**PASCC FY18 Research Priorities**

The PASCC seven issue areas of interest for FY18 research are outlined as follows:

**1. Emerging and Future WMD threats.**  Scientific and technological developments in biology, chemistry, nanotechnology, materials, directed energy, and other fields may provide adversaries with means to develop new forms of WMD or to increase the lethality and effectiveness of biological or chemical weapons. In addition, scientific, technological, and engineering developments may provide adversaries with the means to develop new delivery systems or improve existing ones. Topics of interest in this focus area include:

* Potential new WMD threats arising from scientific and technological developments that could occur five to ten years in the future;
* New technologies or novel approaches that could improve existing WMD delivery systems or result in the development of new delivery systems;
* Gaps in U.S. policy, strategy, or military planning for anticipating and countering emerging threats and measures to close those gaps;
* New, untapped, or underutilized sources of intelligence for identifying and understanding emerging threats;
* Acquisition and potential employment of WMD by state or non-state actors that are interested in, but do not currently possess WMD, to include their motivation(s) for acquisition and likely scenarios for use.

**2. Deterrence, Assurance, and Stability.** The current geopolitical landscape – including changing strategic relationships, emerging regional challenges, and capability enhancements – requires new and adapted approaches to WMD deterrence, assurance of allies facing WMD threats, and strategic stability. Topics of interest in this focus area include:

* Evolving requirements for WMD deterrence, assurance, and control of escalation risks in regional crises and conflicts;
* Identifying, assessing, and understanding the various factors that determine how state or non-state actors intend to use WMD against the United States, its forces, allies, and partners, with “use” encompassing threats, coercion, and potential employment; to include the ability of DoD and the Armed Services to influence those factors
* Concepts and approaches for understanding and shaping the dynamics of strategic stability among global and regional powers possessing nuclear weapons.

**3. Countering WMD Proliferation.**  Working with interagency partners, the Department of Defense seeks to defeat WMD proliferation pathways through interdiction, network disruption, and other activities that target the will, capacity, and capabilities of potential adversaries. Topics of interest in this focus area include:

* + Enhanced understanding of WMD proliferation pathways, with a particular focus on dedicated proliferation networks (which may involve state-to-state and state-to-non-state interactions), as well as enabling actions by witting and unwitting actors in science, technology, academic, and commercial communities;
	+ New or improved means and methods to delay, disrupt, or dismantle WMD proliferation pathways and associated networks;
	+ The effectiveness of current U.S. government or multilateral partnership efforts to prevent and counter WMD proliferation.

**4. Regulation, Prevention, and Denial of WMD by International Agreements and Cooperative Threat Reduction (CTR) Initiatives.** The conditions that shaped earlier approaches to treaties, agreements, international organizations, and CTR efforts are changing, and international efforts to prevent, limit, or otherwise regulate WMD will need to adapt. Topics of interest in this focus area include:

* The effectiveness of current arms control, nonproliferation, cooperative security, and confidence-building agreements that seek to limit, reduce, or eliminate WMD or their means of delivery, or otherwise seek to reduce the risk of future WMD competition, crises, or conflicts;
* New approaches to future arms control, nonproliferation, cooperative security, and confidence-building measures;
* Requirements for and proposed approaches to future global cooperative threat reduction initiatives.

**5. Countering WMD.** The use of WMD by state or non-state actors poses a threat to the United States, its forces, allies, and partners. Robust capabilities for defense, defeat, response, and recovery help minimize and mitigate WMD effects and can contribute to deterrence by denying an adversary the expected benefits of an attack. Topics of interest in this focus area include the identification, characterization, or analysis of new or improved approaches for the following:

* + Detection, characterization, and attribution of WMD use;
	+ Force protection and countermeasures;
	+ WMD defeat
	+ Concepts and approaches for operating in WMD-contaminated environments;
	+ Defense against non-traditional means of delivering WMD (e.g. biovectors, hypersonic platforms);
	+ Metrics by which to measure progress in reducing WMD threats, including US military readiness
	+ Enhancing partner capacity to defend against and respond to WMD use;
	+ Intersections and overlaps between homeland defense and CWMD;
* Efforts to improve resiliency;
* Consequence management.

**6. Rapid Capability Delivery.** The Joint Improvised Threat Defeat Organization (JIDO) recently became part of DTRA. JIDO enables DoD actions to counter improvised threats with tactical responsiveness and through anticipatory, rapid acquisition in support of Combatant Commands’ (CCMDs’) efforts to prepare for, and adapt to, battlefield surprise in support of counter-terrorism (CT), counter-insurgency (COIN), and other related areas, including countering improvised explosive devices (IEDs).

* Accelerated Acquisition models that enable warm starts on critical emerging requirements;
* Rapidly informing counter-improvised threat solutions development and delivery;
* Consumable assessments and intelligence information;

**7. Counter Improvised Threats.** DTRA’s assessment and development of reachback capabilities for addressing emerging and future adversary efforts to develop more sophisticated, lethal, or harder to detect and defend improvised threats is continuous. Topics of interest in this focus area include the identification, characterization, or analysis of the following:

* Facilitation networks and pathways for creating and delivering improvised threats;
* Preparing, adapting, and responding to improvised threats;
* Leveraging broad Communities of Action (CoA)

**FY18 Topics of Interest**

Within the above categories, PASCC will give particular consideration in its selection of FY18 grants to proposals which address the following topics:

1. New and improved approaches for WMD pathway defeat;
2. Deterrence, assurance, and escalation management challenges associated with potential crises or conflicts with Russia, China, or the DPRK;
3. Approaches and measures to help the Armed Services improve the organization, training, and equipping of forces for CWMD
4. Insights into and implications of recent WMD use in Syria and Iraq;
5. Prospects and opportunities for nuclear and other forms of arms control to address increased military competition among the major powers, particularly the United States, Russia, and China;
6. Requirements and approaches for WMD defeat, defense, and elimination on the Korean Peninsula;
7. Strategic stability in South Asia;
8. How emerging technologies such as synthetic biology, additive manufacturing, autonomous systems, nanotechnology, and quantum computing may impact WMD within the next ten years.