Standing MARSOC Research Priorities

Highlighted Research Priorities

1. Research in support of MARSOF 2030 Innovation Pathways
2. How can SOF/MARSOC simultaneously deter, counter, and when needed, defeat local irregular extremists and state-led regional or global adversaries across:
   a. SOCPAC
   b. SOCCENT
   c. SOCAF
3. Within the GFM/GSOS/GCC construct, how can SOF/MARSOC better address transregional challenges?
   a. What authorities and permissions can be better leveraged to increase operational effectiveness?
   b. What should a future GFM/GSOS/GCC construct look like to better enable SOF to achieve US Security interests?
4. Sean McFate's "New Rules of War" recommends a SOF-led American Foreign Legion. Is this a good idea? If so, would MARSOC be an ideal force to implement this idea?
5. How do we get rid of power point CONOPS?
   a. In the age of information what information collaboration systems could more efficiently and effectively be used for mission planning, execution, and AAR?
6. How can SOF/MARSOC:
   a. Increase resilient communications in contested and denied environments?
   b. Improve signature management in contested and denied environments?
7. Mapping the information environment in the Philippines and Iraq.
8. Research analysis on the employment of fires in Syria between 2014 – 2019.

Priority Research Lines of Effort

- **LOE 1:** Rapid support to operational challenges (Authorities/Capabilities/ Threats/Technology) facing MARSOF **(<2 years)**
- **LOE 2:** Unit Capabilities, force design and deployment changes based on dynamics in the OE and technology **(3 – 7 years)**
- **LOE 3:** Disruptive strategic and technological change based on trends in the geo-political OE and technology **(>7 years)**

Research Topics by Category

MARSOC/USSOF Capabilities:
- **Evolutionary Innovation: Improvement of current capabilities:**
  1. **Command and Control**:
     a. Resilient Communications in contested and denied environments
     b. In a "hyper-connected environment" how can SOF/MARSOC maximize advantages while avoiding centralization and micro-management?
     c. How can SOF/MARSOC replace power point as a CONOP/Mission Planning/Execution Tool? What other systems already exist that can enhance

efficiencies and provide a mission planning/execution/AAR tool to operational forces?

2. **Information/Cyber**:
   a. How can MARSOC operationalize cyberspace and informational environments in support of tactical, operational, and strategic objectives?
   b. How can SOF and MARSOC manage its spectral signature to increase operational effectiveness and survivability within contested environments?
   c. How should SOF and MARSOC integrate tactical capabilities and partnered operations with evolving national, theater, and interagency capabilities across all operational domains, to include those of information and cyber?
   d. Information management using AI/ML. What systems already are fielded that could be leveraged within SOF?
   e. Rapid collaboration with Partners (IA, Coalition, NGO, and Indigenous)

3. **Intelligence**: **(See/Sense)**

4. **Maneuver**: **(Move)**

5. **Fires**: **(Shoot)**

6. **Sustainment**:
   a. How can the current SOF and MARSOC acquisition processes be expedited in order to identify, acquire, test, and field logistical requirements to meet emerging threats expediently.
   b. Autonomous clandestine sustainment

7. **Protection**:
   a. Should MARSOC continue to rely on USN Medical personnel for its medical support?

8. **Education/Doctrine:**
   a. How should MARSOC integrate into the Defense Analysis program's new Innovation Curriculum?

9. **Strategy/Concepts:**
   a. How should MARSOC wage political competition in conjunction with conventional, interagency, and indigenous partners within irregular warfare?
   b. How can and should MARSOC wage UW within a larger FID campaign?
   c. How should MARSOC implement the concept of advisor-led operational approaches through existing and new Marine Corps and SOCOM deployment models and programs?
   d. What are the implications of NDS IW annex to SOF/MARSOC?
   e. What are the implications of the USSOCOM Global Campaign Team initiative and how should MARSOC best integrate into this initiative?

10. **Organizational Design:**

11. **Other Science and Technology:**

- **Revolutionary Innovation: Disruptive to current capabilities or entirely new capabilities**:
  1. **Command and Control**:
  2. **Information/Cyber**:

    a. What role should information technology and cyber capabilities play within MARSOC?

    b. How should SOF and MARSOC adapt manning, training, and equipping activities in light of the emergent cyber and information threats?

    c. How can SOF and MARSOC use advance artificial intelligence and quantum computing hardware/software in support of enhancing analytical capabilities through real-time application of big data technologies to streamline shared situational awareness and command and control agility.

3. **Intelligence**: **(See/Sense)**
4. **Maneuver**: **(Move)**
   a. Should MARSOC build an organic aviation unit?
5. **Fires**: **(Shoot)**
   a. What is the next generation of organic precision fires?
6. **Sustainment**:
7. **Protection**:
8. **Education/Dosctrine**
9. **Strategy/Concepts:**
   a. What are the advantages and disadvantages of creating a new SOF core activity of 'counter-SOF' operations? What risks are associated with this course of action? Are there case studies that can help illuminate and guide this potential solution to meet future challenges?
   b. How should SOCOM and/or MARSOC implement a transregional threat centric model of employment?
10. **Organizational Design:**
    a. What are SOF attributes now and how do they compare to past organizations such as the OSS? What attributes will define SOF warriors in 15+ years? Are there identifiable 'enduring attributes' that can be adopted similar to the "SOF truths"?
    b. How should MARSOC realign itself structurally based on a threat, partner, and operational environment organizational strategy?
    c. What are some options for developing a more effective manpower rotation, incentive, and promotion system that better suits the requirements of MARSOC in irregular/proxy warfare?
    d. Using historical examples from the CIA and OSS, how can MARSOC build an enduring female capability to ensure access and understanding across the entire operational environment in irregular warfare?
    e. How should MARSOC integrate with Space Command? What resources should be dedicated from both organizations to support national requirements? What is the funding strategy?
    f. How can MARSOC maximize decentralized organizational agility?
    g. How can MARSOC best design continuity in cohesion and capability based on mission effectiveness?
    h. What advanced unit capabilities does MARSOC need to build? Mountain/Cold Weather? Jungle? Other?
11. **Other Science and Technology:**
    a. Improved human performance and mental awareness on extended operations.

b. Timepiece size, wearable, explosive detector out to 50m or more.
c. The F-35's Distributed Aperture System (DAS) streams real-time imagery from six infrared cameras mounted around the aircraft to the helmet, allowing pilots to "look through" the airframe. MARSOC desires to implement this system and helmet into our next generation tactical vehicles for the gunner and driver. Follow on thesis would study adapting this technology to the ground force and drones.
d. Improved human performance to retain water during extended operations. Problem: Operators cannot carry enough water for a two-week operation while on foot where there is no logistical support or water replenishment resources available.
e. Remote medical diagnostic semi-permanent tattoo.
f. LTE, NSA approved level of security, with 4K video bandwidth.
g. Small form factor directed energy weapons.
h. Organic squad level CAS with .50cal or greater projectile. Semi-autonomous flight with weapon man controllable.
i. Secure communications not based on cryptography.
j. Ultralight weight, pocket size, high nutrient food for extended operations.

MARSOC Partnership with USMC:
- How can SOF and MARSOC serve as a bridge between conventional forces in a maritime conflict scenario? What SOF capabilities and requirements need to be developed and employed to accomplish this task?
- How could/should MARSOC achieve proponenecy for irregular warfare within the Marine Corps and what are the ways that MARSOC should better interface to provide strategic utility to the Corps through organizationally maintaining and integrating its expertise within Small Wars?

External Studies:
- **Threat Studies**
  - Conduct threat network studies on Russia, China, N. Korea, Iran and VEOs (AQ/ISIS), and what are the ways that SOF can exploit vulnerabilities within these networks?
  - How are these adversaries waging irregular/proxy warfare?
- **Country/Regional Studies**
  - Philippines/Iraq/Syria/Somalia/Yemen/Jordan/Lebanon/Afghanistan/Tunisia/ Libya/Sudan
  - What are the implications for the changing geo-pol dynamics in Turkey?
  - What are the implications for the changing geo-pol dynamics in Egypt?
  - What are the implications for the changing geo-pol dynamics in Vietnam?
- **Interagency**
  - How can SOF and MARSOC increase interoperability in the Joint, Interagency, Intergovernmental, and Multinational (JIIM) Environments?
- **Partner/Coalition Studies**
  - Who are and should be MARSOC's reoccurring key coalition SOF partners?
  - Who are and should be MARSOC's reoccurring indigenous SOF partners?

- o What are the incentives for partner nations and/or organizations to continue to seek out and to partner with USSOF?
- **Historical Analysis**
    - o What are pseudo operations and how are they relevant to MARSOC in contemporary irregular warfare?
    - o Based on the British and French colonial experiences, what are the relevant implications for U.S. SOF persistent engagement around the world?
    - o Research analysis on the employment of fires in Syria between 2014 – 2019.

MARSOC Research Priorities
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