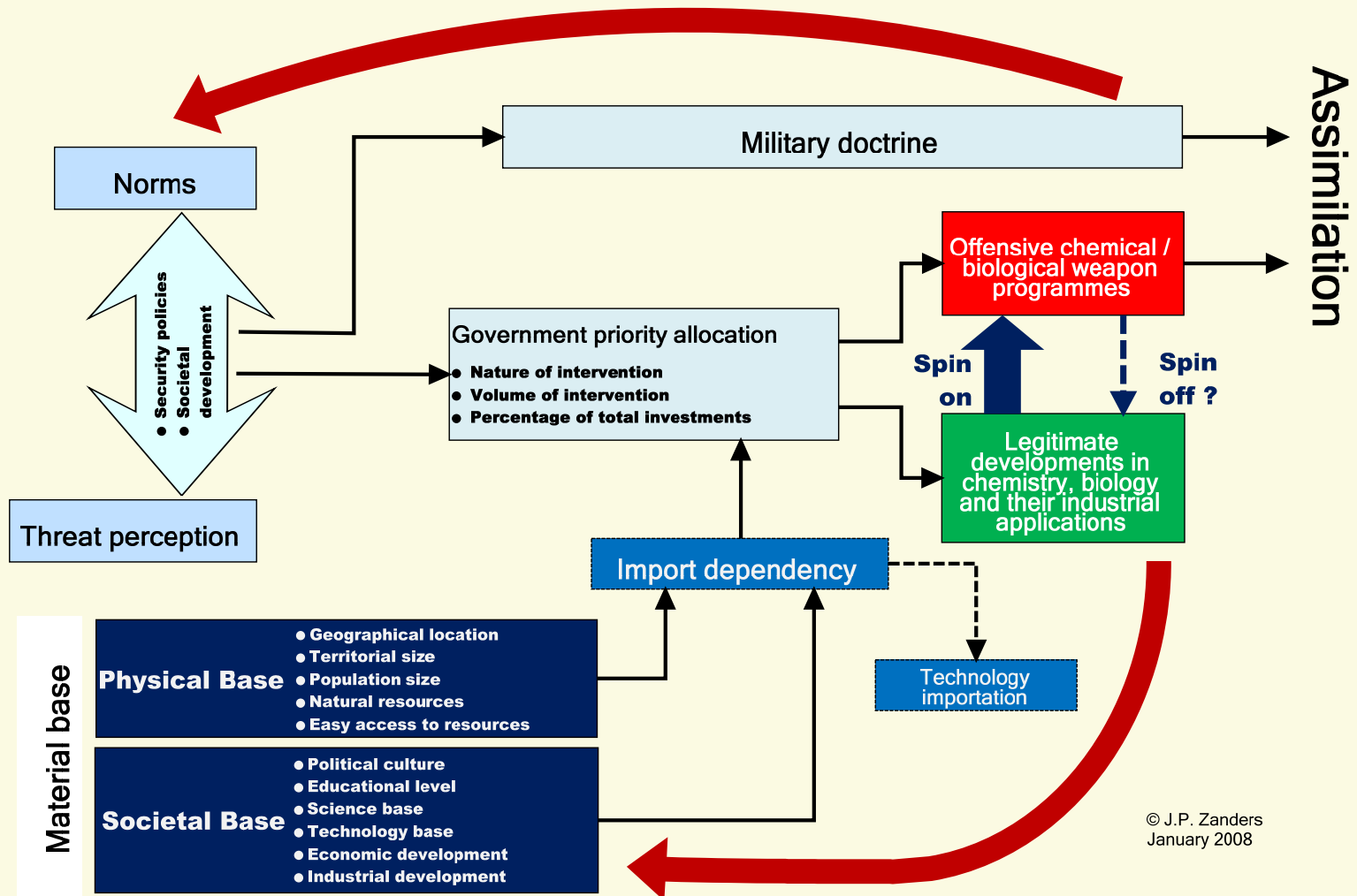
Role of the material base

- Critical to the demand-side understanding of proliferation
- Scarcities of certain resources
 - Certain natural resources
 - Insufficiently advanced educational base; technical skills
 - Insufficient R&D and industrial base
- Two basic options:
 - Develop the missing ingredients indigenously
 - Seek the missing ingredients abroad (legally or illegally)
- However, what about the physical base; time constraints?

Proliferation in assimilation model



Operationalizing the assimilation model



Conclusions - 1

- The model does not set out implicit or explicit criteria as prerequisites for its applicability
 - Magnitude of the armament programme, size of the organizational units involved, budgetary allocations, etc., are *methodologically* neutral variables
 - However, they do affect the ability to overcome impediments
- Ability to compare analogous armament dynamics in different types of political entities
 - Disparities in political and social organization of political entities are differences of degree rather than of substance
 - Decision processes are characterized by different weight of the impediments to be overcome
 - Obstacles present in one entity (cf. parliamentary and extra-parliamentary opposition in a democracy) may be absent in another (cf. dictatorship)
 - The degrees of difference between any two political entities would be reflected in different B' for any particular armament programme.

Conclusions - 2

- The model has no inherent determinism as a consequence of external, institutional or technological imperatives
 - Enables explanation of failure: if the (accumulated) opportunity cost to cross a particular hurdle proves too high, the dynamic will halt
 - Sources of failure may be varied, ranging from a major lack in the political entity's material base, over conflicting security policies (cf. disarmament treaty vs. military security) to lack of continued political commitment to the initial decision, leading to slowing down of the dynamic and eventual stagnation
 - The assimilation framework considers *negative decisions* or the *lack of decisions* to be as important as decisions stimulating the dynamic onwards

Conclusions - 3

- The assimilation model enables proliferation studies
 - Conclusions obtained from one political entity may serve as a starting block for the analysis of another
 - Promoters of the armament dynamic aim at keeping the aggregate opportunity costs as low as possible
 - Different times and different places will generate similar impediments, whose weight may differ from political entity to political entity or depend on the period under consideration
 - These differences will lead to varying opportunity costs being paid to overcome them, thus explaining the potentially different outcomes
- The indigenous development of a type of weapon is an expression of a particular level of industrial and technological development, which forms an integral part of the political entity's material base
 - Makes it possible to study two political entities at a similar level of development (combination of the synchronic and diachronic comparative analyses)
 - Lays foundation for the study of terrorist or criminal entities

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Week 5

Assimilation case study:

- The CBW armament dynamic inside a terrorist organization

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The CBW Threat Spectrum

- War scenarios
- Terrorism
- Criminal acts

- Consideration and availability of different chemical and biological agents
 - Depends on intent
 - Depends on availability
 - Depends on technical skills and structure of the organization

Case 1: Rajneesh Cult (BW)

- 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

Case 2: Aum Shinrikyo (CBW)

- Goal: Take over government of Japan
- Development of wide array of weaponry + large military force
 - CB agents intended to destabilize 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)
- Outcome: failure
 - Strategic goals never attained
 - Both sarin attacks were tactical operations to thwart threats against cult
 - BW programme never produced a usable agent, even on research level
 - Cult dismantled; leaders arrested and tried

Case 3: Anthrax letters (BW)

- Mail-delivered anthrax spores in September / October 2001 (USA)
- Perpetrator still unknown; agent presumed from US bio-defence laboratory
- 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 → maximize publicity
- Use of small amount of anthrax spores
 - Sophisticated preparation; could have been undertaken by a single person with access to right type of laboratory
 - 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 CBW Terrorism

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

Disadvantages of BW Terrorism

- 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)

Structure of the armament dynamic

- Goals
 - States: security policy and strategies
 - Terrorist organizations: ultimate political ambitions
- Guidance to achieve the goals
 - States: Doctrine, strategies and tactics
 - Terrorist organizations: operational guidance
- Instruments
 - Selection of weaponry
- Execution
 - Preparation for the use of weaponry according to doctrinal / operational guidance in support of the goals

Basic principles

- Any political entity (any type of state; terrorist organization) can be studied
- Each political entity is defined by a unique set of impediments
- Deficient or rudimentary development of either track
 - Will have major detrimental impact on assimilation
 - Less effectiveness of weapon (viewed in function of original goals)
 - Likely to reduce consequences of attack
- Study of the impediments reveals how a political entity structures its armament dynamic
 - Search for information regarding the impediment
 - Absence of data may be as relevant as presence of relevant data for the armament dynamic
 - Relevance and relative impact of impediments may be established through comparative studies

Determining the impediments

- Difficulty:
 - only three major cases, one of which gives very little information on goals
 - Aum Shinrikyo: relatively much is known
 - Rajneesh: limited goals; limited programme → good for contrast
 - Some 'loners': some information available
 - Danger of not being able to certify relevance of identified impediments and their role
- How to apply comparative studies?
 - Terrorist organization vs. terrorist organization
 - Terrorist organization vs. state
 - Apply 'black box' approach

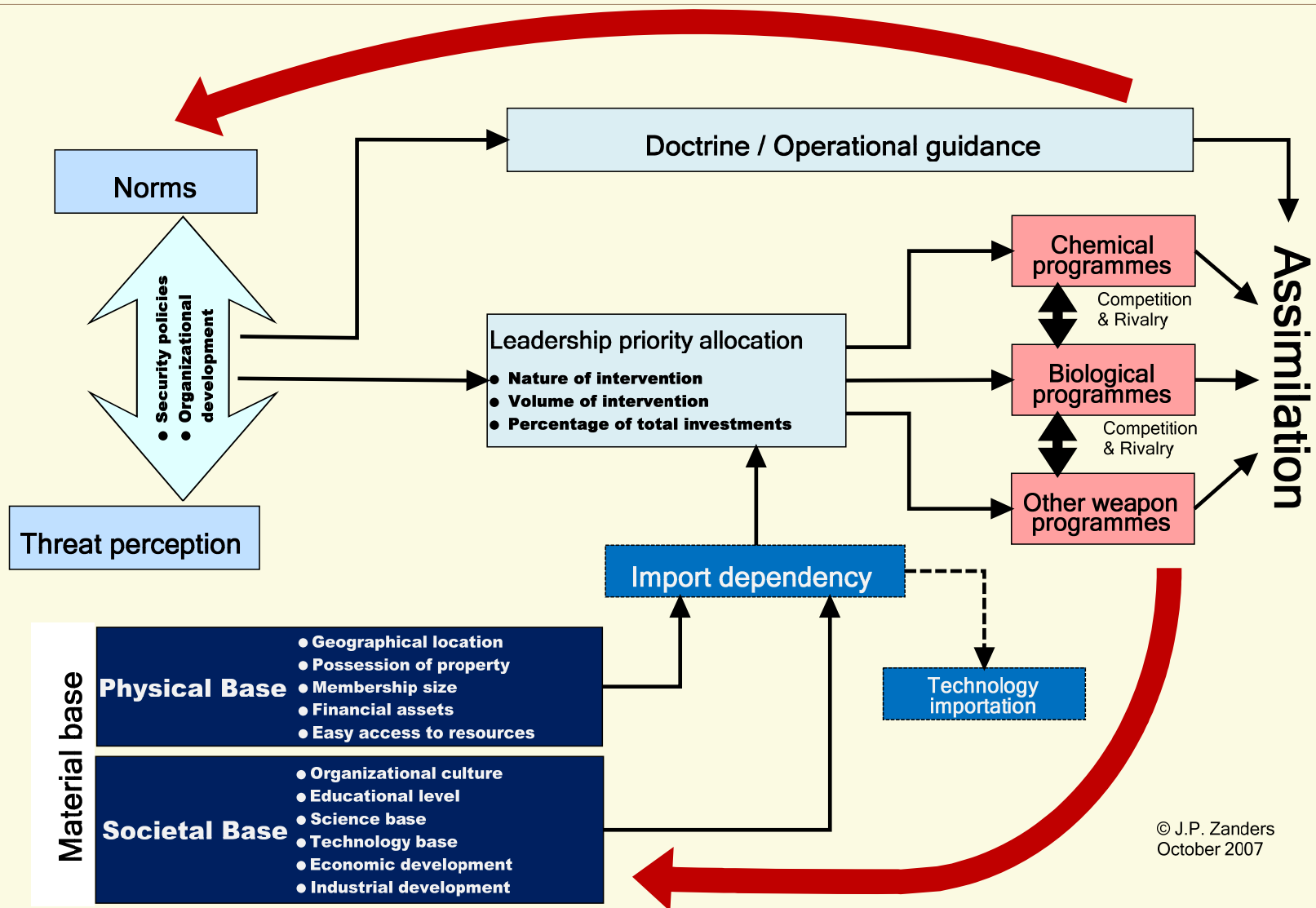
Contrasting two terrorist entities

- Is the more 'traditional' comparative analysis of similar entities
- Synchronic comparative analysis most relevant, revealing impediments relating to
 - Material base (both physical & societal)
 - Threat perception and behaviour
 - Aspects of internal decision-making relating to the armament dynamic
- However, very few case studies
 - Aum Shinrikyo & Rajneesh
 - Nonetheless, synchronic analysis can be applied with regard to other terrorist or criminal entities in order to assess the likelihood of them acquiring CBW

Terrorist organization vs. state

- This comparative analysis follows from lack major cases allowing study of armament dynamics in terrorist organizations
 - Need to validate assumptions and insights suggested by comparative analysis of terrorist organizations (particularly with regard to the reference organization)
 - It is possible because of basic conclusion that any two political entities can be contrasted
- Synchronic comparative analysis most relevant, revealing impediments regarding
 - Material base (both physical & societal)
 - Threat perception and behaviour
 - Mastering and managing stages of the armament dynamic
 - Aspects of internal decision-making relating to the armament dynamic
- The reference state is ideally one with a (previously) nascent CBW programme (e.g., Iraq, Libya)
 - Degree of import dependency for raw materials, expertise and equipment (proliferation dimension)
 - Technical difficulties
 - Threat perception and behaviour
 - Detailed descriptions of research and development, as well as upscaling of programme
- Detailed study of the society in which the terrorist organization is embedded is also necessary as it will reveal important characteristics of the societal base of the terrorist organization

The terrorist armament dynamic



Norms

- Error to assume that terrorist organization has no norms or values
 - Organization embedded in society that produced it
 - Certain values and norms will be deviant (reaction)
- Normative behaviour is correlated to goals
 - Does organization need broader societal appeal?
 - Which elements will be emphasized / suppressed?
- Norm-setting by leadership
 - Accepted by rank and file
 - Indoctrination / brainwashing techniques
 - Limited scope for questioning
 - Isolation from broader society
 - Low tolerance for dissidence (punishment; physical elimination)

Threat perceptions

- Threat perception is inherent in a terrorist organization
 - Lives in active conflict with surrounding society
 - Threat = existential
 - Law enforcement / military operation may lead to elimination of organization (no freedom from prosecution)
 - Possibility of competition from other organizations
 - 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 organizational development
 - How will the organization 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 process => increases threat perceptions
- 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 CBW armament dynamic
- 2 components
 - Physical base:
 - Relates to host society
 - Virtually impossible for terrorist organization to alter these factors
 - Move to different society
 - Set up branches in other societies
 - Options, however, have impact on organizational goals, local recruitment options, or ability to blend in society
 - Societal base:
 - Relates to terrorist organization 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 organization

Physical base

- Where is the organization located?
- Does it own property?
- Do cultural, educational, economic, scientific and technological characteristics of the host society promote the CB armament dynamic?
- Ease of member recruitment
 - Particularly regarding required skills
 - Skills cannot be (commercially) hired
 - Need to convince highly educated or trained individuals of organizational ideology (impact of functional specialization)
- 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 organization

Societal base

- Organizational 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 organization
 - Will depend on recruitment strategies
 - Consideration of specific skills required for armament dynamic & operational planning and execution of attacks (functional specialization)
- 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

- CBW armament dynamic does not exist for its own sake
 - What are the terrorist organization's strategic (top-level) goals?
- What instruments does it seek to acquire / develop in pursuit of those goals?
 - How does it mobilize 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
 - Chemical / Biological 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 biological 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 organizations, 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 organization
 - 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 chemical or biological 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 organize its forces to employ those weapons?
 - Force structures
 - Identification of specialized 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 (C/B 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

Organizing CB Terrorism for Mass Casualties

- Highly (vertically) integrated organization
- Skills required within organization
 - Cannot be hired
 - Specialists must be convinced of organization's ideology
- Functional specialization
 - 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

Alternative uses of C/B 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 specialization
- 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

Conclusions

- The possibility of a major terrorist chemical / biological strike 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 CBW acquisition process
- 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 specialization
 - Less destructive

Armament and Disarmament in a Changing Security Environment

Week 7

Disarmament as a security regime

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Defining the concepts

- Disarmament:
 - Reduction of levels of specified weapon categories to *zero*
 - Removal of the weapons category from military doctrine
 - Essentially requires international cooperation, although unilateral disarmament is possible
- Arms control (inc. arms reductions):
 - Management of levels of weapons within specified quantitative or qualitative boundaries
 - Weapon category retains (residual) value in military doctrine
 - Essentially requires international cooperation, although unilateral policies are possible

Evolution of concepts

- Restriction on the use of certain modes of warfare or types of weaponry
 - Basic principle: the means of injuring an enemy are not unlimited
 - Identification of categories of non-combatants
 - Identification of certain types of modes of warfare and weaponry that are indiscriminate, perfidious, or unnecessarily injurious
 - Exclusion of certain types of target (hospitals, ambulances, cultural heritage, etc.)
- Limitations on weaponry with the potential to destabilise international security relations
 - Impact of science, technology and industrialisation on war-fighting capabilities
 - Quantitative and qualitative limitations on certain types of weaponry
 - Introduction of transparency-enhancing mechanisms, including confidence-building measures (CBMs) and off-site and on-site verification.
 - Adoption of tools and procedures to communicate intent
- Prevention of the diffusion of certain weapon technologies
 - For fear of destabilisation on regional or global level
 - In support of existing arms control and disarmament agreements
 - Prevention of acquisition by non-state actors
 - Preservation of one's military advantage in a particular area

Evolution of restrictions

- Restrictions on the use of certain types of weaponry or modes of warfare (customs & laws of war; humanitarian law)
 - Unilateral declarations
 - On record since 3rd—4th Century BC
 - Bilateral agreements
 - Began to emerge after Treaty of Westphalia, 1648
 - Multilateral agreements
 - Particularly towards the end of the 19th century => Hague Peace Conferences of 1899 and 1907
- Arms control and disarmament law
 - Limitations imposed on a defeated enemy
 - Negotiated agreements between 2 or more states
 - May be applicable in peacetime (war prevention) and in war (escalation prevention)
- Non-proliferation policies
 - Treaty-based arrangements (NPT, IAEA, Euratom)
 - Informal arrangements (Australia Group, MTCR, Wassenaar)

Basic principles affecting the control of weapons and warfare

- Perception of the adversary as an equal partner
 - Membership of the same religious community
 - Perceptions of racial or cultural inferiority
 - Depersonalization of warfare
 - Emergence of the sovereign state (equal entities in a conflict)
 - Recognition of category of non-combatants
 - *Today*: issue of trans-national groupings, criminals and terrorists, as security actors
- Presence of competing legal doctrines
 - Perceptions of military necessity
 - Interpretation of humanitarian principles in war
 - *Today*: challenges to the Western vision of international law
- Distribution of technological capabilities
 - Codes of conduct, norms and rules often emerged among non-possessors.
 - Possessors of technology usually aware of advantage; few rules emerged from them
 - *Today*: certain non-possessors try to offset technological superiority of the dominant power(s)

Why arms control; why disarmament?

- Legitimacy of use of a weapon in war
 - CBW: basically delegitimized in 1925 (Geneva Protocol)
 - Nuclear weapons:
 - 5 possessor states
 - Advisory opinion of the International Court of Justice (1996)
 - Conventional weapons
 - ‘Inhumane weapons’
- Humanitarian arguments
 - Macro versus micro-level of appraisal
- Emergence of non-proliferation approach
 - Different perceptions of proliferation before and after World War 2
 - Relevance in areas where there is no total prohibition on weapons
- Impact of perception of technology
 - Value neutral => ‘use’ of technology needs to be controlled
 - Having impact on society => technology itself is viewed as problematic

Nature of arms control and disarmament agreements

- **Global (multilateral)**

Partial Test Ban Treaty (PTBT, 1963), Outer Space Treaty (1967), Non-Proliferation Treaty (NPT, 1968), Seabed Treaty (1971), Biological and Toxin Weapons Convention (BTWC, 1972), Moon and Other Celestial Bodies Agreement (1979), Chemical Weapons Convention (CWC, 1993), *Comprehensive Test Ban Treaty (CTBT, 1996), Mine Ban Convention (1997)

- **Regional (multilateral)**

Antarctic Treaty (1959), Conventional Armed Forces in Europe Treaty (CFE Treaty, 1990), Nuclear Weapon Free Zones: Tlatelolco (1967), Rarotonga (1985), Bangkok (1995), *Pelindaba (1996), *Semipalatinsk (2006)

- **Bilateral**

Anti-Ballistic Missile Treaty (ABM Treaty, 1972), Strategic Arms Limitation Treaty I (SALT I, 1972), *Strategic Arms Limitation Treaty II (SALT II, 1979), Intermediate Range Nuclear Forces Treaty (INF Treaty, 1987), Strategic Arms Reduction Treaty I (START I, 1991), Strategic Arms Reduction Treaty II (START II, 1993), Strategic Offensive Reductions Treaty (SORT, 2002)

Disarmament: the fundamentals

- Total elimination of a class of weapons; no residual capability
- Explicit decision to reverse an armament dynamic
- Security must be ensured through alternative, non-prohibited means
- Voluntary engagement
- Parties are committed individually to the treaty

Alternative, non-prohibited means

- Replace the prohibited weapon category by a non-prohibited one
 - Armament dynamic in another domain;
 - Adaptation of military doctrine
- Negative security guarantees (reinforced through verification)
 - Prohibition to possess (and use) the weapon
 - Obligation to eliminate weapons capability
 - Non-proliferation obligation
- Positive security guarantees
 - Emergency assistance in case of attack or threat
 - Defensive preparations (inc. international collaboration)
 - Technology exchanges
- Universality
- Diplomacy

Voluntary engagement

- Nobody can force a state to become party to a disarmament treaty
 - Problem of Iraq and the 1972 BTWC under UNSC Resolution 687 (1991)
 - Now more of an academic question
- A party to a disarmament treaty cedes part of its sovereign decision-making ability relating to national security
 - Voluntary limitation of the self-help principle
 - However, sovereign decision on this limitation
 - If required, allows inspections on its territory

Individual treaty commitment

- Early international agreements limiting the use of weapons were void as soon as one party broke the *contract*
- In modern disarmament treaties, parties must abide by the obligations ‘always, under any circumstances’
 - Obligations stand even if another party breaks its commitments
 - No (re)armament in case of threat or use of the prohibited weapon
 - No symmetrical deterrence
 - Valid in peace and war

Core components

- Prohibitions on
 - Possession and acquisition
 - Use (directly or indirectly)
 - Proliferation
- Verification regime
 - National technical means
 - Confidence-building measures
 - International organization / National authorities
 - Reporting
 - On-site inspections and monitoring
- Conflict resolution mechanisms
- Emergency assistance
- ‘Non-security’ clauses (cooperation)

The disarmament treaty as a security regime

- Creates a framework for international cooperation in the field of military security
- States develop patterns of expectations and behaviour
- Behaviour and intentions become more transparent through the verification regime
- Compliance concerns are resolved via diplomacy and consultations

Expectations from a disarmament treaty

- Increase in security
- At a minimum: no increase of insecurity
- Tangible benefits
- Removal of direct threat (if present)
 - International cooperation
 - Right of access to treaty-relevant technologies
 - Enhanced trade opportunities

Old weapons, new threats

- New security actors
 - Criminals, terrorists with potential interest in BCNR materials
 - Existing treaties require re-interpretation by states parties to make them relevant to those new challenges
- Difficult area for the UN
 - Does not involve the governance of inter-state behaviour
 - Emphasis on *national* implementation of existing treaties controlling particular weapon categories through treaty review conferences by states parties with UN support
 - UN Security Council Resolutions relating to terrorism
 - E.g., UNSC 1540 (2004)
 - Advantage: applies certain treaty obligations to *all* states
 - However, danger of UNSC interfering in domestic legislative processes
 - Enforcement of resolutions may be difficult
- Development of UN Secretary-General mechanisms to deal with allegations of use of certain proscribed weapons

Armament and Disarmament in a Changing Security Environment

Week 8

Disarmament: The role of functional equivalence

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Disarmament and gains

- Absolute and relative gain consequences
- Removal of all *relative gains in terms of the function of the weapon category* under consideration

Functional equivalence

Functional equivalence of a particular class of weaponry between two or more political entities is attained when these political entities assign this class of weaponry a similar function in their respective military doctrines.

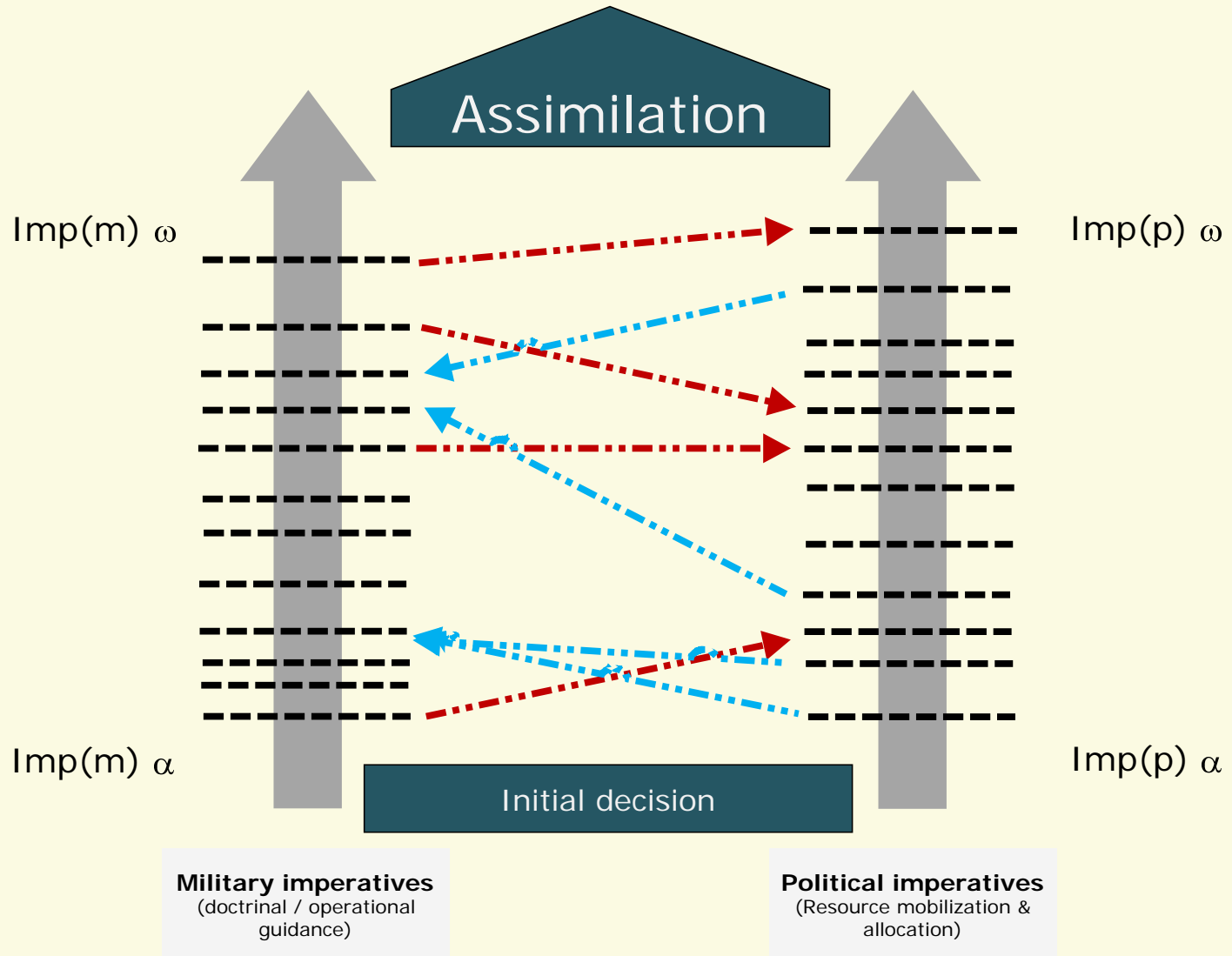
Impact of functional equivalence

- Weaponry in functional equivalence is characterized by the fact that any change in its constitution in one political entity would be countered by a similar change in an adversarial political entity
 - Otherwise: relative gain for first political entity
- Conversely, changes in the constitution of weaponry not in functional equivalence in one political entity would elicit an asymmetrical (in terms of the weapon category) or no response from an adversary
- A class of weaponry in functional equivalence between the major political entities concerned can be factored out as a security issue

Achievement of functional equivalence

- The condition is achieved via the domestic processes of armament in two or more countries
- Assimilation model:
 - *Political track*: implementation of the initial decision to have a particular weapon
 - *Military track*: formulation and implementation of mainstream military doctrine
 - *Assimilation*: reconciliation of political and military imperatives regarding the proposed weapon

Dual decision-making tracks



Principal routes to FE – 1

- Purposeful deployment
 - A particular class of weapons can be introduced for the explicit purpose of countering a particular deployment by the adversary side
- Example:
 - NATO's INF deployment in the 1980s

Principal routes to FE – 2

- Function shift
 - Weapon systems can acquire different doctrinal functions, thus prolonging their operational life
 - E.g., following introduction of new weapon with similar doctrinal function
 - An (unintentional) outcome of assimilation
 - The political, bureaucratic, economic, technological and military pressures which led to the integration of a weapon system into mainstream military doctrine must continue to operate to maintain such integration (e.g., via sub-optimization or follow-on imperative)
- Function specialization
 - a weapon system is assigned to or adapted for more narrowly defined missions
 - E.g., chemical weapons in US military doctrine after 1945

Importance of FE for disarmament

- Necessary catalyst if the security environment is conducive to arms control or disarmament
- Enables the isolation of a security issue
- Creates the context for an absolute gain, enabling cooperation
 - States will respond to attempts to change the status quo with respect to the weaponry under consideration
 - This increases the opportunity costs for all to maintain the increased capability

Manifestation of FE

- Irrelevance
- Non-existence
- Presence

- Formalized condition of functional equivalence

Irrelevance of FE

- The weaponry under consideration does not enter the security equation because no state possesses it or fears its use.
- No significant gains
- However, no losses either
- Importance of non-security clauses in arms control and disarmament treaties

Non-existence of FE

- Weaponry enters security equation
 - Only some political entities possess it
 - Adversaries assigned it a different function in their respective military doctrines
- Relative gains calculations; fear of relative losses
- Impossibility to isolate the weaponry as a security issue
- Preconditions for arms control or disarmament do not materialize

Presence of FE

- Ability to isolate the weaponry as a security issue
- No further relative gains *in terms of the function of the weaponry* is possible
- All parties can obtain absolute gains through cooperation in arms control or disarmament
- Security environment must be conducive to such cooperation

Formalized condition of FE

- Uncertainty about the presence of the weapons category
- Uncertainty about the doctrinal function of such weapons
- A subset of states can conclude a formal agreement renouncing use, possession and acquisition of these weapons
- Risks for joining the arms control or disarmament treaty is equal for all

Armament and Disarmament in a Changing Security Environment

Week 9

Functional equivalence and its effects on armament and disarmament

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Functional equivalence

Functional equivalence of a particular class of weaponry between two or more political entities is attained when these political entities assign this class of weaponry a similar function in their respective military doctrines.

Disarmament and gains

- Absolute and relative gain consequences
- A disarmament treaty removes all *relative gains in terms of the function of the weapon category* under consideration

Effect of a disarmament treaty

- Condition of presence → irrelevance
 - Weapon no longer part of security equation
 - (*Arms control: existence → existence!*)
- Condition of irrelevance → irrelevance
 - Weapon not part of the security equations
 - Importance of non-security clauses
- Condition of non-existence → non-existence
 - Hence importance of *positive* security guarantees if a state joins nonetheless
- Formalized functional equivalence
 - Formal acceptance of presence → irrelevance

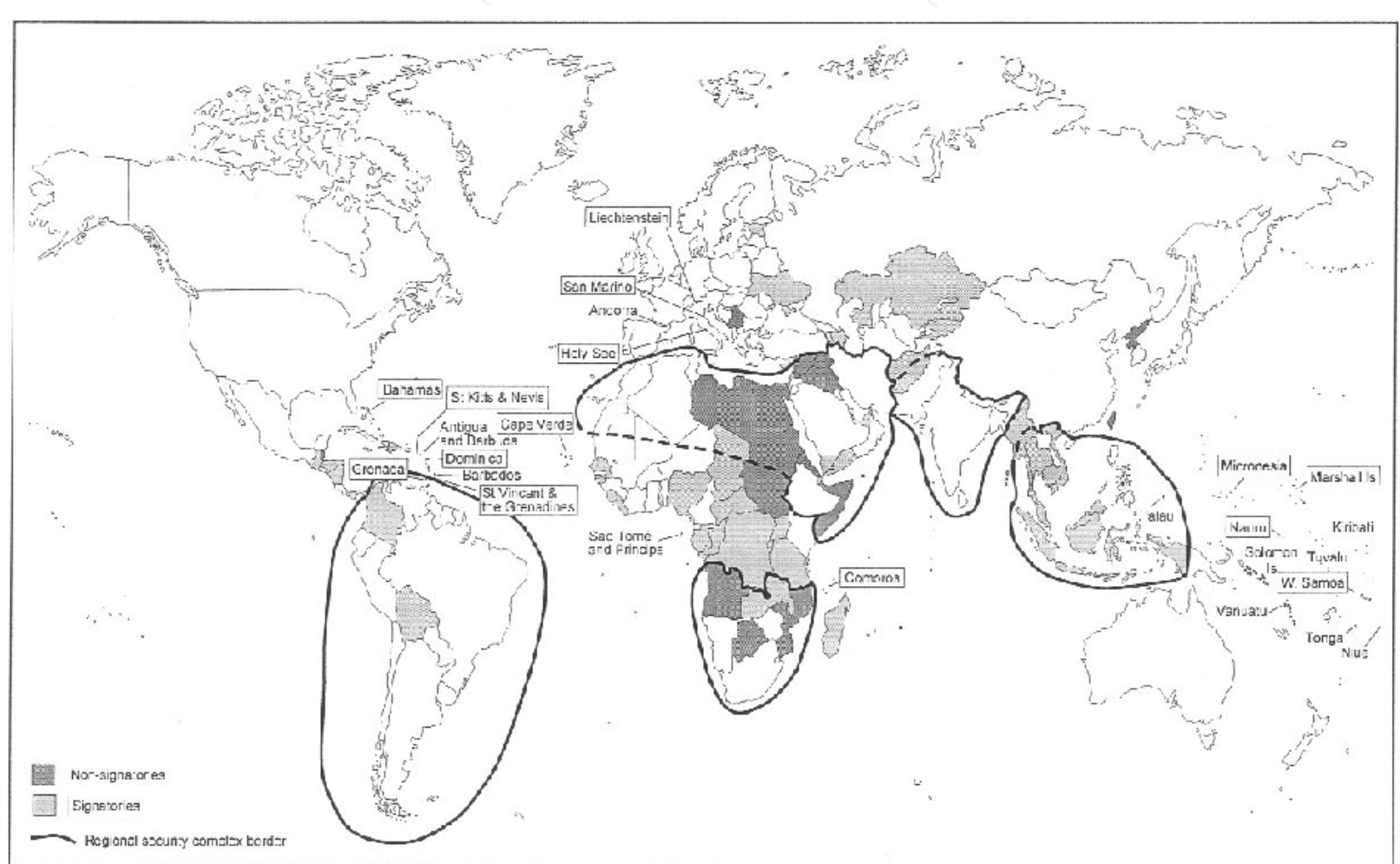
Long-term implications

- The existence of functional equivalence may be transitional
- Changes in the international security environment may occasion a shift from the condition of presence to non-existence
- Such a shift will place a great strain on existing arms control and disarmament treaties
 - New opportunities for relative gains or new fears of relative losses
 - E.g., BTWC, ABM treaty

Regional security perspective

- Global disarmament treaty views all states as equal units
- Regional security interactions may be very intensive
 - Greater relative security concerns
- Complex calculations about the regional and local security impact of a global disarmament treaty
- Absence of functional equivalence: importance of non-security clauses to achieve universality

Disarmament and regional security complexes



Map 2: Regional security complexes and CWC non-signatory and non-ratifying signatory states (as of 1 June 1998)
(Based on: Buzan, B., *People, States & Fear*, 1991)

Preliminary conclusions

- Armament and international relations theory linked
- The impact of the armament process on the international environment
- The impact of the international environment on the armament process

Armament and Disarmament in a Changing Security Environment

Week 10

The development of the BTWC treaty regime:
a case study of changing security expectations

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The BTWC

- Negotiation: 1969-71
 - Opening for signature: 1972
 - Entry into force: 26 March 1975

 - Global membership (March 2008):
 - States parties: 161

 - Signatory states: 14
 - Non-signatory states: 20
- 34 non-states parties**

Regional breakdown

- **(Sub-Saharan) Africa**

- State Parties: 31
- *Signatory States:* 7
- *Non-signatory States:* 10

- **Asia and Pacific Region**

- State Parties: 38
- *Signatory States:* 2
- *Non-signatory States:* 8

- **Europe**

- State Parties: 44
- Signatory States: 0
- *Non-signatory States:* 1

- **Latin America and Caribbean**

- State Parties: 31
- *Signatory States:* 2
- Non-signatory States: 0

- **Middle East**

- State Parties: 15
- *Signatory States:* 3
- *Non-signatory States:* 2

- **North America**

- State Parties: 2
- Signatory States: 0
- Non-signatory States: 0

The Biological and Toxin Weapons Convention

- **Disarmament treaty**
 - Biological and toxin weapons cannot be developed, produced, or stockpiled, or otherwise acquired or retained (Art. I)
 - Ban on use through reference to 1925 Geneva Protocol
 - Confirmation of ban on use at 4th Review Conference in 1996
 - Destruction or conversion obligation (Art. II)
 - Non-proliferation obligation (Art. III):
 - No transfer to any recipient (state or non-state actor) of BTW
 - No assistance, encouragement or inducement of states, groups of states or international organizations to acquire BTW
- **Security regime**
 - Opportunities for international cooperation in the fields of protection, prophylaxis, and other peaceful purposes (Art. I & X)
 - Right to request international assistance in case of BTW threat or treaty violation (Art. VII)
 - Consultation and complaints procedures (Art. V & VI)
 - Unlimited duration (Article XIII)
- **Development regime**
 - Possibilities for economic development and scientific and technological exchanges in support of peaceful purposes (Art. X)
 - Opportunities for bilateral cooperation or interregional initiatives

Intrinsic strengths

- Scope of the prohibition
 - General purpose criterion
 - Disarmament; ban on future (re-)armament; non-proliferation
- Unlimited duration
- Universality goal
- Non-security clause
- Right to develop defence and protection against BW attack or threat & to request and receive assistance
- Process of Review Conferences

Intrinsic weaknesses

- Lack of verification provisions
- Weak compliance monitoring and enforcement provisions
- No tools to investigate unnatural outbreaks of disease
- Vagueness of ‘other peaceful purposes’ in GPC
- Right to develop defence and protection against BW attack or threat

Strengthening the regime

- Review conferences
- VEREX
- Ad Hoc Group
- Intersessional processes
- National measures

Review conferences

- Practice: every 5 years
 - Sixth RevCon: 20 November – 8 December 2006
 - Seventh RevCon: 2011
- Goals:
 - Confirmation of the relevance of the norm and reinterpretation of the scope of the norm in function of technological and political developments
 - Assessment of compliance with the norm
 - Procedural developments to improve compliance monitoring and transparency, the resolution of compliance concerns, and to develop common understandings of the treaty provisions

Supplementing the treaty

- VEREX
 - 4 meetings (March 1992 – September 1993)
 - Identification of 21 possible measures for off- and on-site verification
 - Special conference in September 1994
- Ad Hoc Group
 - 1995-2001
 - Negotiation of a draft protocol text
 - Failure in 2001
 - Resumption of any type of negotiation of a verification regime unlikely in foreseeable future

The intersessional process

- Failure of the Ad Hoc Group + 5th RevCon
- Attempt to preserve the RevCon process
 - Method to secure US participation
 - Failure in 2006 may mean end of the RevCon process
- Process:
 - Annual meetings of BTWC states parties
 - Preceded by 2-week expert meetings
- Substance
 - 2003: national implementation + pathogen safety
 - 2004: alleged use of BW + disease surveillance
 - 2005: codes of conduct for scientists

The intersessional process II

- 6th RevCon: limited outcome, but no failure
 - Comprehensive review of the BTWC (first since 1996)
 - Implementation Support Unit (ISU)
 - Emphasis on universalization and national implementation
 - Second intersessional work programme for 2007-2010
- Substance of the 2nd intersessional process
 - 2007:
 - Ways and means to enhance national implementation, including enforcement of national legislation, strengthening of national institutions and coordination among national law enforcement institutions
 - Regional and sub-regional cooperation on BWC implementation
 - 2008:
 - National, regional and international measures to improve biosafety and biosecurity, including laboratory safety and security of pathogens and toxins
 - Oversight, education, awareness raising, and adoption and/or development of codes of conduct with the aim to prevent misuse in the context of advances in bio-science and bio-technology research with the potential of use for purposes prohibited by the Convention
 - 2009:
 - With a view to enhancing international cooperation, assistance and exchange in biological sciences and technology for peaceful purposes, promoting capacity building in the fields of disease surveillance, detection, diagnosis, and containment of infectious diseases: (1) for States Parties in need of assistance, identifying requirements and requests for capacity enhancement, and (2) from States Parties in a position to do so, and international organizations, opportunities for providing assistance related to these fields
 - 2010:
 - Provision of assistance and coordination with relevant organizations upon request by any State Party in the case of alleged use of biological or toxin weapons, including improving national capabilities for disease surveillance, detection and diagnosis and public health systems

Challenges to the BTWC

- Geopolitical challenges
- Changes in the security environment
- Developments in science and technology
- New security actors
- Ideological challenges

Geopolitical challenges

- End of the cold war
 - More hot wars
 - Greater willingness to intervene in conflicts
 - Greater risk of confrontation with states of BW proliferation concern
- Multi- or unipolar global system
 - Shifts in security expectations from the BTWC
 - Shifts in expectations from the non-security provisions

Changes in security environment

- Shift from disarmament to non-proliferation paradigm
- New information about old BW programmes
 - USSR / Russia
 - Iraq
- End negotiation and entry into force of the CWC
- Perception of new vulnerabilities after 9/11

Developments in science and technology

- Early 1970s: emergence of recombinant DNA technology, leading into the biotechnology revolution in the 1980s
- Industrial revolution based on biotechnology
 - Emergence of young industries
 - Resistance to control (inspections) is high
- Major progress in understanding of pathogen behaviour
 - Expectation of controllability of disease propagation
 - Fear of ‘designer weapons’
- Diffusion of knowledge and processes across the planet
 - Fear of weapon proliferation
 - Knowledge and skills come in grasp of more individuals
 - Fear drives bio-defence programmes
- Economic imperative in security discourse
 - Competitive edge in economy and technology development must be preserved

New security actors

- Terrorists
- Criminals
- Transnational companies

- BTWC governs state behaviour
- Impact on verification requirements

Ideological challenges

- Multilateral versus unilateral / plurilateral security
- Pessimistic vision on human nature
- Confrontation based on unilateral, moralistic principles
- Impact on types of security arrangements
 - Coalition of the willing
 - Counter-proliferation and military pre-emption
 - Export controls
 - Instant national measures instead of greater longer-term security benefits for larger numbers of beneficiaries

Shifting functional equivalence

- Shift in the manifestation of FE
 - With regard to technology development
 - With regard to the (future?) place of BW in the security equation
 - With regard to absolute gain expectations
- Impact on the preconditions for disarmament (conducive environment)
- Immediate future is bleak for multilateral negotiations to strengthen the BTWC

Armament and Disarmament in a Changing Security Environment

Week 11

Challenges to the future of arms control and disarmament

Jean Pascal Zanders
IHEID

Role of the UN in arms control and disarmament

- UN Charter, Article 11, 1

The General Assembly may consider the general principles of co-operation in the *maintenance of international peace and security*, including the principles governing *disarmament and the regulation of armaments*, and may make recommendations with regard to such principles to the Members or to the Security Council or to both.

- Conference on Disarmament (CD)

- Established in 1961 as the 18-Nation Committee on Disarmament
- Meets in Geneva
- No agreement on new issues for the agenda
 - Fissile Material Cut-off Treaty negotiations blocked since 1995

- Focus on global, multilateral treaties

- Weapon categories that are seen to be particularly destabilising or inhumane
- Much of current activities relates to review conferences of existing treaties
=> building the treaty regime

The bipolar world

- Global security dominated by the rivalry between the USA and the USSR + respective allies
 - Strong domestic pressures and pressures in allies to reduce risks of war
 - Limitations on armaments was an important aspect of enhancing stability
 - Interest in primarily in arms limitation and reductions
 - Bilateral, regional and global negotiations
- States outside the East-West confrontation
 - Feared the consequences of major war between East & West
 - Realisation that armaments consumed resources that could not be used for development
 - Primary interest in global arms control and disarmament and application of resources savings to development and assistance
 - Development of regional initiatives to prevent the deployment of (nuclear) weapons
 - Pressure on the superpowers and their allies via resolutions in the UN General Assembly

Unipolar, multipolar world

- Dominance of the United States as global actor
 - Few incentives for the USA to reduce armaments
 - Second-tier powers seek to offset US dominance
 - Challenges to the US position by emergence of China and re-emergence of Russia => new pressures for armament
- Predominance of regional security
 - Power realignment in many regions
 - Not conducive to (global) arms control & disarmament
- Most of the arms control / disarmament dynamics are understood in the (bi-polar) cold war security context; the understanding of their contribution in a uni- or multipolar world is still poor
- Shift to unilateral / plurilateral measures (e.g., non- and counter-proliferation)

Evolution of negotiations

- Arms control and disarmament became very technical
 - Verification: weapons control began to reach deep into civil society (e.g., chemical and biotechnological industry; scientific research)
 - Started to have serious implications for economic and scientific competition between states
- With the end of the cold war, the security imperative disappeared and economic considerations began to dominate the negotiations
- Return to humanitarian issues (landmines, small arms, cluster munitions, etc.)

New security actors

- Intent on harm
 - Criminals & terrorists
 - Have potential interest in CBRN materials
- Economic imperatives have replaced security imperatives
 - Sub-state economic units.
 - Industry, shipping agencies, etc.
 - Research institutes
 - Researchers, students, etc.
 - Transnational economic units
 - Multi-national corporations
 - State (agencies)
 - International organisations

UN role in prevention of harm

- New security actors are difficult area for the UN
 - Does not involve the governance of inter-state behaviour
 - Emphasis on *national* implementation of existing treaties controlling particular weapon categories through treaty review conferences by states parties with UN support
 - UN Security Council Resolutions relating to terrorism
 - E.g., UNSC 1540 (2004)
 - Advantage: applies certain treaty obligations to *all* states
 - However, danger of UNSC interfering in domestic legislative processes
 - Enforcement of resolutions may be difficult
- Development of UN Secretary-General mechanisms to deal with allegations of use of certain proscribed weapons

Technological challenges to future arms control and disarmament

- Tangible objects
 - Pathogens
 - Laboratory equipment
 - Fermentors,
 - etc.
- Intangibles
 - Data
 - Processes
 - Knowledge
 - Expertise
- Transfer types
 - Across borders between different economic units
 - Across borders within the same economic unit (e.g., intranet)
 - Between economic units inside state borders
- Challenges to future verification designs

Conclusions

- Many of the key preconditions for arms control and disarmament do not appear to be present today
 - Global level
 - Bilateral level
- Many of the security interactions appear to take place on the regional level
 - Arms control and disarmament may make the greatest sense on this level today
 - Primary focus on transparency and confidence building
 - Arms reductions may come at later stage (except in cases of precluding their introduction into the region)
- Role of the UN may be limited, but useful contributions can be made:
 - Support of regional initiatives and processes
 - Support of processes to strengthen the regimes of existing treaties (e.g., review conferences)
 - Develop activities that contribute to the emergence of the right preconditions for arms control and disarmament