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## Logistics

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**L**ogistics is an elemental component of all military operations; it is not only a major function unto itself, but also a vital consideration in every other aspect. Logistics essentially undergirds operational capability in support of national security. Rear Admiral Henry Eccles, the seminal logistics theorist of the twentieth century, is credited with the idea that logistics sets the reach of the operational commander. While every commander and senior leader understands the importance of logistics, it is too often seen that a failure to consider, plan for, and resource logistics has resulted in diminished operational capability or even mission failure.

Although the definition of logistics varies from country to country and over time, several key themes and concepts are remarkably consistent. At the very least, logistics is “the practical art of moving armies and keeping them supplied.”<sup>1</sup> Different countries add more complexity to that definition so that the term can include the support required to raise, equip, train, employ, and even retire military capabilities and personnel. No matter how simple or complicated the definition, logistics activities are key to the effective deployment and sustainment of military forces. As such, the people, procedures, and technology that make up the national military logistics systems are essential to create and maintain military power. Without these elements, all of the operational capabilities that a nation might develop become unusable. Logistics, then, is one of the critical building blocks for any defense institution.

Security cooperation and engagement activities, including defense institution building (DIB), have been an important component of U.S. national security strategy, as well as military and diplomatic efforts, for many years. These activities have taken various forms, ranging from small efforts to massive programs that have transformed regional security at a strategic level. Virtually all of these efforts included a logistics component or, at a minimum, considerations of supportability. Failing to ensure that the recipient nation has the capability to effectively manage logistics can undermine the overall effectiveness and credibility of the nation or defense force the United States is attempting to assist. In this way, failure to ensure viable logistics support ultimately undermines U.S. credibility and interests.

One of the major avenues for support of friendly, allied, and partner nations is through the provision of equipment and other materiel, and logistics is a major component of ensuring the effectiveness of such equipment and materiel. Planning, management, and

accountability are all required to ensure that the generally expensive and often sensitive or dangerous capabilities offered to developing nations are appropriately used and effectively protected. During the Cold War era, for instance, robust support programs that included all aspects of logistics for major equipment programs were provided around the world by the United States and other allies. The post-Camp David Accords program in Egypt, for example, was truly transformational and resulted in very effective capabilities that have endured for over three decades. In addition to the significant purchases of advanced combat equipment (including tanks, fighter aircraft, and naval vessels), the U.S. Office of Military Cooperation worked closely with the Egyptian Ministry of Defense to build an extensive logistics system. Over the course of several decades, they modified a deeply ingrained Soviet-style sustainment program to effectively support many billions of dollars' worth of advanced U.S. systems. This included developing several generations of logistics leaders that continue to provide effective support and operational readiness today.

Yet, while it is essential to ensure that support for all equipment and materiel provided has an appropriate degree of structure and consistency, this has not always been the case. There have been instances where the need for a quick response instigated hasty assessments of requirements and political realities, producing poor outcomes; to say that some areas of the world are littered with the results of such efforts is a distressing but accurate double entendre. In addition, competition with the Soviets for influence in developing nations and regions caused the United States to make detrimental decisions concerning long-term relationships with other nations. Throughout the Cold War, assistance programs around the world essentially became an East-West battleground, where poor decisions were made not only in what equipment was provided, but also in some cases where no support was offered to extremely poor countries. Moreover, shifting allegiances, civil and factional conflicts, and the natural tendency for "partners" to play the United States against the Soviets, all exacerbated this problem. In almost every case, logistics was left as an afterthought with often regrettable results.

Success in implementing the logistical aspects of DIB programs has varied. In the post-Soviet era, many opportunities for engagement emerged across Eastern Europe and Central Asia, as countries worked to build democratic institutions and modernize their aging and poorly supported equipment. Efforts to develop institutional structures to support transformational change have taken many forms in the decades since. Some programs, such as the education of individuals through the International Military Education and Training program, are relatively easy to administer. These programs have produced senior leaders that were instrumental in transforming logistics within their nations, helping to create the capacity to further both host and donor nation interests. Yet other initiatives have proven more challenging. Some lost support over time, or were so disconnected from other efforts that they were of little consequence. In all cases, the partner nation must fully support and value any engagement effort for it to be worthwhile. The various components of the DIB programs described in this volume work toward these larger objectives through logistics modernization efforts.

This chapter is one of a series of chapters describing the functional components

and attributes of logistics programs, activities, initiatives, and plans as an integral and essential part of DIB. One of the key points in this discussion is to recognize that, like any other aspect of military operations, logistics depends on its integration with many other functional areas, and that its overall effectiveness depends in large measure on how well a plan is synchronized to optimize the use of resources. The intent in this chapter is to describe what logistics is, how it fits, and why it is important for DIB. The discussion includes a summary of the types of activities that have constituted recent engagements, major issues, and implications and the challenges of designing, planning, and executing the logistics portion of an integrated DIB program. The chapter then turns to the case of Colombia as a model for DIB logistics efforts.

## Defining Logistics

One of the challenges in planning for and managing logistics is simply ensuring that there is a common understanding of what the term means; this is true within the U.S. military across services and between different organizations. For example, the question of whether medical support should be included within the logistics portfolio is a major issue in U.S. military doctrine, and management of the health services function has moved in and out of the logistics community several times in recent years. This has implications for DIB insofar as each nation approaches this issue differently. It is, however, obvious that the provision of medical support is closely aligned with logistics, provision of supplies, and patient or casualty evacuation, and that positioning and movement of medical support are both essentially logistics functions. Similarly, engineer support is aligned with the logistics community in U.S. joint doctrine, although engineer planning and management falls generally under the director for operations on military staffs.

Another difficult aspect of defining logistics in a military context—particularly in the realm of multinational initiatives and building partner capacity—is the relationship between acquisition and support throughout the life cycle of equipment. Because a great deal of the total cost of ownership—often between 60 and 80 percent—is attributed to the use, repair, support, and modernization of equipment, the line between acquisition and logistics is often blurred. Moreover, decisions made in the acquisition and design process can have a dramatic effect on the cost of operating and ability to maintain equipment systems. How individual nations manage these processes has a major impact on their logistics systems. Additionally, the fact that most nations must purchase or acquire their equipment from many different foreign countries and firms adds to the complexity of supporting a diverse array of equipment. The example of Afghanistan, where logistics challenges are almost inconceivably difficult, is emblematic of this problem. Their inventory includes vehicles from over a dozen different nations, often donated in less than ideal condition, or consisting of outdated models that require multiple supply chains and sources, and mechanics trained to service many different types and models. When you add the very low Afghan literacy

rate and the miniscule number of documents written in local languages, the problems become even more intractable.

## The Complexity of Stakeholders

One factor that adds to the complexity of logistics efforts in DIB is the tremendous number of stakeholders and entities involved in planning and managing support operations, especially at higher levels. This is true not only within the U.S. government, but also in working with allies and other provider nations, international organizations, and, of course, the partner nations themselves. As with any engagement activities and capability development, other nations in the region will be affected by any significant change, even if it is simply regional “competition.” The complexity of the bureaucratic processes is an obvious and constant challenge for even the most skilled and experienced managers; resourcing, diplomatic protocols, regional security considerations, and adjusting to constant changes in all of these factors requires constant vigilance, exhaustive coordination, and, in many cases, great patience.

Within the Department of Defense, there are dozens of entities that all have an interest in or impact on security cooperation programs. Many are identified and discussed in various parts of this volume, but several bear highlighting in this chapter to demonstrate the breadth and complexity that specifically attend logistics. At the higher levels, various components of the Office of the Secretary of Defense, the Joint Staff, the services, the Combatant Commands and their components, the mostly service-based acquisition communities, Defense Logistics Agency, U.S. Transportation Command, and many others are all involved in the design, approval, implementation, and execution of logistics activities with our partners. Almost all have different organizational objectives and priorities, and satisfying every entity is challenging. Multinational exercises that seem to be designed to support building partner capacity might actually be motivated by the desire to build U.S. capabilities; for instance, advocating for other nations to purchase equipment that helps lower costs for domestic acquisition, or supporting activities for diplomatic or political aims that are not necessarily useful for the receiving foreign units that participate. This does not even touch on other parts of the government, where in some cases there are programs that might compete with each other. At a minimum, partner nations (which often have small staffs who do not speak or understand English) will struggle to grasp the complexity and multitude of interactions.

There are also a number of issues among the stakeholders that exacerbate the difficulty of developing well-integrated, long-term strategies, plans, and programs. In recipient nations, while they try hard to assign their best people to senior positions dealing with international cooperation, in many cases they are not logisticians by training or trade, and do not always understand some of the nuances of the “business.” Often, the chief of logistics for a partner nation’s military will be someone in his first job in this demanding field. Rotations on staffs at all levels within the U.S. military are also relatively short

compared to the long timeframes involved in security cooperation. The officers that plan and coordinate activities often never see their execution. Newly assigned officers rarely have an appreciation for the exhaustive coordination that takes place to support major activities, or some of the sensitivities that may well be present.

Perhaps the most challenging part of this enterprise is in the U.S. Office of Security Cooperation itself in each partner country. This office is invariably lightly staffed, and the senior officer is likely to have only had a few weeks of specific training on security cooperation and cursory introductions to the dozens of people he will be required to coordinate with in the months after he or she is assigned. It is unrealistic to expect these officers to have a solid background in the affairs of the regions, a working knowledge of the challenging equipment purchase, transfer, and acquisition processes, U.S. policies for dozens of issues that affect their efforts, etc. In some cases they have little or no background in the security cooperation field, and may have never served on a staff that managed international affairs. If we expect these people to effectively advocate for and coordinate the resourcing and provisioning of logistics to our partners without any assistance, we should anticipate less than optimal results.

## **Designing a DIB Logistics Engagement with a Partner Nation**

This section offers a general description of and key considerations for designing, planning, and executing a program for building partner capacity in logistics. While the focus of DIB is generally at the national or institutional level, a holistic approach is critical to overall effectiveness. Even if efforts are specifically and narrowly focused, broad and informed consideration of all effects at every level and across complementary functions is essential. Similarly, logistics initiatives can be of a grand scale or quite modest, and in either case have a significant impact. Above all, recognizing that every situation is unique and making sure that the partner nation is committed to shared objectives is of paramount importance.

When designing a logistics engagement project with a partner nation, the DIB Logistics Engagement Team (DIB LET) should establish a few simple parameters. First, it is important that the team determine the U.S. intent for both results and timeframe. These two factors are closely inter-related because strategic change takes time, while tactical change can be accomplished relatively quickly. For example, if the intent is to support some simple changes in the partner's ability to support its military vehicle fleet, then a few tactical adjustments focused on the maintenance and supply aspects of that fleet might be all that is required. On the other hand, if the requirement is to support the way in which logistics requirements are determined, funded, and managed, such a strategic change might necessitate years of effort to understand what is required and create new processes and procedures (as well as laws and regulations) to achieve the desired outcome. It is important that the time and resources to be invested in the necessary changes are calibrated to the availability of U.S. support. Starting an ambitious improvement project to improve a partner logistics system that will require more time and investment than the

United States is willing to invest does a disservice to all of the participants.

One of the earliest deliverables from an engagement should be an agreement between the partner and the DIB program team on what is to be achieved and in what timeframe. This should be viewed as an ongoing process, as it is unlikely during the early days of the engagement that either the partner or the DIB LET can identify and articulate the aims of the engagement. Indeed, it is quite likely that it will take a series of visits to identify what can be done, what the partner wants to accomplish, and the level of effort required.

In these initial visits, the DIB LET may need to establish some common lexicon with the partner, so that the partner-nation senior authorities, the DIB LET, and the U.S. senior authorities understand what is being discussed, considered, and eventually proposed. The issue may be one of language, where the partner nation's language(s) is not English, and misinterpretation of terms can be a significant issue. To reduce the potential for confusion, it might be necessary to build a simple compendium of terms, defined in both English and the partner's language(s). This can start with the definition of the term "logistics," which can mean different things to different organizations. The United States has its definition of logistics,<sup>2</sup> the North Atlantic Treaty Organization (NATO) has its definition,<sup>3</sup> and various civilian organizations have theirs. The UN might have it right when it advises that "there is, realistically, no precise name or definition that can be universally applied because products, organizations, and systems differ."<sup>4</sup>

The DIB LET should therefore try to establish whether there is a partner definition of logistics in order to establish the initial boundaries of the engagement, unless the aims of the engagement have already been determined. This will help set the parameters for subsequent work if the theme of the engagement is, as is often the case, to "improve partner logistics." Depending on the partner, the definition of logistics might include some or all of the following elements:

- Materiel management, including planning for the introduction of new materiel into the defense forces, management of in-service materiel, control of materiel usage, and eventual disposal of surplus and obsolete items.
- Facilities management, including creating and supervising a national military infrastructure plan, controlling the use of existing defense infrastructure, planning national infrastructure maintenance, and the acquisition and disposal of infrastructure.
- Movement and transportation management, including designing and running a national defense distribution system, coordinating national and international movements, and liaising with domestic transportation companies.
- Services management, including making national contracting arrangements for the procurement of services; liaising with various national and international companies providing services to the partner defense forces; setting postal, audit, and food services standards; making veterinary arrangements; and other non-

materiel support required by the military.

- Health services support, including the preparation and implementation of military health care policies and standards, management of hospitals, training of personnel, and coordination with the national civilian and international military health care providers.

Once some broad parameters are established regarding what is part of the partner logistics system to be reviewed, the DIB LET can begin the work of identifying, with the partner, what should be improved.

### *The Logistics Needs Assessment*

Often, the DIB LET must conduct a logistics needs assessment to determine with the partner which aspects of the current logistics system need to be improved. This can be an important step if the goals of the engagement have not already been decided, and is something that must be carried out with the active support of the partner nation's senior authorities, preferably both the military and civilian ministry officials. The initial step of the needs assessment is to identify how the partner nation currently conducts its logistics activities. This "as is" logistics system may be formally documented or informally conducted on a daily basis. The DIB practitioners should be aware that the formal documentation could bear little resemblance to the actual logistics system. This often occurs in those countries that have had previous logistics engagements by the United States or other allies who simply copied and pasted another country's system into a document purporting to be the partner's logistics system without ever implementing it. As a result, great care must be taken from the outset to ensure that the engagement team understands how the logistics system really works in the country, before considering ways to work with the partner to improve it.

There is often a great temptation to declare that the partner's logistics system is so poorly organized that the only solution is to completely replace it with a new one, and one with which the engagement team is conveniently familiar. Engagement teams should be very careful to avoid this initial assessment, for it is rarely correct. Foreign logistics usually require foreign methodologies, doctrine, and financial and legal regimes that may not exist in the partner country. Trying to implement a foreign logistics system in a partner nation that does not have the capacity to implement it, often results in making an already poor logistics system worse—the exact opposite result from the headline goal.

To avoid this pitfall, it is important that the DIB LET carefully examine the history, culture, and financial, legal, and organizational structure of the partner before offering advice on what to change. This first step can be far more challenging than might be expected, since it is possible that no one in the partner nation actually understands how the system works, or why. Some partner logistics systems have developed as a result of multiple engagements by various "mentoring nations" spread over decades. When the "mentoring nations" have completely different logistics methodologies, the end result can be that some aspects of the partner's "as is" logistics system will resemble Soviet-style logistics while

others are more Western-oriented, and yet others reflect the influence of UN operations logistics frameworks. These varied (and sometimes incompatible) procedures may be lashed together with some Byzantine system of training, education, leadership, and doctrinal and financial procedures. Understanding the basics of how the current system functions, why it does so, and how the various parts of it are interlinked is the most important first step.

In parallel with this, the engagement team must also understand the partner nation's military threats and operational requirements. In an ideal world, these have already been identified in a formal, government-approved document that provides the military strategy of the country to meet its internal and external security challenges. More often, however, these must be implied from the assessments provided in government speeches, think tank papers, and interviews with senior governmental personnel in both the military and the president's or prime minister's office.

In addition, when starting a DIB logistics engagement, it is important to gather as much information regarding the various stakeholders as possible, including those from the United States, the partner nation, non-governmental organizations, and other nations. This is because, for each engagement to be successful, it should take into account the motivations of the various players who are part of, or have an ability to influence, the outcomes of the engagement. These stakeholders will affect how much change is possible and how it can be achieved or stymied. For some stakeholders, maintaining their power and authority will be one of the most important factors in any change. Other stakeholders may be motivated by the needs of their country to better meet the security challenges, without regard to how change might affect them personally. Still others are motivated by greed and avarice. In addition, there will be a sprinkling of those who are concerned that their past sins may become revealed through improvements to the logistics system. Some allies might be concerned that the U.S. activities will undercut their traditional relationships with the partner, while others might be happy to have the United States assume some of the real or imagined burden of assisting the partner nation. Understanding the role and motivations of each stakeholder in any logistics engagement will be important before proposing changes.

Other factors that should be considered include the literacy level of the general population and of the logistics personnel in the host-country military. The ability of the nation and its military logistics practitioners to make change will be constrained by these factors. In addition, the size of the military and the complexity of the equipment that it operates will also affect the extent and nature of the changes that are achievable. Small militaries operate in a very different manner from large ones. One of the most important factors is the ability of the national government to provide the financial means to the military to conduct and support operations and training. Where funds are limited or provided on an irregular basis, the logistics system must still function. Finally, the way in which information and data is generated, stored, and used to make decisions will be an influencing factor. Partner nations that are paper-based (analogue) will require a very different logistics system than those that are highly automated and digital by design.

While much of this information can be gleaned from official government papers,



academic studies, and other published documents, the DIB LET should also consult with various civilian and military personnel. The purpose of the consultation is to discuss the logistics requirements of the partner nation and to confirm that any assumptions or conclusions reached during the literature survey are correct. In addition, if possible, the DIB LET should also visit representational units of the military forces to get a firsthand look at the equipment, personnel, infrastructure, and operating conditions. This will serve two purposes: to frame the DIB LET's perception of the current conditions on the ground, and to confirm, or perhaps challenge, the information gathered earlier.

### *Resource Availability Assessment*

Change requires resources and resource reallocation decisions. Before launching into aggressive recommendations for logistics change in a partner nation, it is important that the DIB LET understands what resources may be available to institute change or be reallocated to support changes. This can usually be obtained from the ministry's budgeting directorate, or the military forces chiefs when they are allowed to apportion their respective shares of the national military budget. The amount of resources, both financial and human, that can be made available to implement improvements will often become the limiting factor in any proposals for logistics improvements. It will be important that the DIB LET and the partner-nation team understand those constraints before designing any new logistics proposals.

### *Legal, Political, Cultural, and Other Constraints*

The design of the future "as is" partner logistics will be affected by the partner's laws, policies, and disposition to implement change, as well as the level of commercial capability available within the nation and the level of education of the logistics personnel. These factors must be understood if the DIB LET is to leverage the strengths of the partner while understanding and compensating for the weaknesses. One of the major factors, often worth special consideration, is the level of corruption that exists or is believed to exist in the military logistics system.

Corruption is one of the most corrosive factors in logistics management. Because money tends to flow through the logistics system, and the bulk of the valuable materiel is controlled through the logistics system, corruption must be considered when addressing possible changes to a partner nation's logistics operation. Corruption robs troops of their means to train and fight, reduces the credibility of the national government and military forces, and generally degrades the partner's security. It can be confused sometimes with incompetence, when poorly trained logistics personnel make serious errors that result in significant funds being expended for little operational support capability. It is important to identify whether what is labeled as corruption is really illegal activity designed to enrich specific individuals, or just incompetence, where individuals have been assigned logistics responsibilities that exceed their training and experience. While the latter can be addressed through training and education, the former is more difficult to tackle because it tends to be

systemic, with commanders often either complicit or unwilling to admit the problem for fear of being tainted. Nevertheless, it must be addressed if the partner is to have any chance of making real and lasting logistics reforms. Ignoring corruption, or tacitly supporting it to try and make reforms, is unfair to the partner's government, people, and troops. It also does little to enhance the U.S. image abroad.

Dealing with real corruption requires patience and the commitment of the senior leadership in the partner nation. Without both of these, corrupt practices and people will simply disappear below the surface for a while, waiting for the opportunity to reemerge. The best remedy against corrupt practices is transparency, where the processes used to award contracts, distribute materiel, and dispose of surplus or obsolete items is based on clear rules and practices that are routinely audited by third parties and publicly reported. Illegal practices must be investigated by appropriate authorities, and those guilty of participating in or condoning those practices must be publicly punished. This requires considerable fortitude on the partner's military and civilian leadership, but without this, it is unlikely that systemic corruption can be rooted out. The DIB LET must carefully consider what it can and should do when confronted with this issue as it designs a partner engagement plan.

During this phase of an engagement, the DIB LET should also ensure that it has a basic understanding of the legal system as it applies to partner military logistics. Contracting law in particular will be an important factor in making logistics improvements, as it is usually very difficult to change national contracting laws. As a result, the DIB LET should encourage improvements that are based on working with, and not fighting, the legal processes in place. While in the long term, improvements to the contracting law might be in order, in the short term these are usually too difficult to achieve. Indeed, in many cases, the partner's military must first demonstrate that it can be trusted with more contracting authority, so making early improvements to the management of military logistics might become the price to pay for being allowed more authority later. This will depend on the nation, of course, but should be considered during the engagement design phase.

### *The Gap Analysis*

The next step for the DIB LET should be to conduct a gap analysis between what the partner's logistics system is currently capable of providing, and what it should be capable of to meet the nation's security requirements. Most of the first order gaps should be fairly obvious from the logistics needs assessment work already performed, such as mismatches between the troops' needs and the materiel or services being provided. These often occur when the Ministry uses a central logistics planning system that is highly bureaucratic and relies on templates created years earlier. Some DIB logistics engagements have noted that this centralized logistics planning simply lacks an effective feedback loop, where there is a significant disconnect between line units' actual requirements and the central bureaucracy that establishes the procurement contracts.

Another common gap is the inability to move troops, equipment, and other materiel from the warehouses or supplier points-of-sale to the locations where they are

actually required. This often occurs when there is a disconnect between the bureaucracy that supervises the procurement process and the military organizations that possess the transportation resources.

Other gaps may relate to the capability to maintain equipment once it is procured. There are many reasons for this. In some cases, the equipment has been donated by an ally but without repair parts, technician training, or the appropriate tools and repair facilities. In other cases, the equipment has been procured by the partner without consideration for the ongoing maintenance requirements, simply because the procurement process did not include experts who could properly identify those needs. Whatever the cause, the result is the same: equipment that cannot be employed because it is broken and there is not a functioning maintenance system in place to source the necessary repair parts, contract out the necessary repairs, or acquire the tools and technician training necessary to complete the repairs.

If health service support is part of the logistics engagement, a key gap is often the lack of an organized way to treat and evacuate casualties. Where there is not an effective integrated treatment and evacuation system in place, troops may not be as willing to expose themselves to combat for fear of being left to die on the battlefield. Recent experience with some partner nations has suggested that this may be why some partner units have been reluctant to close with and engage their enemy.<sup>5</sup> The adoption of improved medical care protocols, particularly Tactical Combat Casualty Care, has significantly reduced the preventable loss of life in a number of militaries, and the exportation of these procedures to partner nations may be an important force enabler to consider.<sup>6</sup>

During this phase of the engagement, all of the logistics gaps should be identified and, where possible, assembled into packages of gaps that appear to have similar characteristics or causes. Great care should be taken to avoid “cherry picking” some gaps and ignoring others, as doing so can result in proposals for improvements that are insufficiently holistic to have a lasting impact. Improvements that are only temporary or fail to address the real causes of the problems can result in wasting the financial and human resources that are devoted to the subsequent phases of the engagement, both of the United States and the partner.

### *Analyzing the Options*

The options analysis phase is both difficult, and the most important. This can be a daunting exercise if the DIB LET attempts to resolve logistics capability gaps by trying to replicate the “best in class” support available in militaries such as that of the United States and senior NATO allies. This is because, while it may be possible to measure the capability gap between the partner and “best in class” military logistics systems, finding a way to bridge that gap is often too great a challenge for the partner, requiring financial and human resources that are not available. While it might be possible to implement one small improvement that is “best in class” (for example, an automated inventory tracking software package), unless the improvement is integrated into the total logistics system context, it may simply

become an orphaned capability that has expenses that outweigh its overall utility. When the partner has very limited resources, these must be devoted to getting the most capability improvement for the resources being expended, and not all expended on a single logistics capability.

Instead of looking at “best in class” solutions to the logistics gaps, a better approach is to look for partner appropriate solutions that will address the capability gap. This implies considering options that have demonstrated their utility in the past and might be appropriate for the next phase of the partner’s logistics improvements. While it is tempting to try to skip generations by using contemporary technology, there may be pitfalls that can have serious, even disastrous, consequences. Obviously, logistics improvement programs need to take advantage of such capabilities as modern communications if available, but as always, implications must be very carefully considered.

One of the key factors to consider during this phase is the partner’s level of information management (IM) and information technology (IT). U.S. logistics processes and procedures benefit substantially from outstanding IM and IT. Inventory management, repair procedures, technician training, and other key elements of the U.S. logistics systems exploit the U.S. IM and IT systems to their fullest. On the other hand, many partner nations do not have IM and IT systems that can replicate the U.S. approach. In fact, many partners do not have the capacity to generate the electricity required to even run a system as reliant on IM and IT as is used by U.S. and allied militaries. An inventory management system based on index cards (similar to those used in the 1950s and earlier in the United States) might be a completely acceptable solution in a partner nation with a small military and low levels of military IM and IT integration. Consequently, the DIB LET must understand the extent to which the partner can copy methodologies that are reliant on sophisticated IM and IT systems, or must employ some “old school” analogue techniques to manage its logistics requirements initially, as it builds more robust (and potentially more expensive) techniques in the future. This may be the most important factor when considering what options for logistics improvements are suitable for the partner. It may also be one of the greatest challenges for the DIB LET if the team members do not possess the necessary experience with analogue logistics systems to assist the partner in developing affordable, effective, low-tech solutions to their logistics gaps.

In addition to the level of partner information management capability, other factors must be considered. Key among these are the partner nation’s history, political situation, the size of the military organization, its equipment, doctrine, and capabilities (both current and planned). The level of training and education of the forces’ personnel, and the relationship between the decision makers in the Ministry and the Forces, will also be important factors, since these may identify where the key operational and support decisions will be made. It is important that the logistics system be designed to support the desired division of authorities and responsibilities for logistics decisions/activities at the tactical, operational, and strategic levels.

Alliances, both political and economic, are yet another important consideration. For

nations that are part of the NATO alliance, the need to conform to NATO practices is mandated. For other nations, however, this is not necessarily the case. Regional alliances may be a driving consideration for some nations while others might consider the United Nations to be the most important alliance for their military planning. Others may be ambivalent, wanting to maintain a strong independence from allies, while being able to still work cohesively in a coalition when the conditions call for it.

The most appropriate options analysis will usually be the one based on including all of the most important factors and as many of the less important factors as possible. While it will be impossible to identify all of the latter, the DIB LET must make every effort to include all of the former. The partner-nation personnel may or may not be able to identify the important factors. This can make the options analysis phase both challenging and dynamic.

### *Selecting the Appropriate Options*

This phase of the engagement can be one of the most challenging, as it requires the full involvement of the partner nation, particularly the senior ministerial and military officials who may have little experience in logistics. The option(s) selected to initiate or continue to improve the partner logistics system often have economic, political, and other ramifications that exceed the approval authority of the Service- and lower-level ministerial logistics specialists. For instance, in a number of partner countries, the lack of a single inventory management system has been identified as a major stumbling block to logistics improvements. One of the key ingredients of a good inventory management system is an integrated, automation-friendly method of uniquely identifying the materiel procured and used by the military. One of the often preferred solutions for this is the NATO Codification System, with its NATO Stock Numbering capabilities. While all NATO nations use this system to manage their inventories, as do many non-NATO nations, the decision to adopt this system has significant political and financial implications. The partner nation will also require a NATO sponsor before becoming a participant. Consequently, even though the NATO system might be the best technical solution to an inventory management capability gap, it might not be an acceptable political one. The DIB LET must ensure that the partner has all of the information and understands the implication of selecting this option when it is one of the contenders to bridge a logistics capability gap.

Reviewing how other countries have contended with similar capability gaps is one of the better approaches to options analysis. While not every country publishes its logistics improvement experiences, a number of them have, and their reports can be used for comparison. By reviewing how other nations dealt with similar capability gaps, and then with the second and third order consequences, the partner can gain a better understanding of what will be required should it decide on a certain course of action, and can anticipate the less obvious issues that will have to be addressed to implement that course of action.

The way these decisions should be made will vary in each partner nation and should have been identified in the stakeholder assessment conducted at the outset, since the decision

makers will clearly be some of the most important stakeholders. One of the roles that the DIB LET can perform is to help the partner-nation participants write down the issue to be resolved, the options that are being considered, the implications of each option, and, in the end, record the decision taken. One of the common weaknesses of partner logistics change management is that decisions are made using unclear language and not recorded. This can become a serious problem during the implementation phase of the engagement, when senior leaders inevitably are replaced by others who did not participate in the decision-making process and who may not understand the issues. A good set of records that show how the work progressed from problem identification and option analysis, to an informed decision, will often become an invaluable aid before the engagement ends. It will also serve as an example that future DIB teams can show other partners.

### *The Future Logistics Support Structure*

The end result of the gap analysis and the option selection should be a decision on the future partner logistics structure or system. The changes might include organizational changes, reapportioning responsibilities and authorities around the forces and the ministry in a more effective manner, or introducing new processes, procedures, IM/IT systems, or other improvements. The changes might also include new education and training requirements for key individuals, new audit regimes, or improved selection criteria for assignments to key logistics jobs. There may also be a requirement to phase the improvements over time so that the future logistics structure becomes an evolving target. This often occurs when the partner decides to move from a paper-based logistics management system to a more highly interconnected one that relies on new IM/IT packages. In these cases, the pace of change may be limited by the rate at which the new IM/IT packages can be procured and installed, procedures amended to fit the IM/IT package requirements, and personnel trained to work within the new system. The evolution may take many years and as much as a decade before the conversion is fully implemented.

In other cases, the initial changes might be quite small but meaningful. This is often the better course of action for partners that have many logistical challenges to overcome, but little recent experience with making change. In these circumstances, it is quite common for the senior decision makers to have a poor understanding of the second and third order consequences of changes made to various parts of the logistics system. By establishing a series of small, easy but meaningful projects to improve the partner's logistics system, the DIB LET can assist the partner to better understand how to make change and how to forecast the second and third order consequences of the various change proposals under consideration.

Whether the proposal is for sweeping changes to the partner logistics system or for a few small, incremental changes, the output of this phase of the engagement should be a written plan, approved by the partner senior authorities, which clearly identifies the problem to be resolved, the resources assigned, the outcomes to be achieved, and the

authorities and responsibilities of the individuals or offices charged with executing the plan. Where the changes are extensive, there may be a series of plans linked through some overarching master plan. Where the changes are smaller and focused, there may be only a single plan.

Typical logistics development plans designed to produce a new partner logistics structure may include:

- Materiel Development Plans that highlight how to improve the process of identifying the materiel required by the forces, then procuring, receiving, warehousing, distributing, and disposing of the surplus or obsolete items.
- Movement and Transportation (M&T) Development Plans that identify improvements in how materiel and personnel will be moved in support of military requirements. The M&T plan might include how both military and commercial assets and contracts will be combined, or how the resources of different services will be managed to reduce inefficiencies and costs. When the Materiel Development Plan proposes improvements to the distribution of goods, there may be a specific need for either a companion M&T plan or an M&T annex to the Materiel Development Plan.
- Facilities Development Plans that ensure that the infrastructure requirements of the partner military are sufficient and adequate to support the training and operational needs of the forces. These plans may include specific sub-plans or annexes devoted to such things as creating a catalogue of the existing infrastructure, with its value and condition, as well as which organization is responsible for maintaining it. Facilities may include buildings, runways, piers, ranges, and training areas.
- Logistics Services Improvement Plans that identify how to improve the non-materiel support to the partner forces. Common areas of logistics services development include food services, postal, veterinary services, laundry and bath, pay, and flight publication management. Identifying how to leverage the national commercial capacity to provide some services is often included in these plans.
- Health Services Support Improvement Plans that may include such simple items as combat first aid courses or better individual and collective medical kits, or more sophisticated casualty/medical evacuation systems. Depending on the requirement, a Health Services Support Improvement Plan might include a medical facilities development sub-plan, an M&T sub-plan or annex, or a medical supplies distribution sub-plan or annex.
- A Logistics Information Development Plan when there is a desire to increase the level of IM/IT used to support the national logistics system improvements. This can be a key plan that may manage many aspects of the partner's logistics structure when converting from a paper-based logistics system to a modern, digital, information-based system. This plan would have to connect to many collateral improvements, including process and procedural changes in materiel distribu-

tion, M&T management, Logistics Services management, and often both facilities and Health Services management.

### *Execution*

The execution phase of the engagement is where all of the prior work finally pays off. When the previous phases have been carefully completed and the partner nation has been not just a participant but the owner of the work and the decisions, the execution phase has a higher probability of success than when the DIB LET has been doing the bulk of the work, the partner has only marginally participated, and the senior partner authorities have endorsed but not made the key decisions.

Even with full partner participation to this point, the execution phase is frequently the point where the logistics engagement fails to deliver on expectations. While the previous phases have required the intellectual involvement of the partner's personnel, this phase requires actually making change through expenditures for training, facilities and equipment, realigning authorities and responsibilities, and other activities that upset the status quo. When the previous phases of the engagement have clearly demonstrated the need for change and evaluated the options, and the senior authorities in the ministry and services have selected a course of action with the knowledge of what will be required, the probability of successful execution is much higher than when those authorities only become aware of the difficulties during the execution phase.

As part of the execution phase of the engagement, the DIB LET may have to support the partner in many different areas. The changes may touch on many areas not commonly associated with or controlled by the logistics leadership. These include such things as national military doctrine, which might have to change to accommodate or fully leverage the improvements. There may be requirements to create new logistics units or redesign unit missions and re-equip existing ones with significant implications for the Human Resources management aspects of the partner's military. Similarly, there may be requirements for new logistics training, for logistics and non-logistics personnel, so that they understand how to integrate their training and battle plans into the new logistics system. There may also be requirements for some legislative changes to provide the necessary legal authorities for new concepts such as public/private agreements or international agreements with allied militaries or organizations such as NATO.

### **Reality will Disrupt the Best Laid Plans**

While the foregoing suggests that it is possible to move seamlessly through a series of simple steps from identifying the need for logistics changes in a partner nation to implementing a brilliant plan, the reality is almost always far more complex. Nations have many competing interests and individuals with their own agendas. The national political process routinely interrupts the cycle with new governments and new government policies. Military and, to a lesser extent, civilian decision makers move from post to post, to be replaced by those



who have no background in the work done or knowledge of decisions already made. War and natural or manmade disasters occur even as the DIB LET is trying to support the preparations for new ways to deal with these same events. As a result, it is important that those working with the partner nation understand that these events are inevitable and a natural part of the partner's reality; as such they are also a part of the DIB LET's. How the DIB LET deals with these circumstances may well determine the long-term success of the project.

## A Model for Building Logistics Capability: The Case of Colombia

Colombia has been a country of special interest to the United States for many years. It is remarkable for the investments made by the United States under Plan Colombia and related efforts to stem the flow of drugs. Between 2000 and 2012, the United States provided over \$8 billion in assistance to Colombia to combat the drug trade, reestablish Colombian control over its territory, combat terrorist activities, and reduce poverty.<sup>7</sup> As a result of these investments, Colombia has developed a close partnership with the United States and adopted many of its military conventions. In 2010, the Colombian Ministry of National Defense (MoND) embarked on a series of studies aimed at improving its military capabilities through new investments in training, equipment, organizational structure, and policies to meet the aims of the government's *Política Integral De Seguridad y Defensa Para La Prosperidad* (Comprehensive Defense and Security Policy for Prosperity).<sup>8</sup> One of the study areas was logistics. The studies concluded that Colombian military logistics were not supporting the military and ministry effectively; change was needed, but it was unclear what those changes should entail.<sup>9</sup> The MoND asked the U.S. Defense Institution Reform Initiative (DIRI) program for support.

The DIRI approach was to review the information gathered by the various studies conducted by the Colombians, and then to hold a series of workshops with the MoND and the four Public Forces (Navy, Army, Air Force, and National Police). From the work done by the Colombians themselves and the workshops, the DIRI team concluded that the major opportunity for change came from something that the Colombians themselves identified: to move from four separate service-oriented logistics systems to a more joint and "coordinated" (the word the Colombians use to describe instances where the National Police are involved) system. This would allow them to gain economies of scale across a wide range of logistics services, including training, procurement, inventory management, and maintenance. Unlike the United States, there was no equivalent to Title 10 (which provides the legal basis for the organization of each of the U.S. armed services and Department of Defense) restrictions on the amount that the four Public Forces could integrate their spending processes, and all four Forces were using a single Enterprise Resource Planning (ERP) software for their inventory management. In addition, the Forces were agreed that integration of their logistics systems was absolutely essential if they were going to make significant advances in improving the delivery of goods and services while reducing costs.

These were three key building blocks that the DIRI team used when considering what to recommend.

On the downside, the Colombians had no central manager of logistics policies and procedures. While there was a will to work together, there was no one to lead the effort. The first recommendation from the DIRI team was to find a way to amalgamate the four logistics systems, where sensible, and to select a logistics leader at the ministry level with the authority to make the kinds of changes that would be needed. This was generally accepted, although the new Director of Logistics was strictly authorized only to propose, not make, changes. The management of the ERP was assigned to him, along with a number of other “orphan” logistics projects that were scattered across the MoND. In December 2011, the new Logistics Directorate was created, with a mandate to prepare a Logistics Master Plan for ministerial approval.<sup>10</sup>

Having a leader was only the first step in making change. From 2012 through 2014, the DIRI team worked with the new Logistics Directorate to identify what changes were required and what it would take to implement them. Much of the early work concentrated on the social aspects of change management. The Logistics Directorate was a new invention and it was not clear how the Forces and the various directorates and agencies would react to the interloper. To address this, the combined Colombian/DIRI team carefully listened to the various entities to understand their logistics requirements and concerns, and then identified high-value, low-risk, simple solutions to some key logistics shortcomings. The improvements were launched through a series of pilot projects, each one aimed at a specific logistics requirement and designed to experiment with different approaches to identify ways and means of making change that were culturally acceptable, low cost, and effective.

For example, the Public Forces and MoND recognized that their current procurement and supply management system could become more effective and cost less if they could somehow merge the four separate systems of the respective Public Forces into a single, integrated system. One of the first projects that the new Logistics Directorate took on was how to achieve this integration. Deconstructing the problem into its constituent parts, the lack of a single inventory codification system was identified as the key change that needed to be implemented. Without a way to compare usage data and inventory holdings among the four Public Forces, it would be difficult to make significant improvements in this area. The combined Colombian and DIRI team reviewed the various options, including building a custom system, adopting another Latin American system, implementing the United Nations (UN) system, or joining the NATO Codification System. The Colombian analysis concluded that the NATO Codification System was the best option and it was adopted, although the political aspects of this move were debated at very senior levels in the government. Next came the process of understanding how to implement the NATO system and to establish the appropriate policies and procedures in Colombia for its use, as well as mapping the inventory reference numbers being used by the individual Public Forces to the NATO equivalent. Spain proved to be a very helpful partner in this area, having done similar work after it became a NATO nation in 1982. Spain provided considerable

training, technical assistance, and Spanish language software, as well as advice on common inventory management policies and procedures. NATO provided mentorship to the Colombians through its meetings and panels, while the United States—in addition to providing expertise through the DIRI program—provided support through the U.S. Defense Logistics Agency’s National Codification Bureau.

Although this project is still ongoing, it represents the kind of logistics change management that will act as a major stepping stone to future improvements in Colombian defense logistics. The new inventory management system is scheduled to replace the existing four systems in late 2016 or early 2017, setting the stage for the next series of improvements, including common inventory management of the procurement and repair of high-cost, low-volume items used by more than just one service. In Colombia, three of the four Public Forces fly the UH-60 Black Hawk helicopter, and the ability to manage the key (and expensive) components of this aircraft in common is being actively pursued as a priority effort. Similarly, other pilot projects have covered such things as common life cycle materiel management, with emphasis on creating common readiness standards, common maintenance procedures and standards, and maintenance data gathering and analysis. Another pilot project will allow the four Public Forces to start using each other’s movement assets to eventually create a common distribution system, speeding up the delivery of items to units while at the same time reducing the unused cargo space on the Forces’ trucks, aircraft, and marine craft. Yet another pilot project will ensure that fuel and lubricants are managed at the national level, gaining economies of scale in procurement, storage, and distribution.

The common thread running through these initiatives is that each started from an initial Colombian analysis of what needed to be done. The Colombians identified some of their critical logistics issues, but required support to articulate both the requirement and decide on the next steps including determining how to accomplish their aims, introducing methodologies used in other countries to address similar issues, and finding partners and experience outside of Colombia that could be used to advance each improvement. A major component of the work has always been to understand that the cultural aspects of change are equally important as the technical aspects. Solutions that are simple in one country can be difficult in others for purely cultural reasons. At the same time, solutions that are difficult in one country can be relatively simple in others. The lesson from Colombia is that DIB efforts need to start with the host country’s own assessment of its objectives and priorities, and their perceptions of how performance gaps in logistics are affecting the realization of those objectives. From this, the DIB effort can then support stakeholders as they collectively define the nature of the problem(s) and the range of acceptable solutions. Following this, the DIB LET can work with the country’s logistics leaders to identify what should be implemented first, identify the legal and cultural support and impediments to change, then help find appropriate partners with the necessary experience to allow the country to initiate the change on its own schedule, as it builds its own expertise.

## Conclusion

Each partner-nation logistics engagement will be different, because each partner has its unique combination of history, culture, military organization, and goals. There is no template that can be applied that will ensure a successful engagement. To begin an engagement, it is therefore important that the DIB LET understand the partner's situation by conducting with the partner some kind of needs assessment, resource availability assessment, and catalogue of the legal, political, cultural, and other factors that might either support or constrain the implementation of logistics improvements. Following these activities, a useful strategy is to build the logistics improvement roadmap that will determine what to change, as well as how to change the current "as is" partner logistics system into a new "to be" construct. Depending on many factors, this may be a radical and significant change, or it might be some minor changes designed to accustom the partner to implementing logistics improvements. The roadmap can be constructed by conducting a gap analysis of logistics shortcomings, considering options for overcoming those gaps, and then supporting the partner to select an appropriate, affordable yet effective, new logistics structure. Once this is completed, the final activity is to support the partner in the creation of the new logistics construct. In those situations where the initial engagement is limited in scope and intent, the lessons learned can then be used to assist the partner nation begin the process again to initiate another series of improvements.

Despite the many challenges described above, the United States has achieved excellent results and produced a number of remarkable accomplishments in logistics within the field of security cooperation in recent years. In addition to the achievements of the logistics development efforts in Colombia, efforts to build partner capacity in Eastern Europe—both in the newer NATO nations and the Partnership for Peace (PfP) members—has been significant. Assistance with building partner logistics capability has enabled many nations to make important contributions to coalition efforts in Iraq, Afghanistan, and to global counterterrorism efforts. Similarly, assisting in the improvement of partners' logistics systems has facilitated participation in UN and other peacekeeping efforts, as well as many humanitarian assistance and disaster relief efforts in recent years. Recent initiatives and high-level support from the U.S. Department of Defense and close allies point to even greater results in the years ahead.

Such examples of progress demonstrate the importance of planning for and investing in logistics in virtually every undertaking to assist partner nations in their capacity-building efforts. The nature of the geopolitical environment in the years ahead—combined with fiscal realities and the uncertain nature of conflict—make DIB efforts as important as in any time in history. Increasingly, however, we are developing the tools, expertise, and commitment that can lead to the development of strong partnerships, which, ultimately, will enhance security, stability, and progress.

Logistics is, and will always be, a critical component of virtually every security cooperation effort. The entire concept of building partner capacity rests upon the durability, and hence sustainability, of cooperative efforts. It is also clear that logistics developed

in partnership with other nations should be designed for adoption across the affected components of the force, integrated vertically from the tactical to institutional level, and capable of enduring for as long as necessary. Short-term and/or “point” solutions may sometimes be required to meet immediate operational requirements, but they cannot be expected to provide enduring support. At the same time, logistics must be considered as a component of a broader development effort, especially at the institutional level. As a recent RAND study noted, “just supporting partner nations at the operational and tactical level—without supporting the basic infrastructure to handle personnel management, logistics, finance, and many other functions necessary to a well-functioning military—would create a partner-nation force unable to sustain itself.”<sup>11</sup> The development of logistics improvements that are appropriate to each partner is a complex, interactive, and nation-specific activity that requires a broad understanding of the technical and human aspects of both logistics and building partner capacity. While still evolving as a tool to support partner nations as they build effective, transparent, and accountable defense institutions, the development of DIB logistics methodologies and practitioners will be key to obtaining the best return on DIB investments in the future.

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## Notes

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