RAND PROJECT AIR FORCE

RESEARCH BRIEF

New Analytic Tools Evaluate Overseas Combat Support Basing Options for the U.S. Air Force

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To enable its Air and Space Expeditionary Forces (AEF) to rapidly deploy and begin operations whenever and wherever they are needed, the U.S. Air Force must prestore war reserve materiel (WRM) in forward support locations (FSLs) outside of the United States. WRM includes combat support resources such as base operating support equipment, vehicles, and munitions. When needed, this materiel must be transported over land, sea, or air to combat forces at forward operating locations (FOLs). A critical question for planners is *where* to preposition such materiel so it can support future combat operations and exercises at minimal cost and maximum speed.

As part of ongoing work to develop an agile combat support (ACS) system for the AEF, RAND Project AIR FORCE (PAF) developed a set of analytic tools that can be used to evaluate various storage options to meet a given set of operational scenarios. The analytic approach involves five key steps:

1. Select a set of scenarios that would place varying demands on the combat support system. Scenarios may include small-scale humanitarian operations, continuous force presentation to deter aggression, and major regional conflicts. Each scenario would involve a combination of force options, such as different weapons systems.
2. Determine combat support requirements based on the scenarios and force options.
3. Input combat support requirements, potential FSLs and FOLs, and transportation options (e.g., allowing sealift or not) into the optimization model.
4. Select the best FSL locations. Optimal locations minimize facility operating and transportation costs associated with planned operations, training missions, and deterrent exercises that take place over an extended period of time and satisfy time-phased demands for WRM commodities at FOLs. The model also allocates the optimal WRM resources to FSLs and computes the type and number of transportation vehicles required to move the materiel to FOLs. The result is a robust transportation and allocation network that connects a set of disjointed FSLs and FOLs together.
5. Refine and recalibrate the solution set by applying political, geographical, and vulnerability constraints. For example, analysts might exclude a certain country from the analysis if political or security considerations make access to bases uncertain.

This analysis results in a portfolio containing alternative sets of FSL postures. The portfolio will allow decisionmakers to assess the merits of various options from a global perspective. PAF is now collecting data and performing analyses of global basing options to recommend a specific set of alternative FSLs that could support various types of deployment scenarios. ■

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Corporate Headquarters
1776 Main Street
P.O. Box 2138
Santa Monica, California
90407-2138
Tel 310.393.0411
Fax 310.393.4818

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