

*Planetary Defense
in the Context of Current Approaches to
Societal Security*

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Competing concepts of security

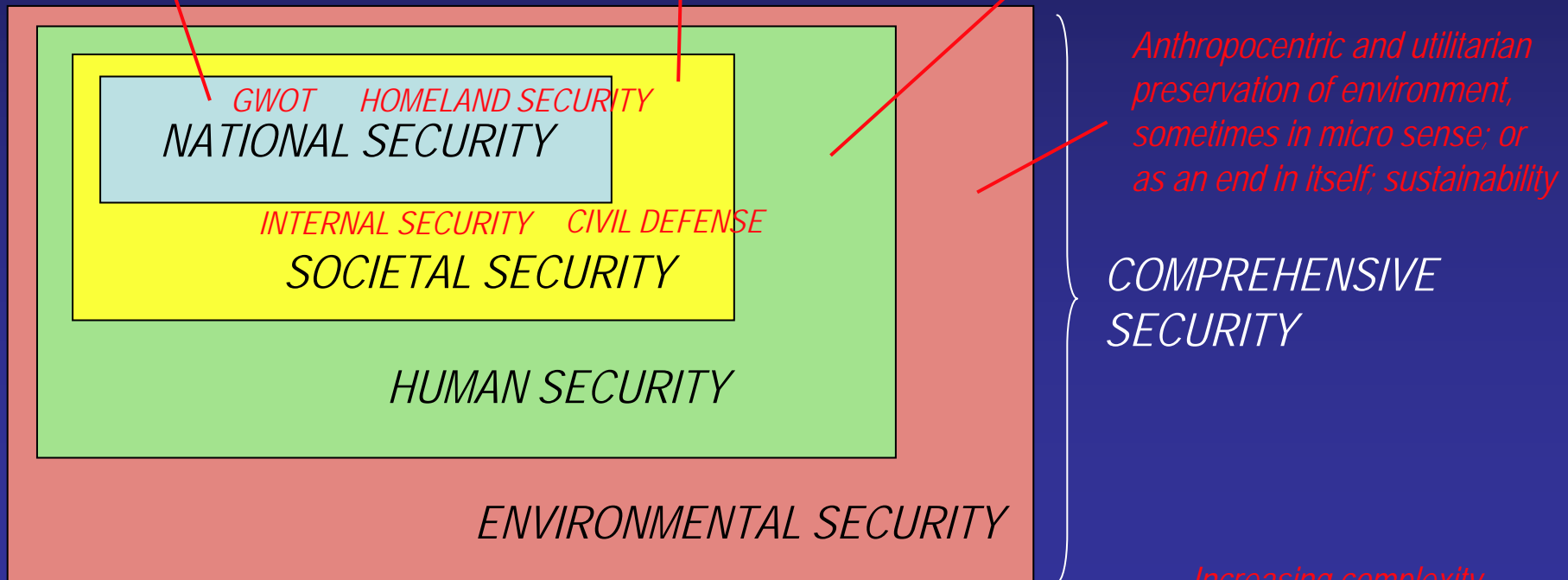
- *Multiple categorizations in literature based on professional lenses, cultural predilections, and politics*
 - *Different lower-order slices of high-order problem space*
 - *Powerpoint-effect: linear disaggregations cannot adequately represent complex dynamic problems*
 - *Many implicit valuational assumptions*
- *Where does, or should, planetary defense fit in?*

Tangled conceptions lead to tangled security policies

Dominant paradigm in US: "war on X", "warfighter", "warrior"

European concept, avoids negative connotations of "homeland"; confusing since sometimes term used to reflect ethnic rather than state security

Preservation of cultural values, forms of government, freedoms, human rights; but sometimes, individual rather than collective human life



The US case: "Homeland Security"

- *War paradigm leads to war-analogs*
 - *Doctrine can easily be confused with policy*
- *Homeland Security Presidential Directives (HSPD 1-18 so far) along lines of National Security Presidential Directives (NSPDs)*
 - *HSPDs generally focus on terrorism*
- *US National Strategy for Homeland Security, 7/02*
 - *In text, 522 instances of "terror" but only 26 of "disaster"*
- *National Planning Scenarios (the "HSC-15")*
 - *12 terror scenarios, 1 disease scenario, 2 natural disasters (hurricane and earthquake)*

Homeland Security Presidential Directives

- 1 *Organization and Operation of the Homeland Security Council*
- 2 *Combating Terrorism Through Immigration Policies*
- 3 *Homeland Security Advisory System*
- 4 *[National Strategy to Combat Weapons of Mass Destruction]*
- 5 *Management of Domestic Incidents (Initial National Response Plan)*
- 6 *Integration and Use of Screening Information*
- 7 *Critical Infrastructure Identification, Prioritization, and Protection*
- 8 *National Preparedness*
- 9 *Defense of United States Agriculture and Food*
- 10 *Biodefense for the 21st Century*
- 11 *Comprehensive Terrorist-Related Screening Procedures*
- 12 *Policy for a Common Identification Standard for Federal Employees and Contractors*
- 13 *Maritime Security Policy*
- 14 *Domestic Nuclear Detection*
- 15 *[on the war on terrorism]*
- 16 *[on aviation security and threats to commercial aircraft]*
- 18 *Medical Countermeasures Against Weapons of Mass Destruction*

National Planning Scenarios

- 1 Nuclear detonation - 10 kiloton improvised nuclear device*
- 2 Biological attack - aerosol anthrax*
- 3 Biological disease outbreak - pandemic influenza*
- 4 Biological attack - plague*
- 5 Chemical attack - blister agent*
- 6 Chemical attack - toxic industrial chemicals*
- 7 Chemical attack - nerve agent*
- 8 Chemical attack - chlorine tank explosion*
- 9 Natural disaster - major earthquake*
- 10 Natural disaster - major hurricane*
- 11 Radiological attack - radiological dispersal devices*
- 12 Explosives attack - bombing using improvised explosive device*
- 13 Biological attack - food contamination*
- 14 Biological attack - foreign animal disease (foot and mouth disease)*
- 15 Cyber attack*

Planetary Defense and Homeland Security

- *Risks assessed on expected value basis*
 - *Probability times effect, or threat x vulnerability x consequence*
- *Resource allocation structured around very limited number of scenarios*
 - *Scenarios problematic for low probability - high consequence threats*
- *Planetary impact has low annual expected value of loss to US*
- *Cosmic impactor unlikely to be a terror weapon of choice so will likely never merit a scenario*
 - *"Space Weapons, Earth Wars", RAND, 2002*

Planetary Defense and Environmental Security

- *Most analyses of costs and benefits of planetary defense arrive at annualized expected value of monetized death and damage*
 - *Ironically, progress in quantifying impact probabilities puts planetary defense at disadvantage with respect to terror defense, where probabilities are unknown if not unknowable*
- *In expanding scope of Spaceguard Survey to smaller size targets, relevant impact frequencies rise but environmental effects and existential nature of threat are diminished (“Armageddon is nonlinear”)*
 - *Ironically, this reduces likelihood of planetary defense becoming a mainstream environmental security issue in Europe or in the US (in event of political shift)*

Conclusions

- *Planetary defense will never become a US Homeland Security issue, ex ante*
 - *Ex post, there will be nothing particularly unique about DHS consequence management (one US city has been effectively lost already)*
- *PD is unlikely to become an international environmental security issue*
 - *To the degree that the threat is portrayed as shifting to smaller impactors*
 - *Don't forget Spaceguard residual and LP comets*
- *Shifting from a "PD is a serendipitous science spin-off" to a "PD is a public safety problem" tack may be perilous*