Naval Combat Logistics Support System

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The subject matter is the sustainability of naval forces in combat and the intimate relationships between tactics and logistics. The matter is made that it has been a long time since the United States Navy has worried about logistics in combat and that to some extent combat logistics have become somebody else's responsibility. It is argued that combat logistics is inescapably the force commander's responsibility and its dimensions are sketched. Necessarily, the amount of data and calculation is extensive if accurate picture of the combat logistics states of the force are to be maintained and predictions of future states are to be made. It is in the predictions of future states that the interactions between tactics and logistics become most apparent. The data storage and retrieval and computational aspects suggest a microprocessor-based support system. BGLCSS (battle group logistics co-ordinator support system) is a program of combat logistics data, event routines, and algorithms designed to allow the logistics co-ordinator to track and predict force combat logistics states and provide timely and meaningful insight to the force commander.

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BACKGROUND

Combat logistics is defined here as involving those activities undertaken to sustain a battle group sailing in harm's way. It is not a set of activities that have been a serious part of the training conducted ashore, in fleet exercises, or in the operations of deployed battle groups, though this is changing. These activities were last practised in World War II. Of course, the U.S. Navy has been continuously deployed around the world, fought in Korea and South-East Asia, and responded to over 200 crises on behalf of the United States in the intervening years. Obviously the logistics capabilities which have supported this level of operations are considerable (most recently in the Gulf War where 6 carrier battle groups, 2 battleships, 31 amphibious-warfare ships and more were supported during combat and for months prior to the outbreak of hostilities). However World War II was the last time the Fleet was in combat with a competent enemy and, with the exceptions of Korea and South-East Asia, there has been little expenditure of ordnance. Logistics has largely become a matter of supplying fuel, mail, movies and the spare parts which keep ship and aircraft systems operational.

Changes in strategic thinking at the start of the last decade and Royal Navy experience in the Falklands War have led to increasing awareness of logistics in sustaining combat power at sea. Logistics is getting more attention in war games, though the games by and large were constructed without provision for logistics and logistics has to be played off-line. Fleet exercises are starting to recognize combat logistics, but the realistic treatment of logistics is normally sacrificed in consideration of other training objectives. When combat logistics are not dealt with realistically, the real and important interactions between tactics and logistics are masked. During the hostilities phase of an exercise, ships do defend against attack and, in an exercise sense, they do deplete their magazines. Normally they are 'constructively' rearmed. The constructive rearming is mythical and takes no time, nor does it require the movement of the combatant or the combat logistics ship. This conserves the limited training time available, but hides the tactical decisions that in reality would have to be made. In the authors' view, combat logistics needs to be practised every bit as much as anti-submarine warfare (ASW), anti-air warfare (AAW), etc.
COMMANDER'S RESPONSIBILITIES IN LOGISTICS

The battle group commander must plan for the logistics sustainability of his force and determine the number of combat logistics ships and shuttle ships required. These are influenced by the area of his operations, the availability of advance logistics support bases, transit distances, and the likelihood of enemy interdiction. He must know, as he does indeed, the offensive and defensive capabilities of each ship in his force and plan their disposition. He must know the fuel and ordnance capacities of each unit, including combat logistics ships, and their fuel and ordnance states as they join the battle force, and he must track the fuel and ordnance states throughout the deployment. He must plan his speed of advance and formation, taking into account under-way replenishments in transit and individual unit fuel consumption rates. He must specify the replenishment tactic (delivery boy, gas station or combination), balancing the defensive posture of the formation against the vulnerability of the combat logistics ships and/or the need to use screen units to escort the logistics ships during replenishments.

The commander must know which offensive and defensive sensors and weapon systems are degraded or are inoperable on individual units while replenishing. He must decide if he will reposition units to cover for the defensive capabilities temporarily off-station for replenishment, or to substitute aircraft to cover open stations. In planning replenishments he must take into account the battle force plan of intended movement, sea state and direction of the seas. In doing these things he must have determined the most serious threat during the period and the most likely threat axis or axes.

Upon completing the transit phase and entering a high-threat area, he must have brought all his forces to a state of maximum logistics sustainability. Following an engagement, he must decide how best to rearm and perhaps refuel his combatants in the unknown time before the next engagement. In doing this he must consider vertical replenishment as well as connected replenishment, the difficulty of replenishing some types of ordnance and his combatants' needs for ordnance and fuel, as well as his requirements for maintaining a viable defensive posture and the possibility of having to swap stations of ships with depleted magazines for those with higher ordnance stocks. By this time it is possible that battle damage or attrition will complicate these decisions.

The list of things the commander must plan, decide, direct and execute logistically is longer, but the above is enough to sketch the picture. Combat logistics will be the concern of the force commander and these issues cannot be delegated because of the level and seriousness of the interactions between logistics and tactical decisions. For the line officers, who have avoided the 'L-word', it is instructive to appreciate the extent of the involvement of Admirals Chester Nimitz and Arleigh Burke in combat logistics throughout their careers.

While combat logistics has always been a critical activity, it would seem to be more challenging now than in World War II. Global surveillance systems imply that denying the enemy knowledge of your position is indeed difficult. Naval warfare is now a multi-threat environment requiring defence in depth and dispersed formations. Overseas facilities which could serve as advanced logistic support bases have been and are diminishing alarmingly. The final reason stems from modern, high-tech weapons. Their cost dictates limited inventories in peacetime and studies have indicated that the production surge capability for such weapons during hostilities is poor.¹ This suggests what Brinkerhoff² has termed resource-constrained combat, with the need to control ordnance and missile expenditures. As he points out: 'Running out of ordnance is an absolute combat stopper.'

COMBAT LOGISTICS SUPPORT SYSTEM

The word logistic comes from the Greek word λογιστικος, meaning skilled in calculation. Further, the dictionary defines logistics as the branch of military science having to do with moving, supplying and quartering troops. Together these definitions imply that logistics involves the care and feeding of combat forces and is supported by significant calculations. The data storage, retrieval and computational aspects of the commander's problems described above suggest a