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Weapons of Mass Destruction and Arms Control in the Middle East

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Part One

The Unstable Climate of Current Proliferation Efforts

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Proliferation is Already Here:

Middle Eastern Case Studies in Creeping Proliferation

- **Israel relies on nuclear weapons, deterrence, and "soft strike" preemption.**
- **Iran has chemical and probably biological weapons, nuclear effort continues.**
- **Iraq's massive pre-Gulf War efforts give it a major "break out" effort the moment containment efforts cease and may give a major biological break out capability even with such efforts.**
- **Syria has significant chemical warfare capabilities and will soon acquire significant biological capabilities -- if it does not have them.**
- **Libyan chemical effort continues.**
- **Algerian and Egyptian efforts uncertain.**
- **Saudi Arabia is studying options as a result of its CSS-2 replacement planning.**
- **Terrorists, extremists, and "proxies" may also acquire such capabilities.**

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The Current Track: Reasons for Proliferating Outweigh Perceived Risks

- **Prestige**
- **Deterrence**
- **War fighting**
- **Lessons of Iran-Iraq War and Gulf War: Missiles and weapons of mass destruction have been used against military and civilian targets.**
- **Arms race with neighbors: Algeria-Libya-Morocco, Egypt-Israel-Syria, Iran-Iraq-Southern Gulf.**
- **Inability to know the future enemy, characterize risk.**
- **The "greater Middle East" -- growing overlap of arms races listed above, plus impact of North Korea and India-Pakistan arms race.**
- **Deterrence and safeguards: No way to know the scale of the efforts of key threats and other major regional actors.**
- **Intimidation**
- **Alternative to expensive conventional investments**
- **Compensate for conventional weakness and cost of conventional weapons.**
- **"Glitter Factor"**
- **Limit or attack US and other outside power projection options**
- **Create existential threat**
- **Force arms control; react to absence of meaningful arms control regimes.**
- **Momentum of arms race/respond to proliferation elsewhere**
- **State, proxy, or private terrorism.**
- **Exploit lack of effective civil and critical facility defense and anti-tactical ballistic missile defense capabilities.**

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Unstable Possible Combinations of Adversaries

- **Iran versus Iraq**
- **Iraq versus Southern Gulf, US, and/or Israel**
- **Israel versus Syria**
- **Iran versus Southern Gulf, US, and/or Israel**
- **Libyan and Algerian wild cards**
- **Vestigial Yemeni use of gas**
- **Saudi Arabia joins the club in reaction to Iranian and Iraqi proliferation, changing the nature of war fighting involving the Southern Gulf.**
- **The US extends deterrence, compellance, and/or retaliation in reaction to an attack on an Arab ally or Israel.**
- **Egypt joins the club after arms control efforts fail, and finds itself involved against Iraq or dragged into confrontation with Israel.**

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A Wide Range of War Fighting Options that Go Far Beyond Missile Attacks

- **Covert-indirect, unconventional warfare, "terrorism"**
- **Surprise attack to support conventional war fighting**
- **Avoid conventional defeat**
- **Pose political threat - intimidation**
- **Regional Deterrence - threatened or illustrative use**
- **Attack power projection facilities**
- **Counterproliferation**
- **Extended deterrence**
- **Controlled escalation ladder**
- **Asymmetric escalation/escalation dominance**
- **"Firebreaks"**
- **Launch on warning/launch under attack**
- **Seek to force conflict termination**
- **Destroy enemy as state**
- **Martyrdom**
- **Alter strategic nature of conflict**

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Unstable Patterns of War Fighting and Escalation

- **Arms race is multipolar and cuts across subregions, making it difficult to contain the scope of conflicts.**
- **Technologies are new and there is little or no combat experience; operations research and exercises are difficult.**
- **Acquisition does not mean war planning; policy statements do not mean war planning, doctrine does not mean war planning.**
- **Lies, denial, and covert efforts make it extremely difficult to predict opposing force and enemy actions.**
- **Impossible to predict ride out capability and survival o0f retaliatory forces in many cases, possible "use or lose" reaction.**
- **War fighting concepts are likely to lack clear structure and be highly volatile in terms of enemy, targets, and crisis behavior.**
  - **Only a few leadership and military elites -- such as Egypt and Israel -- have shown a concern with highly structured strategic planning in the past.**
  - **Iran-Iraq and Gulf Wars have demonstrated missiles and weapons of mass destruction will be used, and that escalation can be unpredictable.**
  - **Israeli actions in 1967 and attack on Osirak, Egyptian and Syrian attack on Israel in 1973, demonstrate regional focus on surprise and preemption.**
  - **Iraq has already demonstrated regional concern with launch on warning, launch under attack options. Syria probably has some option of this kind.**
- **Concentration of population and leadership in single or a few urban areas makes existential attacks possible and attractive.**
- **Covert, terrorist, and proxy attacks are increasingly possible, particularly using biological weapons.**

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Major Uncertainties

- **Who is the enemy, the ally, the enemy's ally?**
- **Uncertain weapons accuracy, reliability, and effectiveness: The CEP problem, the weapons effect problem**
- **Probable lack of full operational testing for all weapons: The "Heisenberg factor."**
- **C^4I/BM breakdowns/lack of accurate battle damage assessment by both attacker and attacks.**
- **Uncertainties coming from use of different types of WMDs and delivery systems**
- **Unattributable attacks/proxy attacks**
- **Unconventional warfare, mass terrorism, covert delivery, delayed effects**
- **Impact of "Cocktails" = mixes of different agents or types of weapon of mass destruction**
- **Reliance on authoritarian leaders or elites who will never take the time to fully understand the technology and effects of weapons of mass destruction for sudden crisis decisions**
- **Coupling effects -- US linkages to allies**
- **Unknown targeting concepts and capabilities; Random impact of inaccuracy and targeting errors.**
- **Different perceptions of values/escalation ladder**
- **Risk of escalation "total war": willingness to risk use of infectious agents,**
- **Instability of preemption, launch on warning, launch under attack options.**
- **The risk of martyrdom and nothing to lose: Unplanned "doomsday machines"**
- **Unexpected collateral damage**
- **Uncertain impact on conventional conflict**
- **Uncertain capabilities for NBC defense/counterproliferation**
- **Impact on peripheral states**

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- **Long-term damage effects**

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Part Two

The Future Impact of Technological Change

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Technological Developments and Imperatives 2010-2020:
Missiles and Other Delivery Systems

- **Satellite targeting and weather models, GPS launch location data.**
- **Cheap cruise missiles, drones, aircraft conversions**
- **Indigenous production of medium to long-range solid fuel designs and high payload, multi-stage liquid-fueled designs. "Add a stage" range extensions.**
- **Widespread deployment of systems with high range-payloads and very high terminal velocities. Some "smart" warhead technology for penetration and terminal guidance.**
- **Hardened or mobile launch facilities, large numbers of dispersed systems**
- **Rapid launch with minimal warning indicators.**
- **Mobile, rapidly replaceable separate warheads. Easy conversion and concealment.**
- **Advanced computer modeling and simulation, test range facilities. Reduced testing requirements.**
- **Strike Aircraft with some stealth features.**
- **Advanced warhead and munitions designs with sophisticated fusing and dissemination systems.**
- **Highly sophisticated covert delivery systems and "terrorist" devices.**

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Technological Developments and Imperatives 2010-2020:

Chemical Weapons

- **Rapid, often covert, precursor production. Complex precursor assembly combinations.**
- **Stable binary nerve agents for persistent and non-persistent agents.**
- **Rapid production of mustard and other incapacitating agents.**
- **Weapons with mixed agents or "cocktails" to help defeat antidotes and protection systems.**
- **"Breakout" facilities for rapid conversion to production.**
- **Effective cluster warheads and bombs, with reliable fusing and dissemination systems.**
- **Widespread deployment of systems with high range-payloads and very high terminal velocities. Some "smart" warhead technology for penetration and terminal guidance.**
- **Advanced weather and targeting data. Computer modeling of attack contours.**
- **Highly sophisticated covert delivery systems and "terrorist" devices.**

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Technological Developments and Imperatives 2010-2020:

Biological Weapons

- **Genetic engineering – generational change capability to weaponize new weapons, defeat vaccines, detection, and protection systems..**
- **Widespread deployment of dry, storable agents.**
- **Ability to rapidly convert civilian pharmaceutical, fermentation, and other facilities..**
- **Possible ability to weaponize infectious agents like Ebola**
- **Ability to use complex cocktails of different biological weapons to defeat warning, detection, treatment, and protection.**
- **Lethality of small nuclear weapons.**
- **Advanced warhead and munitions designs with sophisticated fusing and dissemination systems. Line source dissemination systems.**
- **Rapidly convertible warheads and bombs.**
- **Advanced weather and targeting data. Computer modeling of attack contours.**
- **Highly sophisticated covert delivery systems and "terrorist" devices. Ability to delay effect of weapon.**

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Technological Developments and Imperatives 2010-2020:

Nuclear Weapons

- **Widespread understanding of complex weapons designs and access to key computer modeling data.**
  - **Reduced need for fissile material and sharply reduced weapon weight.**
  - **Can reduce or eliminate need for testing.**
- **High speed, high capacity centrifuge capability.**
- **Power reactors can be rapidly converted or cannibalized?**
- **Indigenous design and production of explosive lenses, initiators, and boosting technology.**
- **Advanced computer modeling and simulation. Ability to use non-fissile material for most testing purposes.**
- **Advanced warhead designs with sophisticated fusing. Controlled height of burst and enhanced radiation weapons. Safe use of weapons near own and friendly territory.**
- **Advanced weather and targeting data. Computer modeling of fall out contours.**
- **Highly sophisticated covert delivery systems and "terrorist" devices.**

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Technological Developments and Imperatives 2010-2020: Counterproliferation and Defensive Options

- **"Defensive" systems can protect:**
  - **Missile and greatly improved air defenses.**
  - **Major improvements in chemical and biological detection and warning.**
  - **Some improvement in treatment and protection systems.**
  - **Civil defense options.**

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- **"Defensive" systems can also threaten:**
  - **Greatly improved access to satellite surveillance systems, ability to piggyback on any arms inspection efforts to ease targeting burden.**
  - **Widespread access to long-range precision-guided strike systems and some ability to hit hardened targets.**
  - **Possible access to small covert sensors and detection systems.**
  - **Long-range UAVs, RPVs.**
  - **Possible improvement in Sigint/Comint systems.**

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Part Three

One Half Cheer for Current Arms Control Agreements

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The Status of Major Arms Control Agreements

Country	Geneva Protocol	NPT	BWC	CWC	Treaty of Pelindaba*	CTBT
North Africa						
Algeria	**R**	**R**	**-**	**R**	**R**	**SRR**
Libya	**R**	**R**	**A**	**-**	**S**	**-**
Morocco	**R**	**R**	**S**	**R**	**R**	**S**
Tunisia	**R**	**R**	**R**	**R**	**S**	**S**
Near/Middle East						
Egypt	**R**	**R**	**S**	**-**	**S**	**SRR**
Israel	**R**	**-**	**-**	**S**	**NA**	**SRR**
Jordan	**R**	**R**	**R**	**A**	**NA**	**R**
Lebanon	**R**	**R**	**R**	**-**	**NA**	**-**
Syria	**R**	**R**	**S**	**-**	**NA**	**-**
Gulf						
Bahrain	**R**	**R**	**A**	**R**	**NA**	**S**
Iran	**R**	**R**	**R**	**R**	**NA**	**SRR**
Iraq	**R**	**R**	**R**	**-**	**NA**	**-**
Kuwait	**R**	**R**	**R**	**R**	**NA**	**S**
Oman	**-**	**R**	**R**	**R**	**NA**	**-**
Qatar	**R**	**R**	**R**	**R**	**NA**	**R**
UAE	**-**	**R**	**S**	**S**	**NA**	**S**
Yemen	**R**	**R**	**R**	**S**	**NA**	**S**
Periphery						
Ethiopia	**R**	**R**	**R**	**R**	**S**	**S**
Eritrea	**-**	**R**	**-**	**-**	**S**	**-**
Sudan	**R**	**R**	**-**	**-**	**S**	**-**
India	**R**	**-**	**R**	**R**	**NA**	**NSRR**
Pakistan	**R**	**-**	**R**	**R**	**NA**	**NSRR**

R = Ratified, S = Signed, A = Acceded, NA = Not Applicable, SRR = Signed – Ratification Required, and NSRR = Not signed – Ratification Required
*** African Nuclear Weapons Free Zone Treaty**
Source: State Department as of March, 1999

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Missile, Conventional, and Dual-Use Supplier Control Groups

Missile Technology Control Regime (MTCR), 1987

Members agree to adhere to export policy guidelines relating to a list of controlled items applicable to ballistic and cruise missile technology. Equipment and Technology Annex lists controlled items in two categories. Category I items, whose export is generally denied, include complex rocket systems with ranges greater than 300km and payload heavier than 500kg, as well as production facilities and major subsystems. Category II items include dual-use items and rocket subsystems not covered in Category I.

Wassenaar Arrangement, 1996

Global, multilateral system of export controls for conventional weapons and sensitive dual-use technologies and goods. Members agree to maintain national export policies to ensure that the transfer of military or multiuse items or technologies does not enhance military capabilities that would undermine international and regional security. Established in 1996 as a follow-on to COCOM.

Source: “The NESAF Region: Participation in Nonproliferation Treaties.”

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Impact on Missile Proliferation

- **The MTCR slows proliferation down and is valuable, but it has not prevented any determined regional actor from getting missiles.**
- **All credible regional proliferators already have long-range strike aircraft and a wide range of unconventional delivery options.**
- **Pressures to eliminate land-launched ballistic missiles can simply increase interest in cruise missiles.**
- **Advances in avionics and GPS are greatly easing the conversion of aircraft (particularly fly-by-wire systems) into unmanned delivery systems.**
- **Efforts that block the acquisition of overt delivery systems may simply end in encouraging the acquisition of covert attack capabilities.**

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Chemical Weapons Treaties and Related Supplier Control Groups

Treaties

Geneva Protocol, 1925

Prohibits the use of asphyxiating, poisonous, or other gases, and of bacteriological methods of warfare. Binding on most states party to it only with respect to other ratifying or acceding states. Ceases to be binding on party states with respect to enemy states and/or their allies who fail to abide by the protocol's conditions.

Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention/CWC), 1997

Prohibits the development, production, stockpiling, and use of chemical weapons and requires destruction of the weapons and their production facilities. Administered by the Organization for the Prohibition of Chemical Weapons in The Hague. Opened for signature in 1993, entered into force April 1997. Has the most comprehensive verification regime of any WMD treaty.

Supplier Control Groups

Australia Group, 1984

Informal forum of 30 states formed as a result of chemical weapons use in the Iran-Iraq war. Members agree to control their export of items on a lost of chemical precursors, microorganisms and toxins, as well as equipment used in production.

Source: "The NESAF Region: Participation in Nonproliferation Treaties."

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Impact on Chemical Proliferation

- **The CWC should be useful in preventing the overt creation of large-scale war fighting capabilities over time.**
- **However, it only affects signer countries and then only large efforts or those disclosed through by fortuitous intelligence breakthroughs.**
- **THE CWC cannot prevent development and assembly of up to several hundred weapons and warheads.**
- **The steady expansion of petrochemical, industrial process plants, and insecticide plants will make it progressively easier to produce chemical weapons without extensive imports of tell tale feedstocks.**
- **The need to purify and stabilize mustard and nerve agents is now well known, as is the need for more lethal warhead technology. All major proliferators have nerve gas technology.**
- **Breakout capabilities in terms of stockpiling precursors or by creating complex chains of precursor production capabilities present serious problems.**
- **Iraq has shown that even extremely aggressive inspection may not work.**

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Biological Weapons Treaties and Related Supplier Control Groups

Treaties

Geneva Protocol, 1925

Prohibits the use of asphyxiating, poisonous, or other gases, and of bacteriological methods of warfare. Binding on most states party to it only with respect to other ratifying or acceding states. Ceases to be binding on party states with respect to enemy states and/or their allies who fail to abide by the protocol's conditions.

Convention on the Prohibition of the Development, Production, Stockpiling and Use of Bacteriological (Biological) and Toxin Weapons and on Their Destruction (Biological and Toxin Weapons Convention/BWC), 1975

Prohibits the development, production, stockpiling, and acquisition of microbial agents or toxins of types or quantities that have no justification for peaceful purposes, and delivery means designed to use such substances in armed conflicts. Agents, toxins and their delivery means were to be destroyed no later than nine months after the treaty entered into force. The BWC lacks a verification process but a proposed process is under discussion, including requiring state parties to declare relevant facilities and allow visitation to those areas. Verification would be carried out by the Organization for the Prevention of Biological Warfare. As of January 1999, 2,000 outstanding issue remained unresolved regarding verification.

Supplier Control Groups

Australia Group, 1984

Informal forum of 30 states formed as a result of chemical weapons use in the Iran-Iraq war. Members agree to control their export of items on a lost of chemical precursors, microorganisms and toxins, as well as equipment used in production.

Source: "The NESAF Region: Participation in Nonproliferation Treaties."

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Impact on Biological Proliferation

- **The BWC creates a powerful political and moral deterrent to overt proliferation.**
- **The Australia group has some impact in limiting the flow of technology and dual use equipment.**
- **However, it has no enforcement provisions and no near to mid-term prospects of acquiring them.**
  - **Experts involved in the effort to develop such proposals seriously question their technical feasibility.**
  - **Every major power in the Middle East will have the required technology base to rapidly manufacture advanced weapons by 2010.**
- **Advances in biotechnology, food processing systems, and pharmaceuticals mean all regional states will soon allow them to covertly mass-produce dry storage biological weapons in optimal aerosol form.**
- **There is no meaningful distinction between defensive and offensive research.**
- **Small laboratory levels of production can produce weapons with the lethality of small nuclear devices.**
- **The narrow target base of most Middle Eastern states creates major questions about the ability to prevent existential attacks.**

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Nuclear Weapons Treaties and Related Supplier Control Groups

Treaties

Treaty on the Nonproliferation of Nuclear Weapons (NPT Treaty), 1970
Nuclear weapons states may not transfer nuclear weapons or nuclear explosive devices to any recipient or assist, encourage, or induce a non-nuclear state to manufacture or acquire nuclear weapons. Non-nuclear states are prohibited from receiving or manufacturing nuclear weapons and they must conclude safeguard agreements with the IAEA to prevent diversion of nuclear energy from peaceful to military uses. Treaty is reviewed every 5 years and as of 1995 was extended indefinitely.

African Nuclear-Weapon-Free Zone Treaty (Treaty of Pelindaba), 1996
Research, development, manufacture, and acquisition of nuclear explosive devices and their testing or stationing in the zone are prohibited, as well as attacks on nuclear installations or the dumping of radioactive material in the zone. Includes the establishment of the African Commission on Nuclear Energy to monitor compliance. Parties are required to conclude safeguard agreements with IAEA. Opened for signature in 1996, but is not yet in force. Ratified by six countries out of the necessary 28.
Comprehensive Nuclear Test Ban Treaty (CTBT), 1996
Prohibits parties from exploding nuclear devices or encouraging or helping others to do so. Opened for signature in 1996, but is not yet in force. 41 of 44 states have signed it, and if not entered into force by September1999, it may be brought into force by a conference of ratifying states. Signatory states have set up the CTBT Organization to eventually administer the treaty and its verification.
Fissile Material Cutoff Treaty (FMCT), under consideration
Would impose a global, verifiable ban on enriched uranium production and plutonium separation for nuclear weapons and nuclear explosive devices. Parties would declare the status of uranium enrichment and spent reactor fuel processing and submit them to IAEA safeguards. On-site and special inspections to be part of verification. Negotiations to have started in 1998 with the formation of an ad hoc committee, but the UN Conference on Disarmament has been unable to establish this committee in 1999.

Supplier Control Groups

The Zangger Committee and the Nuclear Suppliers' Group (NSG), 1971/1974
Zangger Committee developed a "trigger list" of nuclear equipment not to be exported to non-NPT, non-nuclear-weapons state without IAEA safeguards. NSG, created in 1974, also has a "trigger list" but also includes dual-use items. All members of Zangger Committee are NPT parties, not so for the NSG. Both groups cooperate and coordinate to review and amend the trigger lists.

Source: "The NESAF Region: Participation in Nonproliferation Treaties"

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Impact on Nuclear Proliferation

- **NNPT plays a major role in preventing medium to large overt efforts at proliferation.**
- **At the same time, it can aid cheaters in the early to mid-phases of proliferation. Transfer of technology for fuel cycle**
- **IAEA inspection and "visits" to declared facilities can help, but can also be manipulated to disguise proliferation**
    - **The strengthened safeguards regime the IAEA has recently agreed upon with strengthen the NPT and IAEA by strengthening inspection at declared facilities and allowing the use of more advanced methods such as environmental sampling. It offers some help in dealing with undeclared facilities.**
    - **The 23+2 regime could further strengthen the NNPT and IAEA.**
- **IAEA and UNSCOM efforts have not prevent covert centrifuge, reactor, EMIS, and cascade programs from reaching substantial scale.**
- **Dual-use technology now allows states to carry out virtually all aspects of weapons design and manufacture -- including simulated tests.**
- **The ability to carry out all the aspects of nuclear proliferation except acquiring fissile materials is becoming steadily cheaper, smaller in scale, and easier to conceal. These aspects of nuclear efforts are not controlled by the NNPT.**
- **Tight controls on nuclear programs may simply strengthen the scale of bio-weapons efforts.**

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Part Four

Regional Arms Control Options

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Goals and Objectives of Regional Arms Control

- **Create a climate of trust and political good will; advance peace process.**
- **Provide strategic and tactical warning. Confidence building measures.**
- **Limit or reduce the arms race; military spending.**
- **Contain and deter rogue or high-risk states.**
- **Avoid misunderstandings, accidents, unnecessary preemption and escalation.**
- **Reinforce or create a stable structure of mutual deterrence.**
- **Limit the risk and cost of actual war fighting.**
- **Minimize the risk of countervalue (civilian casualties and damage) or existential targeting.**
- **Reduce actual weapons and/or delivery systems deployed.**
- **Eliminate actual weapons and/or delivery systems deployed.**

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Major Risks in Regional Arms Control

- **"Breakout": Technology allows sudden or covert break out of weapons production and delivery capability – particularly in terms of biological weapons.**
- **"Squeezing the balloon": Limiting one area of proliferation simply increases activity in another.**
- **"Liar's contest": Accept agreements that do not intend to honor. Carry out covert efforts and deny them. Obtain access to technology and equipment.**
- **"Only the honest suffer:" Limit moderate states, but fail to contain and deter rogue or high-risk states. License technology transfer to nations that claim to comply, but do not.**
- **"War fighting risk": Create a covert climate of proliferation involving sudden activation of forces with limited planning and/or control, higher risk of misunderstandings, accidents, unnecessary preemption, launch under and through attack, and escalation.**
- **"Existential minimalism": Reducing weapons to minimal levels creates an added use or lose risk, leads to countervalue (civilian casualties and damage)/existential threats and targeting.**
- **"Destabilizing truth": Added transparency, inspection, declarations either stimulate arms race or lead to constantly increasing pressure to reveal or reduce more.**
- **"Climate of illusions": Inspection, verification, declarations give the impression of added transperancy and stability without being trustworthy.**
- **"Conventional paradox": Reducing or constraining weapons of mass destruction increases risk of conventional war.**
- **"Nth Weapon" problem in trying to eliminate all weapons when a few concealed nuclear or biological weapons can produce existential damage.**
- **"Valid Parnoia": Can encourage covert delivery and strikes, use of third parties and terrorists.**
- **"Arms control is an extension of war by other means": Well, yes!**

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Transparency in Declaring Current Holdings and Actions

- **Advantages:**
  - **Easiest step, and may be necessary precursor to confidence building and detailed arms control planning.**
  - **Can begin with declaratory steps, relying on national intelligence means, and be followed by inspection.**
  - **Can be unilateral measure.**
  - **Eases arms race without giving up ultimate deterrent.**
  - **Avoids complicated problems in trying to balance off different patterns of proliferation in different nations.**
  - **Exact or detailed verification not needed.**
  - **Can reinforce with inspection/verification by neutral third parties.**
- **Disadvantages**
  - **Strong incentive to lie or deny if possible. Tends to penalize Israel at expense of chemical and biological proliferators.**
  - **Makes countries who do declare target for unilateral or imbalanced arms reductions.**
  - **Exact verification is almost impossible (if largely unnecessary). This is particularly true of biological weapons and development/break out efforts.**
  - **Many key detection technologies are still unproven.**
  - **If threshold is set too low, pushes Israel; towards existential retaliation and targeting.**
  - **For many countries, presents problem must admit lied and/or violated arms control agreements.**

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Confidence Building Measures

- **Advantages:**
  - **Can allow each nation to pick different measures to create proper tradeoff between confidence building and security.**
  - **Can begin with declaratory steps, relying on national intelligence means, and be followed by inspection.**
  - **Can be unilateral or agreed measures.**
  - **Does not need full transparency.**
  - **Eases arms race without giving up ultimate deterrent.**
  - **Avoids complicated problems in trying to balance off different patterns of proliferation in different nations.**
  - **Exact or detailed verification not needed. "Open skies, open access" can be provided on national terms.**
  - **Even symbolic actions can be first step in arms control, reinforce peace process.**

- **Disadvantages**
  - **Requires enough transparency to support confidence building**
  - **Most credible in terms of major, highly visible activities like nuclear fuel cycle, ballistic missile deployments, biotechnology, alert status.**
  - **Makes countries who act possible target for unilateral or imbalanced arms reductions.**
  - **Exact verification is almost impossible.**
  - **Many key detection and verification technologies are still unproven.**

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Missile Controls/Delivery System Constraints

- **Advantages:**
  - **Medium and long-range weapons create destablizing and threatening linkages across the entire Middle East and outside the region.**
  - **Weapons with ranges in excess of 150-300 kilometers are normally only highly lethal if armed with weapons of mass destruction.**
  - **Acquisition of solid fuel and cruise missile technology will make such proliferation steadily more threatening in not controlled now.**
  - **Major delivery systems are more visible and easier to control than weapons of mass destruction.**
  - **Combinations of non-deployment and non-testing agreements can be combined to ease verification problems.**
- **Disadvantages**
  - **Exact verification is almost impossible. Iraq has shown that concealment can survive even intensive inspection efforts.**
  - **Hard to define proper combination of range payload characteristics.**
  - **Longer-range "conventional" anti-ship, surface-to-surface, and air-to-surface missiles can be converted. Cannot control numbers and capabilities of long-range strike aircraft.**
  - **Range-payload limits tend to encourage a focus on biological weapons where small payloads can still be highly lethal.**
  - **May encourage covert and proxy delivery.**
  - **If threshold is set too low, pushes proliferators towards existential retaliation and targeting.**

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Regional Limits on Chemical Weapons

- **Advantages:**
  - **Freezes or reduces significant threat.**
  - **Can involve unilateral or multilateral actions.**
  - **Deals with a weapon where all major regional powers have or can acquire substantial capability.**
  - **Eases arms race without giving up ultimate deterrent.**
  - **Limited incentive to cheat. Inspection and verification problems also limited.**

- **Disadvantages**
  - **Tends to license the search for parity, proliferation by Iran and Iraq.**
  - **Creates major uncertainties about efforts to achieve "parity" using chemical and biological weapons.**
  - **Political and legal problems in admitting such efforts exist because of arms control agreements, impact of such admissions on neighbors and world community.**
  - **Exact verification is almost impossible (if largely unnecessary).**
  - **If threshold is set too low, pushes Israel; towards existential retaliation and targeting.**

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No Chemical Weapons

- **Advantages:**
  - **Eliminates major threat.**
  - **Many nations have already signed the CWC.**
  - **Inspection regime already agreed to, substantial supplier constraints.**
  - **May be most easy weapon of mass destruction to reach agreement upon since incremental war fighting impact is most limited relative to smart conventional weapons.**

- **Disadvantages**
  - **Insuperable inspection and verification problems. Must rely on trust.**
  - **Political and legal problems in admitting such efforts exist because of arms control agreements, impact of such admissions on neighbors and world community.**
  - **Development of petrochemical industry steadily compounds dual-use problem.**
  - **Penalizes Iran and Arabs unless tied to elimination of Israeli nuclear weapons.**
  - **Rapid transfers or break out capability is major issue.**

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Regional Limits on Biological Weapons

- **Advantages:**
  - **Limits or reduces threat equivalent to that posed by small to medium-sized nuclear weapons.**
  - **Deals with a weapon where all major regional powers have or can acquire substantial capability.**
  - **Deals with highly destablizing weapon because of the lack of combat experience, escalatory and battle management precedents.**
- **Disadvantages**
  - **Insuperable inspection and verification problems. Must rely on trust**
  - **Political and legal problems in admitting such efforts exist because of arms control agreements, impact of such admissions on neighbors and world community.**
  - **Genetic research steadily compounds arms control inspection and verification problems.**
  - **Penalizes Iran and Arabs unless tied to elimination of Israeli nuclear weapons.**
  - **In many areas there are no clear divisions between defensive and offensive research and development, and dual-use and military facilities.**
  - **Nth weapon verification is almost impossible, and even a few hidden weapons can produce existential threats.**
  - **Rapid transfers or break out capability is major issue.**

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No Biological Weapons

- **Advantages:**
  - **Eliminates threat equivalent to that posed by small to medium-sized nuclear weapons.**
  - **Deals with a weapon where all major regional powers have or can acquire substantial capability.**
  - **Deals with highly destablizing weapon because of the lack of combat experience, escalatory and battle management precedents.**
- **Disadvantages**
  - **Political and legal problems in admitting such efforts exist because of arms control agreements, impact of such admissions on neighbors and world community.**
  - **Possible insuperable inspection and verification problems.**
  - **Genetic research steadily compounds arms control inspection and verification problems.**
  - **Penalizes Iran and Arabs unless tied to elimination of Israeli nuclear weapons.**
  - **In many areas there are no clear divisions between defensive and offensive research and development, and dual-use and military facilities.**
  - **Nth weapon verification is almost impossible, and even a few hidden weapons can produce existential threats.**
  - **Rapid transfers or break out capability is major issue.**

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Regional Limits on Nuclear Weapons

- **Advantages:**
  - **Freezes or reduces greatest (?) threat.**
  - **Only one regional power now possesses such weapons.**
  - **Can be unilateral measure.**
  - **Eases arms race without giving up ultimate deterrent.**
  - **Limited incentive to cheat. Inspection and verification problems also limited.**
  - **Argument against all forms of proliferation by other nations.**

- **Disadvantages**
  - **Tends to license the search for parity, proliferation by Iran and Iraq.**
  - **Creates major uncertainties about efforts to achieve "parity" using chemical and biological weapons.**
  - **Exact verification is almost impossible (if largely unnecessary).**
  - **If threshold is set too low, pushes Israel; towards existential retaliation and targeting.**

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No Nuclear Weapons

- **Advantages:**
  - **Eliminates greatest (?) threat.**
  - **Only one regional power now possesses such weapons.**
  - **Would block Iranian and Iraqi proliferation.**
- **Disadvantages**
  - **Major inspection and verification problems.**
  - **Penalizes Israel unless tied to elimination of chemical and biological weapons.**
  - **Pushes proliferators into biological weapons that have or are acquiring equal lethality.**
  - **Nth weapon verification is almost impossible, and even a few hidden weapons can produce existential threats.**
  - **Rapid transfers or break out capability is real issue given FSU and other holdings of fissile material.**
  - **Possession of "ultimate deterrent" may secure peace process.**

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Asymmetric Freezes

- **Advantages:**
  - **Avoids equity issue; but ensures situation will not become worse.**
  - **Can begin with declaratory steps, relying on national intelligence means, and be followed by inspection.**
  - **Can be agreed on mix of unilateral measures.**
  - **Eases arms race without giving up ultimate deterrent.**
  - **Avoids complicated problems in trying to balance off different patterns of proliferation in different nations.**
  - **Exact or detailed verification not needed.**

- **Disadvantages**
  - **Hard to define what is frozen: Weapons, material, technology, deployments?**
  - **Strong incentive to lie or deny if possible. Tends to penalize Israel at expense of chemical and biological proliferators.**
  - **Makes countries who do declare target for unilateral or imbalanced arms reductions.**
  - **Exact verification is almost impossible (if largely unnecessary).**

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Weapons of Mass Destruction Free Zone

- **Advantages:**
  - **Effectively eliminates the problem.**
  - **Avoids limiting some forms of proliferation in ways that create an incentive to proliferate in others.**
  - **Ensures that countries cannot exploit limits on one or two forms of proliferation at the expense of countries with other forms of weapons.**

- **Disadvantages**
  - **The "zone" must include every nation that is a proliferator or credible threat acting at the same time.**
  - **Greatest inspection and verification challenge.**
  - **Questions arise as to whether includes limits on delivery systems and if so which weapons.**
  - **Requires every problem in arms control to be solved at once.**
  - **End result makes security and stability dependent on the conventional balance.**
  - **Major breakout capability is technologically unavoidable.**
  - **Risk of rapid transfers from outside zone.**

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Part Five

Arms Control, Counterproliferation, and Deterrence

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Arms Control is Not Enough

- **There is no present prospect that any combination of arms control, deterrence, and active/passive counter proliferation can fully secure the region, any state in the region, or Western power projection forces.**
- **Creeping proliferation and violations will follow the line of least resistance:**
- **Theater missile defense will be meaningless without radical improvements in defense against air attacks, cruise missiles, and unconventional means of delivery.**
- **There is no present prospect that any combination of measures can defend against biological warfare, and many proposed forms of counter-proliferation act as incentive to develop biological weapons and use unconventional means of delivery.**
- **Arms control policies cannot work by enforcing restraint on moderates and nations at peace, not threatening and radical states.**

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Arms Control, Deterrence, and Counterproliferation

- **However, a synergistic effort blending arms control, containment, preemptive options, deterrence, retaliation, and civil defense should offer significant stability.**
- **Stable deterrence is extremely hard to define and create.**
- **At the same time,**
  - **Reduces incentives to cheat.**
  - **Allows moderate and peace-oriented states to begin to take action even if all states in the region will not participate.**
  - **Focuses on avoiding war fighting rather than possession of weapons or technologies per se.**
- **There are uncertain prospects that such stability can be offered in ways that prohibit regional proliferation without at least a tacit US threat to retaliate with nuclear weapons.**

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Stable Deterrence/Adequate Security

- **Advantages:**
  - **Focuses on defining a mix of force postures that provide mutual security, not elimination of or reductions in weapons per se.**
  - **Gives each nation considerably flexibility in picking different measures to create proper tradeoff between arms limits and reductions and security.**
  - **Allows for major asymmetries in forces.**
  - **Does not need full transparency.**
  - **Eases arms race without giving up ultimate deterrent.**
  - **Exact or detailed verification not needed. "Open skies, open access" can be provided on national terms.**
  - **Focuses on limiting risk and nature of war fighting, not abstract limits on weapons and technology.**
- **Disadvantages**
  - **Creates very complicated problems in trying to balance off different patterns of proliferation in different nations and in defining overall security situation.**
  - **Involves a major military dialogue and inevitably a willingness to accept uncertainty and some risks**
  - **Requires enough transparency to provide confidence.**
  - **May not halt arms race.**
  - **Exact verification is almost impossible.**
  - **Presents problems for Middle Eastern nations because of different security situations in Gulf, East Med, and North Africa .**

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Extended Deterrence

- **Advantages:**
  - **Make the US or some combination of outside nations the guarantor of regional security and arms control by stating will retaliate against any use of weapons of mass destruction.**
  - **Gives each nation considerably flexibility in picking different measures to create proper tradeoff between arms limits and reductions and security.**
  - **Allows for major asymmetries in forces.**
  - **Does not need full transparency.**
  - **Eases arms race without giving up ultimate deterrent.**
  - **Focuses on limiting risk and nature of war fighting, not abstract limits on weapons and technology.**
- **Disadvantages**
  - **Credibility of guarantee.**
  - **Existential reliance on US or any other mix of powers.**
  - **In an adjunct to other arms control measures, not a solution in itself.**
  - **Probably unacceptable to nations hostile to the US.**
  - **Retaliate against whom for what? What triggers action? Punish people for their leaders' actions.**

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Conventional Deterrence

- **Advantages:**
  - **Precision conventional weapons and advanced area weapons can produce major tactical and strategic damage.**
  - **Conventional deterrence can replace reliance on weapons of mass destruction.**
  - **Allows for asymmetries in forces.**
  - **Does not need full transparency.**
  - **Eases arms race without giving up substantial deterrent capability**
  - **Tends to encourage targeting military forces and facilities, and critical civilian facilities with limited collateral damage.**
- **Disadvantages**
  - **Cannot produce the damage effects or psychological impact of weapons of mass destruction.**
  - **Possible adjunct to arms control, not a form of arms control per se.**
  - **May only be credible if US or other powers provided extended deterrence.**
  - **Reinforces conventional arms race.**

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Possible Regional Counterproliferation Policy

- **Dissuasion to convince non-weapons of mass destruction states that their security interests are best served through not acquiring weapons of mass destruction.**

- **Denial to curtail access to technology and materials for weapons of mass destruction through export controls and other tools,**

- **Arms control efforts to reinforce the Nuclear Non-Proliferation Treaty, Biological and Chemical Weapons Conventions, nuclear free zones, conventional arms treaties that stabilize arms races, confidence and security building measures, and Anti-Ballistic Missile Treaty clarification efforts to allow US deployment of advanced theater ballistic missile defenses.**

- **Region-wide arms control agreements backed by intelligence sharing and ruthless, intrusive challenge inspection without regard for the niceties of sovereignty.**

- **International pressure to punish violators with trade sanctions to publicize and expose companies and countries that assist proliferators, and to share intelligence to heighten awareness of the proliferation problem.**

- **Defusing potentially dangerous situations by undertaking actions to reduce the threat from weapons of mass destruction already in the hands of selected countries -- such as agreements to destroy, inspect, convert, monitor, or even reverse their capabilities.**

- **Military capabilities to be prepared to seize, disable, or destroy weapons of mass destruction in time of conflict.**

- **Improve tracking and detection of sales, technology transfer, research efforts, extremist groups.**

- **Defensive capabilities, both active (theater missile defenses) and passive (protective gear and vaccines) that will mitigate or neutralize the effects of weapons of mass destruction and enable US forces to fight effectively even on a contaminated battlefield.**

- **Declared and convincing counterstrike options ranging from conventional strikes devastating a user nation's economy, political structure and military forces to the use of nuclear weapons against the population centers of user nations and groups.**

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The US View of Key Force Improvements Affecting Counterproliferation Policy

- ***Detection and characterization of biological and chemical agents*. This initiative is intended to accelerate the fielding of stand-off and point detection and characterization systems by up to six years. It also addresses the integration of sensors into existing and planned carrier platforms, emphasizing man-portability and compatibility with UAVs.**

- ***Detection, characterization, and defeat of hard, underground targets*. The US is seeking new sensors, enhanced lethality, and penetrating weapons to increase the probability of defeating the target while minimizing the risk of collateral damage.**

- ***Detection, localization and neutralization of weapons of mass destruction inside and outside the US*. The US is seeking to identify and evaluate systems, force structures, and operational plans to protect key military facilities and logistic nodes, and conduct joint exercises to improve the capability to respond to potential biological and chemical threats.**

- ***Development and deployment of addition passive defense capabilities for US forces, including development and production of biological agent vaccines*. This program will develop and field improved protective suits, shelters, filter systems, and equipment two to five years faster than previously planned. It also restores funding to the development of improved decontamination methods.**

- ***Support for weapons of mass destruction related armed control measures include strengthening the NNPT, CTB, and BWC*. They include establishing a COCOM successor regime, and improving controls on exports and technology by strengthening the MTCR, Nuclear Suppliers Group and Australia Group.**

- ***Missile defense capabilities, with primary emphasis on theater ballistic missile defenses.* This activity involves improvements in active and passive defenses, attack operations, and improvements in BM/C4I as well as the deployment of theater missile defenses. The primary focus, however, is on anti-ballistic missile defenses, and in the near term, this involves the development of the Patriot Advanced Capability Level-3 (PAC-3/ERINT), Navy area theater missile defense (Aegis), and theater high altitude area defense (THAAD).**

- ***Publicized counterstrike options.* Options ranging from a convincing declared capability to conduct precision mass air and missile strikes with conventional weapons that can devastate user states to use of nuclear weapons escalating to the destruction of population centers.**

- ***New force tailored to dealing with terrorist and unconventional threats.* New intelligence and tracking systems dedicated to the prevention of mass terrorism, and tailored special forces to detect and attack terrorist groups and deal with unconventional uses of weapons of mass destruction.**

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