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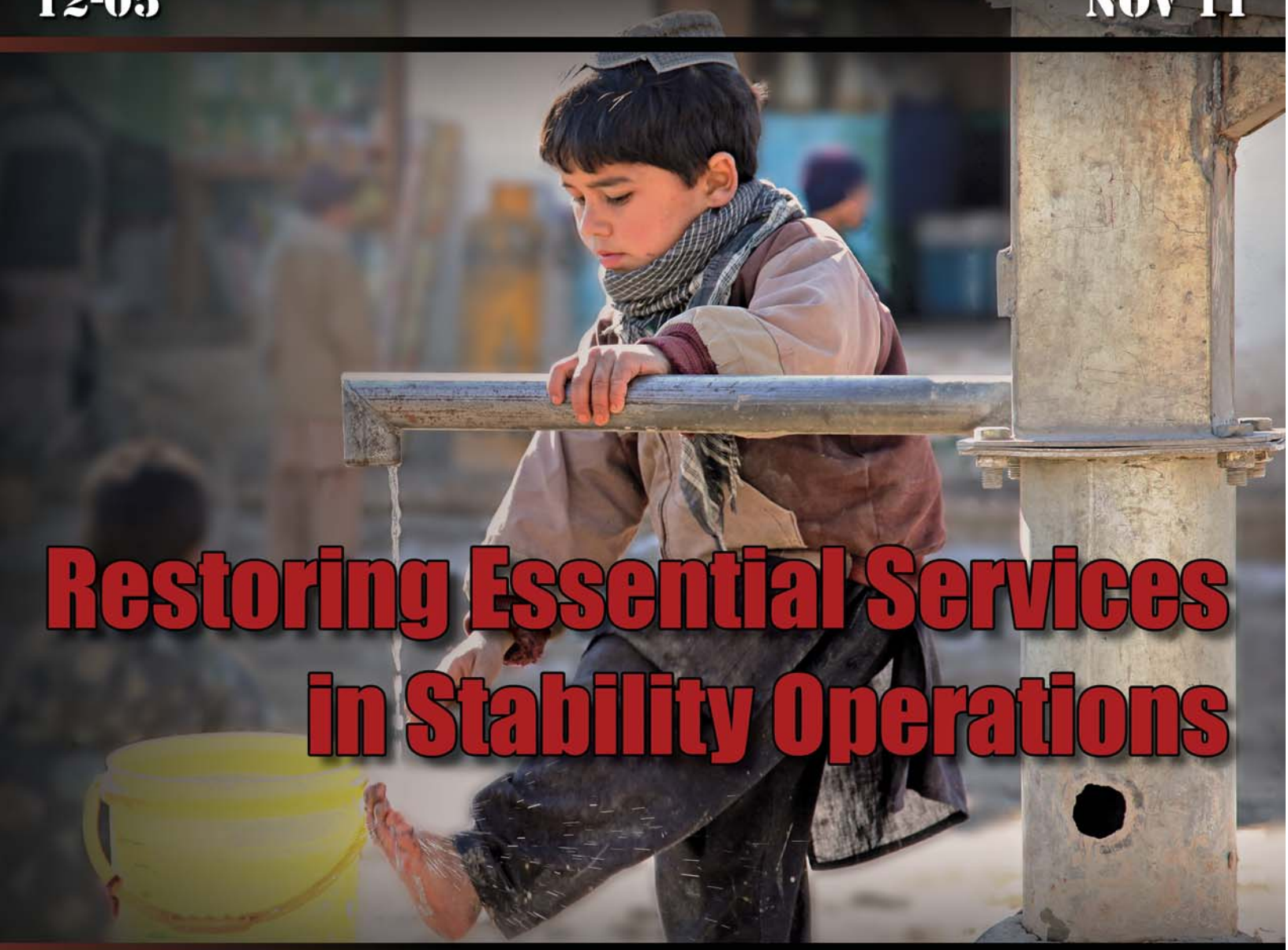

Restoring Essential Services in Stability Operations

Observations, Insights, and Lessons

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Restoring Essential Services in Stability Operations

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Foreword

The Center for Army Lessons Learned (CALL) welcomes this opportunity to collaborate with the Department of Logistics and Resource Operations, Command and General Staff College (CGSC), in the publication of a collection of student papers as a CALL newsletter. This is an opportunity for CALL to capture more of the recent collective combat experience of our officer corps and for the students, in turn, to share with the rest of the Army what they have learned in the schoolhouse that they can apply to their next assignments.

We intend to update this handbook at the conclusion of the next school year with new chapters that reflect both changes in the course syllabus and the different experiences the new students bring to the table. It is our hope that the success of this project will encourage other instructors and departments in the CGSC to share their students' work through this collaborative venue.

THOMAS H. ROE
COL, IN
Director, Center for Army Lessons Learned

Restoring Essential Services in Stability Operations

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Preface

Embassy of the United States of America

The United States has a long history of conducting successful stabilization and reconstruction operations dating before World War II. Although rebuilding takes considerable time and resources, many of these endeavors have proven successful—to include rebuilding Europe and Japan following WWII, stabilizing and rebuilding South Korea following the Korean War, and managing the aftermath of disasters in faraway places like Banda Aceh, Haiti, and the Philippines. The efforts in both Iraq and Afghanistan have been very different, and in most cases much more difficult. Notably, the lack of fully functioning infrastructure before combat operations, the impact of combat operations and the collapse of national governments, and a competitive counterinsurgency environment challenged both stability operations and reconstruction efforts. Compounding the problem, environmental circumstances significantly reduce the amount of civilian and diplomatic personnel available and willing to provide the expertise necessary for the successful completion of stability tasks. Therefore, the military assumed unfamiliar roles and lacked the technical expertise and education for reconstruction in stability operations. This work helps address this gap.

In 2005, two key documents integrated the stabilization efforts of the Department of State and the Department of Defense. National Security Presidential Directive 44, signed in December 2005, directed the Secretary of State to "coordinate and lead integrated United States Government efforts, involving all U.S. Departments and Agencies with relevant capabilities, to prepare, plan for, and conduct stabilization and reconstruction activities." It further directed that the Secretary of State coordinate these efforts with the Secretary of Defense to ensure harmonization with any planned or ongoing U.S. military operations across the spectrum of conflict.

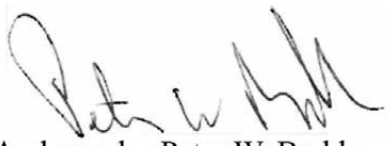
Just prior to NSPD 44, the Secretary of Defense signed Department of Defense Directive 3000.05 in November 2005, directing the military to plan for and provide the support necessary for the successful completion of stability operations in coordination with designated interagency partners. However, the secretary also envisioned a time when the military would be the only agency available to establish or restore the essential services necessary to create conditions that then allow for follow-on stability or humanitarian relief to be delivered. This directive codified stability operations as a core U.S. military mission and went on to say that the Department of Defense must be prepared to conduct and support, even when other agencies were unable to do so.

Stability operations demand that commanders, staff officers, and planners at all levels understand the basics to begin the restoration of essential services. Historically, the ability to quickly restore essential services hastens the stability of the population, reduces the spread of life threatening disease, and accelerates transition efforts to indigenous governmental and civilian agencies. Commanders, senior staff, and planners at all levels will benefit from a better understanding of how essential services are designed to function as a system. Ultimately, understanding how these services are developed, organized, and managed will enable leaders to make informed, effective, and efficient decisions while working to restore critical capabilities such as water production, landfill and sanitation, and fire and police services, as well as how to stimulate the economic mechanisms that must be uniquely dealt with inside the context of each society. Through careful study and understanding we will avoid repeating mistakes of the past, preserving valuable time and staff energy and ensuring both an effective and efficient use of resources in support of the mission.

This work comprises a series of articles designed to address a gap in understanding how essential services are provided by U.S. civilian (commercial) and governmental agencies. It should be viewed as a guide to discuss these problems, which have sometimes been viewed as "the interagency problem." However, as our recent experiences in Iraq and Afghanistan have shown, in the immediate aftermath of conflict, these are DOD and DOS problems to plan for and set the conditions for resolution. Both directives require the creation of sustainable core knowledge on how essential services are developed and provided.

This Center for Army Lessons Learned (CALL) publication is unique—the first of its kind. This is CALL's first publication that focuses entirely on the restoration of essential services with a focus on how civilian organizations approach these efforts. Secondly, it is the first collaboration between CALL and the Command and General Staff College. All the articles have been written by students in the ILE 11-01 course who chose to enroll in the newly developed elective titled "Restoring Essential Services in Stability Operations." These works are based on research conducted with civilian and military subject matter experts who participated in the course instruction and development of its content. In many cases these examples represent the ideal of what essential services would look like, but give the reader an understanding of how these complex systems are designed, and why. The goal of the course author and all who participated in its creation has been to assist both military and civilian interagency leaders to better understand how to plan for the restoration of essential services.

Very respectfully,



Ambassador Peter W. Bodde
Assistant Chief of Mission for
Assistance Transition
United States Embassy, Baghdad

Major General Edward C. Cardon
Deputy Commanding General for Support
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Introduction

Justin Kidd, Assistant Professor, Department of Logistics and Resource Operations, Command and General Staff College

When the Secretary of Defense signed Department of Defense Directive (DODD) 3000.05 in November 2005, he understood that U.S. forces would someday find themselves having to establish or re-establish essential services to a needy population. The directive was very insightful, because the reality is that in many cases, the military is the only significant presence in a post-conflict environment with the planning and execution ability to begin this restoration.

The chapters in this publication are in response to the secretary's mandate that the military must be prepared to restore essential services in the absence of other competent agencies. In many cases and dangerous locations, contractors have accompanied the force and provided the expertise necessary to fulfill these roles. However, abdicating these tasks to contractors is not what the secretary intended when he said the military must be prepared to conduct these tasks.

The primary intent of this Center for Army Lessons Learned publication is to provide a reference to assist commanders and planners in understanding how these complex systems are organized, managed, and operated — from a civilian perspective. It will not make the reader an expert. Each chapter was developed by students attending the Command and General Staff College during an elective course titled "Restoring Essential Services in Stability Operations." With one exception, each topic was presented or augmented by presentations from civilian subject matter experts who offered extensive experience and background in each topic area. They also assisted the student-authors as needed. This elective also required the students to provide at least two additional articles related to their topic area.

This work represents an important start to a better understanding of how to plan for and manage the complexities of restoring essential services. Recent operations have shown that during the transition to Phase IV operations, the "golden hour" of effective response cannot be wasted. As noted, the Secretary of Defense intuitively understood the challenges facing military commanders and planners when he signed DODD 3000.05 into policy. This book is a first, small step toward addressing that challenge.

I would like to thank the students who attended the inaugural course in restoring essential services for their dedication in writing these chapters. It would not be possible without their interest in furthering the professional body of knowledge. I must also thank the many guest speakers who selflessly volunteered their time and energy to make the restoring essential services course and this publication a reality. I would also like to thank our department editor, whose assistance was instrumental in this process. Finally, I also owe an enormous debt of gratitude to my mentor and friend MG Ed Cardon and his colleague Deputy Ambassador Bodde for their belief in the importance of this work.

Chapter 1

Assessing Requirements and Capabilities, Selecting Projects, and Obtaining Funding

MAJ James M. Gallagher

Restoring Essential Services in Stability Operations

Field Manual (FM) 3-07, *Stability Operations*, describes that military forces in the aftermath of armed conflict and major disasters support efforts to restore, establish, and secure the most basic civil services until local civil capacities have been restored. Basic civil services include essential food, water, shelter, and medical support. Once these basic civil services have been restored, interagency or intergovernmental organizations would focus on restoring other essential services, whereas military forces focus on maintaining security.[1]

Recent experiences in both the Afghanistan and Iraq theaters, however, have shown a greater role for military units during phase IV reconstruction efforts. The enduring threat and the need to restore stability in these regions forced phase IV operations to occur during open conflict.[2] Given the security conditions, military units focused not only on restoring basic civil services, but led the organization and the efforts to restore other essential services, ranging from safety services, such as fire and police departments, to major infrastructure projects, such as electrical plants and power grids.

Full spectrum operations doctrine requires Army units to be prepared to assume this same role during phase IV if dictated by security conditions.[3] For this reason, Army leaders must become familiar with the requirements and capabilities needed to restore essential services, which include water production facilities, sanitation and landfill services, medical facilities and health care, power grid and stations, police departments, fire departments, economic conditions, and city management functions. As with all military operations, the first step in restoring essential services is to complete a current assessment.

Essential Services Area Assessment

Once an area of responsibility (AOR) has been assigned, the unit commander and staff must conduct a thorough infrastructure assessment. The infrastructure assessment must identify and prioritize local requirements for essential services. Equally important is that the assessment must determine all service restoration capabilities and shortfalls that exist in the AOR. *The goal of the assessment is to obtain a status of all essential services, considering available capabilities, in order to prioritize essential services projects that best benefit the majority of the local populace.*

Requirements

Requirement determination is not limited to assessing what essential services are absent in the AOR. Harder to ascertain and often more important to the assessment is the "who, when, why, and how" that are associated with services restoration. The unit's full grasp of the requirements framework consists of being able to successfully answer the following questions:

- Who must play a role in health care service projects in this area?

- Why is water production more important than sanitation is this community?
- When is the best opportunity to improve economic conditions?
- How should the electric grid be restored?

Demographics and history determine the largest problems and sensitive issues in the area. Often the demographic elements in the community are divided as a result of these problems and issues; identifying these problems also identifies potentially competing groups. Not surprisingly, many of these problems and issues are directly linked with the availability and accessibility of basic services, such as water and food sources.[4] Understanding the history of these problems and issues helps to identify how the rank and order of these groups and their competitive nature have changed over time. A solid understanding of the area's demographics and history assists with developing the framework and the climate in which the restoration projects will occur.

Local government and populace. Include, but do not solely rely on, the local government's inputs during the assessment process. Work with local government in determining essential service needs so as not to undermine its authority, but seek feedback from other nonpositional individuals to obtain a more accurate and complete assessment. Actively engage the local populace as well.

The unit should not organize town hall meetings for the purposes of discussing service projects. It makes the local government appear to be subservient to the military unit, and it delegitimizes the government's ability to lead the community's reconstruction efforts.[5] The unit must not assume this role away from the local government. Additionally, the local populace typically will not freely and honestly share their comments or feedback within a town hall meeting-type setting. Seek input from the local populace through one-on-one engagements in familiar environments.[6] Including the local populace in the assessment helps identify key stakeholders outside the local government who must be included in restoration projects.

Preconflict or disaster essential services. The assessment must determine the status of all essential services prior to the disaster or conflict. Services that no longer exist as a result of disasters or conflicts should be a priority to restore over services that did not exist prior to the disaster. Restoring pre-existing services early legitimizes the unit's role in the AOR in the eyes of the local populace without undermining the local government. *It is important to identify the appropriate level of technology that is required to restore or create new essential services.* Using advanced technology or upgrading to current technology may not be suitable for the local populace if it lacks proper maintenance equipment and training.

Capabilities

The unit may not possess the organic capabilities required to accomplish the mission of restoring essential services and will need to be augmented with either additional units or with contractors. The common capability among all units is their ability to direct and plan through their command and staff structure and to provide security to varying degrees. Given these shortfalls, the unit must identify capability gaps early in the assessment and must determine how to best fill these gaps. Under ideal conditions, the host nation and the local populace are able to fill these capability shortfalls, but this is usually not the case. Instead, the unit must coordinate restoration efforts with other military, interagency, intergovernmental, and nongovernmental organizations,

not only to fill capability gaps but also to attempt to combine resources, avoid project redundancy, and obtain unity of effort on projects in shared areas of responsibility.[7]

Organization. The unit's command and staff are the core members of the infrastructure assessment team and reconstruction planning efforts. Depending on the unit's type and its staff size, a unit commander may request special staff augmentation from higher headquarters to assist with assessment and reconstruction planning. This could include civil affairs, engineer, and resource management staff support. Additionally, the unit may look within its own ranks for service members with experience in managing essential services. This is especially useful in units comprised of Army Reserve or National Guard elements that include Soldiers who work in essential services areas as civilians when they are not activated for deployment.

Host nation and local population. At a minimum, the local population should provide an untrained workforce to every project led by the local government. A recent U.S. Agency for International Development (USAID) survey in Afghanistan determined that the local government's ability to restore or to provide essential services is an indicator of a secure and stable environment, which is opposed to service efforts that are led or provided by U.S. forces.[8] Depending on the geographic and technical areas, varying levels of a skilled work force should be available. If specific engineers, technicians, or specialists are not available locally, the unit must try to request this specialist support through the host nation. Often, acquiring the appropriate building material for projects is a greater challenge than obtaining skilled labor. Support for these requirements should be requested through the host nation first. It is important that both the host nation and the local government share in the responsibility of restoring and providing essential services.

Interagency organizations. Several U.S. government organizations are invaluable resources that can assist with assessing, planning, and executing essential services programs. Historically, tactical units have not had a daily working relationship with these organizations; however, the scope of the restoration missions in both Afghanistan and Iraq has brought about a much closer working partnership.

- The U.S. Army Corps of Engineers (USACE) is the Department of Defense's (DOD's) expert on constructing and rebuilding essential services. USACE builds and operates the nation's waterways and dams and has extensive experience in electrical power generation, infrastructure, and military construction of roadways, highways, and buildings. USACE is organized and ready to serve in war zones through existing regional centers with reachback capabilities to the United States. USACE has experience in partnering with foreign nation and sister service equivalent agencies.[9] USACE is invaluable not only for its technical expertise but also its experience in planning and managing large-scale projects.

- The Department of State (DOS) is the government agency responsible for U.S. foreign policy. The secretary of state implements foreign policy and foreign affairs through presidentially appointed ambassadors. In developing or disaster-stricken nations, the DOS mobilizes USAID to organize relief efforts. The DOS is the source for foreign government information, foreign security and economic data, and other useful information that is specific to the policies of foreign nations.[10]

Ambassador and country team. The ambassador is the designated senior foreign policy official and mission chief with authority over all U.S. government agencies within a country, with the

exception of military forces assigned to a combatant commander. The country team can include members of other U.S. departments and agencies, but its exact composition varies based on U.S. national interests in the specific foreign country. Often the senior representative of USAID is a member of the country team. The country team's purpose is to develop interagency cooperation and action based on requirements and capabilities within the foreign nation. The ambassador is responsible for integrating the resources of all the agencies representing the country team.[11] The ambassador and the country team are great sources for national and regional restoration plans and specific DOS projects.

The USAID is a DOS agency that promotes peace and stability in foreign nations by generating economic growth, protecting human health, providing emergency humanitarian assistance, and enhancing democracy in developing countries. According to the National Security Strategy, USAID's development work joins diplomacy and defense as the three tiers in the nation's foreign policy apparatus.[12]

A USAID mission overseas is part of the U.S. Embassy and operates under the authority of the ambassador. A small USAID mission may include one U.S. representative supported by several local hires, whereas a large USAID mission may include 50 or more U.S. representatives supported by 50 to 125 local hires. Large missions typically include a director, deputy director, and various program managers. USAID has approximately 70 active overseas missions. USAID's strength is its ability to organize and implement partnerships with various interagency, intergovernmental, and nongovernmental organizations.[13] A longstanding USAID mission is a great source for area assessments, ongoing and planned projects, and other organizations working within the area.

The Central Intelligence Agency (CIA) manages the *World Fact Book,* which provides detailed information on the history, people, government, economy, geography, communications, transportation, military, and maps for 266 nations.[14] This resource is extremely helpful as a solid starting point in making an area assessment.

Intergovernmental organizations are non-U.S. government-led organizations with similar capabilities to assess, plan, and implement essential services. Examples of intergovernmental organizations include the United Nations and NATO. Although the United States is often a member of these organizations, leadership roles are shared among various nations or belong to a foreign nation. If an intergovernmental organization is operating in a unit's area, it is important to at least be aware of its restoration efforts to avoid project redundancy.

Nongovernmental organizations (NGOs). NGOs are private- or public-funded organizations from various countries with missions or charters to provide humanitarian support to developing, post-disaster, and post-conflict nations. Due to security concerns in conflict areas such as Afghanistan and Iraq, NGOs have become more receptive to working on projects with U.S. and other military forces.[15] Based on their charters and funding sources, most NGOs are often limited to specific projects, such as children's vaccinations or education restoration programs, and typically do not have the same access to funding and resources that both interagency and intergovernmental organizations possess. USAID is a good source to determine which NGOs operate in the unit's AOR, since USAID often provides funding to NGO missions. Although NGOs are typically very experienced at assessing, planning, and executing projects, it is important to understand the limitations of the specific NGOs in the unit's area of operation if relations exist to develop complimenting restoration programs.[16] Information on specific NGOs

and the *NGO Handbook* can be found through the World Association of Non-Governmental Organizations (WANGO) at http://www.wango.org/about.aspx.

Assessment Tools

SWEAT-MSO/ASCOPE. Various tools are available to assist the unit in conducting an area assessment. Many military members familiar with FM 3-07, *Stability Operations*, probably have used SWEAT-MSO to conduct an infrastructure and services assessment of their area of operations. SWEAT-MSO is more an essential services memory device than an assessment tool. SWEAT-MSO stands for sewage (S), water (W), electricity (E), academics (A), trash (T), medical (M), safety (S), and other considerations (O).[17] FM 3-24, *Counterinsurgency,* presents the more sophisticated ASCOPE tool used to describe civil considerations in an operational area. This assessment focuses on identifying the key civilian significant **areas (A)**; important **structures (S)** (which includes infrastructure and essential services); local authority **capabilities (C)**; institutions and nonmilitary **organizations (O)**; nonmilitary personnel or **people (P)**; and routine, planned, or spontaneous **events (E)**.[18] Although ASCOPE brings the human dimension or the "people factor" to the assessment, just like SWEAT-MSO, ASCOPE fails to answer questions beyond "what is the current status of infrastructure and the people that live with the existing infrastructure."

Tactical conflict assessment planning framework. This assessment tool, also known as the TCAPF, is a marked improvement over SWEAT-MSO/ASCOPE. The USAID created the TCAPF based on its understanding that successful stability operations depend on identifying the causes of instability and developing a state with the capacity to manage or prevent these causes of instability in the future. USAID provided the TCAPF to military commanders and their staffs as a tool to identify the causes of instability, develop activities to mitigate the causes of instability, and measure the effectiveness of these activities in creating stability in a brigade or lower tactical environment. TCAPF is also constructed as a socio-political input to the unit's military decisionmaking process and should be used to create local stability plans.[19]

The TCAPF toolkit is comprised of field and planning tools.[20] The field tools include a collection planner; a basic questionnaire sheet (with four questions); and five advanced questionnaire sheets on governance, security, rule of law, essential services, and livelihoods. The planning tools include political, military, economic, social, information, and infrastructure (PMESII); prioritization; and a stability matrix. Input from the field tools feed the planning tools used to ultimately develop the stability operations plan. The foundation of the TCAPF toolkit is the field basic questionnaire sheet used by the data collector. Its purpose is to determine the root causes of instability, who has the ability to help eliminate the cause of instability, and how to eliminate the cause of instability by answering the following four questions:

- Have there been changes in the village population in the last year? Why?
- What are the most important problems facing the village? Why?
- Who do you believe can solve your problems? Why?
- What should be done first to help the village? Why?

The TCAPF is a top-down, quick, and straightforward approach to identify the source of instability, who can eliminate the instability, and how. Its simplicity allows for wide employment

within a large population base. The strengths of TCAPF are also its weaknesses. The use of "why" questions is highly subjective; it is difficult to triangulate or to validate information provided in answers. In areas of ongoing conflict, answers the local populace provides to TCAPF questions may be inaccurate due to fear of reprisal.[21] Obviously, developing stability and reconstruction plans using inaccurate input from the local populace is potentially costly in both U.S. lives and funds.

Participatory rural appraisal (PRA). The PRA is another assessment tool developed by USAID as a community-driven approach to a needs assessment. The PRA emphasizes shared learning when local people and the outside organization work together to collect information and identify needs. The goal of the PRA is not to gather statistics and answers through surveys but to qualitatively understand and appreciate a population's knowledge, attitudes, and practices through day-to-day interactions.[22] If the PRA is successfully implemented, the local populace should see the outside organization as facilitators who are working with the community as opposed to controllers working within the community. Unlike TCAPF, this assessment methodology is popular among NGOs, who often conduct humanitarian missions within stable environments.

The PRA toolkit is comprised of dialogue-based and nondialogue-based tools. Both tools seek to understand the local population, the reason for their problems, and the best methods for the community to solve its problems as a team. Dialogue-based tools work toward these ends through focus-group discussions and semistructured interviews. Nondialogue-based tools include direct observation transect walks within the community or households, using preference rankings to find the problems and find the solutions, and locals physically mapping (drawing) community assets, resource availability, and resource use.[23] The strength of using both dialogue- and nondialogue-based tools is the ability to triangulate or validate information provided with information that has been observed.

A successful PRA requires a trained multidisciplinary team capable of administering and interpreting data that most military units lack. Given its bottom-up approach, the PRA process can take a month or longer to accomplish. Additionally, the PRA assessment is most effective in small population areas where full community participation is more realistic. Most importantly, the PRA works best in areas that are already experiencing relative stability, where locals are willing to honestly participate. (See Appendix A for the PRA toolkit.)

Participatory stability assessment tool (PSAT). The PSAT is another assessment tool developed by USAID that combines the strengths of both the TCAPF and the PRA methodologies. The objective of the PSAT is to answer more accurately the four questions of the TCAPF basic questionnaire using PRA dialogue and nondialogue tools.[24] Although it is unclear whether the PSAT incorporates PRA tools to answer the five advanced questionnaire cards in the TCAPF toolkit, the assumption is the PSAT field tools still mesh with the TCAPF planning tools used to develop stability operation plans.

Although the objective of the PSAT is to more accurately answer the four basic questions of TCAPF using the PRA methodologies, the PSAT works best in conditions suited for a PRA assessment. Similar to the PRA, the PSAT requires a trained and multidisciplinary team capable of administering and interpreting both dialogue and nondialogue tools. Using PRA tools with a bottom-up approach to answer the TCAPF questions also increases the assessment period and decreases the potential assessment audience. By focusing on answering the four basic questions,

the PSAT is more likely to be described as a more efficient version of the PRA as opposed to a more accurate version of the TCAPF.

Project selection

Once an area assessment is complete, the unit must select projects using objective criteria while appropriately involving the local government, its citizens, and other organizations in the process. It is important to always remember that the goal is to select projects that will best benefit the community after U.S. forces depart from the area. Often this goal in project selection differs from that of other stakeholders, who must not be alienated or marginalized in the process.

Sustainability

Essential service sustainability is arguably the most important criteria for project selection. If the local government and the populace cannot maintain the service without foreign assistance, the project probably should not be initiated to avoid creating bad perceptions about the United States and the local host government.[25] Strong candidates with proven sustainability are projects to rebuild essential services to the same specifications that existed before the conflict or the natural disaster. Prior to selecting a required but previously nonexisting essential service to the area, the unit must determine if the ability exists in the community to operate, train, and maintain the facility or service in the future.

Security

In order to obtain full participation in a project, security must be guaranteed. Resources offered by the local government, populace, and other organizations such as NGOs will not be as readily available if participation in the project involves extraordinary risk. Unless the project is critical to the community, any project that requires on-site physical security should be avoided. This is especially true during initial projects in which key stakeholders are still forming trust relationships. If a project is critical but requires on-site physical security, the best solution is local security rather than U.S. military security.

Quick wins first

It is important to develop strong working relationships between key stakeholders early in the process. This can be accomplished by initially taking on smaller-scale projects. Quick wins in the beginning help to develop a long-term working team. By underpromising and overdelivering on initial projects, all stakeholders on the team generate creditability from successfully completing quick-win projects.[26]

Measurable

The military must always review how current operations impact accomplishing the overall mission. Understanding the mission and the commander's intent creates measures of effectiveness and performance to assist the staff in determining if operations support the end state.[27] More than likely, if the project benefits the stability of the community, it is aligned with the commander's intent. The more challenging task is measuring how in-progress and completed projects assist in accomplishing the mission. The ability to determine how a project contributes to overall mission success is a criteria in project selection.

Role of local government

Hold local national government meetings to prioritize projects. Project selection should be based on the consensus developed from one-on-one interviews and interactions with the local population.[28] This avoids project selection that potentially benefits a select few. Allowing the local government to prioritize projects, however, empowers them in the eyes of their citizens, which sets the conditions for stability after U.S. forces depart.

Participation of local populace

Determine the role the local population will perform prior to project start. At a minimum, the local population must provide the labor. If the local population cannot participate for any reason, do not select the project. Avoid segregating the community when assembling project teams. Do not create conflict by unknowingly favoring one group over another.[29] It is important to manage the expectations of the local populace on the number of projects executed and project outcomes. It is important for all stakeholders to realize that the United States does not possess unlimited resources.

Other organizations

Do not fail to recognize other organizations besides the local government and the populace that have the ability or desire to participate in projects. Other interagency, intergovernmental, and nongovernmental agencies can lend expertise and resources, making once untenable projects now possible to undertake. If involving other organizations on projects, it is important to develop clear roles and responsibilities prior to proposing the project to the local government. Also understand the limitations of these organizations in terms of their ability to adapt to or handle unforeseen requirements.

Sources and obtaining funding

At some point during the assessment or project selection process, the issue of funding arises. Instinctively, most key stakeholders will see the U.S. military as the sole funding source. This misconception is understandable given that the U.S. taxpayer paid billions of dollars toward the restoration efforts in Iraq alone. It is unlikely that similar funding will be available in the future. As a steward of government resources, the military must ensure that funds are spent wisely and appropriately.

Non-U.S. government sources

In terms of funding essential service projects, the U.S. government is not the default funding source. Non-U.S. government funding shows commitment on the part of the host nation and the local government to improve the quality of life and the stability of their own people. Funds generated from the community are an initial investment to maintain an essential service in the future beyond the unit's deployment tour.

Host-nation funds. Work with the local government to procure project funds through the host-nation government or the local community. The host nation's ability to fund projects legitimizes its purpose to its citizens. Communities may possess the ability to raise their own funds if government funding is not available. This funding source should be exhausted before seeking U.S. government funds.

Other funds. Other non-U.S. organizations, such as intergovernmental and NGOs, possess funds they are willing to use for specific project types. Developing strong relationships with other organizations in the unit's footprint may create opportunities to combine efforts toward projects.

U.S. government sources

Sources of U.S. government funds for restoration projects vary depending on the mission's overall description. Funding sources differ between humanitarian relief and post-conflict reconstruction missions. Often the funding source dictates the project type, so it is legally important to use the funds for their intended purposes and to properly document their use. Restoration funds available during Operation Iraqi Freedom (OIF, now Operation New Dawn [OND]) are described below to give a representation of potential funding that might be available during future operations. Funding appropriation amounts, fund use by department, and fund descriptions are provided by "SIGIR 10-021 Plans to Preserve Iraq Reconstruction Program and Contract Records Need to Be Improved."[30]

Iraq Relief and Restoration Fund (IRRF). Congressional appropriations totaled $20.86 billion. The fund's largest users included the DOD and the DOS, who received $14.04 billion and $6.22 billion, respectively. The IRRF was used to repair, renovate, and build Iraq's infrastructure to include schools, office buildings, wastewater treatment plants, oil terminal facilities, and other Iraqi government capacity.

Iraq Security Force Fund (ISFF). Congressional appropriations totaled $18.04 billion to support Iraq's Ministry of Defense and Minister of Interior development of Iraqi security forces. The funds were used to train and equip the Iraqi police, army, navy, air force, and special operations forces. Included in this funding was the construction of training centers, military bases, and police stations.

Economic Support Fund (ESF). This fund provided $4.56 billion for Iraqi reconstruction. It is primarily managed and committed by the DOS; some funds were transferred for use by the DOD. The funds are used for programs and grants to improve infrastructure and community security, to promote democracy and civil society, and to support capacity building and economic development.

Commander's Emergency Response Program (CERP). This fund was created by appropriating $3.74 billion from DOD's operations and maintenance accounts. The CERP fund was used exclusively by U.S. military commanders to provide local relief, reconstruction, and economic development activities.

Obtaining funding

The fiscal triad described in the *Commander's Guide to HR and FM Operations* is the legally-defined process that governs the DOD fund procurement process for field purposes.[31]

At the center of the fiscal triad is the commander, who identifies and describes the funding requirement. The fiscal triad is comprised of the staff judge advocate (SJA), contracting support, and financial management. The SJA determines if the requirement is legally fundable. Contracting support determines if the capacity exists to meet the requirement. Resource management determines if the appropriate funding exists to source the requirement and disburses and accounts for funds if available. Specific fund requisition processes and packets differ from

command to command, but common to all is the need to involve the SJA, contracting support, and financial management. As the requisition process advances and the packets are modified, it is a good idea to require all organizations in the triad to relook the packet.

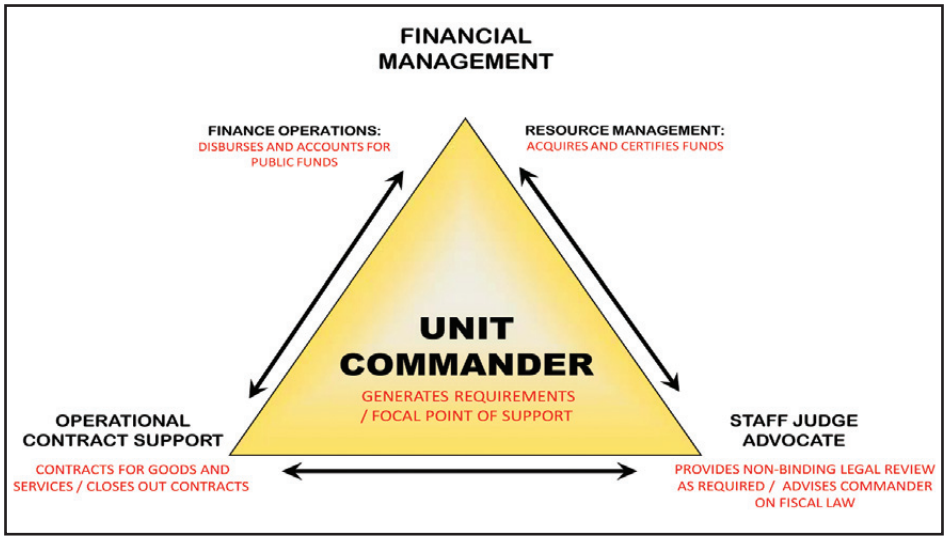

Figure 1-1. The fiscal triad

Appendix A

Participatory Rural Assessment Toolkit

Excerpt from Robert Chamber's *The Origins and Practice of Participatory Rural Appraisal*[32]

Dialogue-Based Tools

Semi-structured interviews: Can entail having a mental or written checklist but is open-ended and follows up on unexpected remarks.

Focus groups: Deliberately structured (i.e., gender) group interviews or activities.

Oral histories and ethno biographies: Oral local histories on features in the village (e.g., crops, buildings, or households).

Key probes: Questions that can direct to key issues.

Key informants: Questions to determine the "experts" and how to find them.

Nondialogue-Based Tools

Direct observation (do it yourself): Involves asking to be taught by the locals, being taught, and performing village tasks.

Direct observation (they do it): Locals become the researchers and investigators. They do transects, observe, and interview villagers and report results.

Social mapping and modeling: Locals use the ground, floor, or paper to make social, demographic, health, natural resources, service, and opportunity maps or three-dimensional diagrams of their land.

Transect walks: Walking with or by local people through an area; observing, asking, listening, discussing, and identifying different zones, soils, land uses, vegetation, crops, livestock, local and introduced technologies; seeking problems, solutions, and opportunities; and mapping and diagramming the zones, resources, and findings.

Daily schedule: Locals indicate and diagram the time spent each day on daily activities.

Seasonal diagram: Locals indicate and diagram the monthly or seasonal changes in rainfall, crops, labor, diet, food consumption, migration, sicknesses, income, prices, and debt.

Timelines and change analysis: Locals chronicle the events in the past that impacted the current conditions in the village or area.

Endnotes

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2. LTC Steven Miles, " Reconstruction Under Adversity Rebuilding Iraq: Lessons for the Future," (Carlisle Barracks, PA: US Army War College, March 2007), 1.

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4. Robert Richey (2011, April 27). Instruction of CGSC Course A432, Restoring Essential Services in Stability Operations. Presentation conducted in the Lewis and Clark Center at Fort Leavenworth, KS.

5. Richey (2011, April 27).

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7. LTC Miles, 6.

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9. LTC Miles, 7.

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11. Ibid., A-2.

12. Center for Army Lessons Learned (CALL) Handbook 10-41, *Assessment and Measures of Effectiveness in Stability Operations* (Fort Leavenworth, KS: May 2010), 62.

13. FM 3-07, A-7.

14. CALL, 61.

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16. Richey (2011, April 27).

17. FM 3-07, 4-11.

18. FM 3-24, *Counterinsurgency* (Washington, DC: Government Printing Office, December 2006), B-3–B-10.

19. CALL, 13.

20. The TCAPF toolkit can be found in CALL Handbook 10-41, pages 38–49.

21. Richey (2011, April 27).

22. Richey (2011, April 27).

23. Richey (2011, April 27).

24. Richey (2011, April 27).

25. Richey (2011, April 27).

26. Richey (2011, April 27).

27. FM 3-07, 4-13.

28. Richey (2011, April 27).

29. Richey (2011, April 27).

30. Special Inspector General for Iraq Reconstruction, SIGIR 10-021, *Plans to Preserve the Iraq Reconstruction Program and Contract Records Needs to Be Improved* (Washington, DC: July 2010), 4.

31. Soldier Support Institute, *Sustainment Commander's Guide to Human Resources Operations and Financial Management Operations* (Fort Jackson, SC: June 2010), 22.

32. Robert Chambers, "The Origins and Practice of Participatory Rural Appraisal." *World Development,* Vol 22, No. 7 (1994): 959–960.

Chapter 2

Assessing and Managing Power Grids and Stations

MAJ James Hanifin and MAJ Ed Allen

Introduction

A major component of physical infrastructure in both developed and developing countries is the electrical power grid. This chapter describes briefly the elements and function of the power grid in the United States, which reached maturity in the rural portions of this country only in the 1950s. Whereas we grew up accustomed to the availability of electricity 24/7, with power outages conditioned by rare equipment failures or natural disasters, populations of developing countries or areas that have been ravaged by war have limited and sporadic access to electric power, if any at all. This chapter also offers suggestions and formats for assessing an electrical grid along with a list of Department of Defense organizations that provide subject matter expertise in this area.

Organization of the System

The current U.S. system of electrification is organized to incorporate power plants, power transformers, high-voltage transmission lines, power substations, subtransmission lines, distribution substations, power poles, and transformer drums that lead to single wires to homes and businesses. (See Figure 2-1.) As power travels from the power plant to your house, it travels through various complex, well-managed systems. The power grid works in two phases called the transmission and distribution grids. The transmission grid is the network of power plants and transmission substations that generate power in the form of electricity. The power plants or power generation stations are plants containing electrical generators that produce an electrical current that is sent from the plant to the end users. The electrical current is produced by rotating turbines that are driven by steam, water, wind, or other fluids. The steam is created by burning coal or other fossil fuels or nuclear energy. Once the electric current is produced, the generators push the current from the generation plant to a power transformer, which steps up the voltage to increase the distance across which the electric current can travel. Once the current leaves the power transformer, it has enough boost (higher voltage) to pass over large distances to reach a transmission step-down substation.

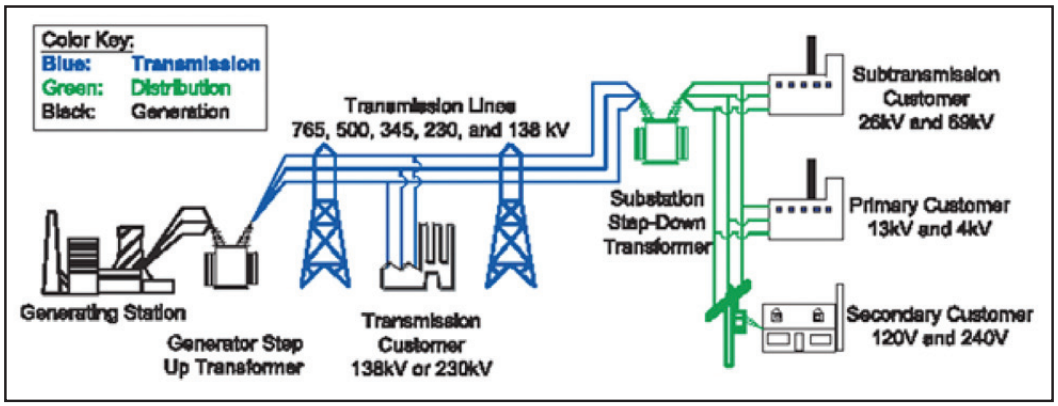

Figure 2-1[1]

The crossover from the transmission phase to the distribution phase occurs when the high-voltage electricity travels into the step-down transmission substation. The high-voltage lines that lead into the transmission substation are easily identifiable since they are large towers that have a letter “H” appearance (see Figure 2-2).

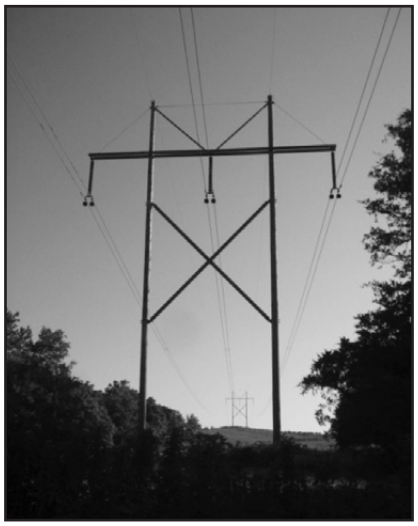

Figure 2-2

As the current flows off the transmission grid, it is stepped down at the second transmission substation and is thus pushed farther in the distribution grid. This step-down process is where the conversion from a higher voltage to a lower voltage occurs and allows the current to flow through multiple and smaller subtransmission lines (Figure 2-3).

Figure 2-3

The subtransmission lines carry the lower voltage lines to a distribution substation, which further reduces the voltage and pushes the current through smaller overhead subtransmission lines. These overhead subtransmission lines are the familiar lines that are common in most urban or rural neighborhoods. In heavily populated areas, the overhead subtransmission lines can be

placed underground as well. These lines are easily identifiable along streets and roads since they have a letter "T" appearance. (See Figure 2-4.) Along the distribution lines are several pole-mounted transformers or customer service connections that include components such as reclosers, voltage regulators, and capacitors. For the purpose of simplicity, we will not devolve into detail on this aspect, but the picture below depicts some of the familiar designs that are common. These distribution lines have these components to extend range or to decrease power to residential customers or to industrial or commercial customers. Finally, a service drop line connects the overhead subtransmission lines to the end user.[2] (See Figure 2-5.)

Figure 2-4

Figure 2-5

The U.S. power grid is operated by many entities — publicly owned, privately owned, and government owned — that generate, transmit over long distances, and distribute electric power to users. From a systems perspective, these power grids are run regionally, and they are monitored by the U.S. Department of Energy (DOE) and the North American Electric Reliability

Corporation, which works in concert with the DOE to develop and enforce standards. Because the U.S. power grid is regionally run, there is no centrally managed grid that allows for generated electricity to be shifted between regions without a cumbersome process. This is an issue the DOE and the regional agencies are working to fix, as analog control systems are being replaced by computer-controlled systems, the smart grid comes to fruition, and communication and monitoring become easier and faster.

Although the power grid is highly regulated in terms of energy production and distribution standards, it is an older model of functionality that does not lend itself well to innovation and competitive market forces. Due to the federal government's strict enforcement of approvals for new products and their implementation, the normal market-driven innovations have not flourished. This lack of development in the power grid has left the United States with an antiquated system that continues to struggle with an ever-increasing demand for energy driven by technology. It is ironic that due to rapid advances in technology, the demand has surged for power, but due to the lack of technological advancements in power generation and distribution, the supply has lagged substantially.[3] The regional power entities have recognized this fact and have begun to invest in product development and a smart grid that leverages technology to increase efficiencies and effectiveness in management. This smart grid will lead the industry into reshaping its organizational design and foster increased output of energy to match future demand.

Assessment Techniques

When assessing an electrical grid, there are three separate areas to look at: power generation, power transmission, and power distribution. As illustrated above, the electrical power grid for a city has many parts and can be very complex depending on its size. When conducting humanitarian operations or stability operations, the first step is to determine how much electrical service local areas receive and if that amount meets demand. Many areas in which humanitarian and stability operations are conducted are subject to scheduled rolling blackouts. However, in a worst-case scenario, these same areas will experience unscheduled blackouts. The assessor will have to determine whether service has deteriorated following combat operations or humanitarian incidents. When significant incidents occur in an area, they can affect the area's ability to generate electricity or to transmit or distribute the electricity that is produced.

When conducting the initial assessment, the first area to assess is power generation. (A sample form for this assessment is shown in Appendix A to this chapter.) When completing the power plant assessment, it is crucial to be detailed and to take as many pictures as possible. Data plates located on the equipment will provide the majority of the information necessary to research the equipment and determine its capabilities. While at the power plant, it is also important to locate and identify the plant operator or the plant engineer. Even if this person does not meet the educational requirements typically associated with this job, he should be able to provide valuable insight on the operability of the equipment and the historical information that is necessary to complete a thorough investigation. In many cases, the plant operator or the plant engineer will be able to provide information about transmission or distribution lines, the location of substations, and points of contact associated with the system. This information will be used by outside agencies to calculate the amount of electricity the power plant is capable of providing.

Even if the power plant does not provide the amount of energy required to support the city or town, an assessment of the transmission or distribution system is still necessary. (A sample form for this assessment is shown in Appendix A to this chapter.) Being as detailed as possible and taking numerous pictures will be of great value when forwarding the information to the engineers

who will conduct the technical portion of the assessment. During the transmission or distribution portion of the assessment, the assessor will focus on inspecting substations, transformers, transmission or distribution poles, and transmission or distribution lines. While conducting the assessment, interaction with substation workers and the local populace can assist with the accuracy and the historical relevance of the information that has been gathered. Once both forms have been completed, they will need to be sent back for a technical review and analysis.

Using the forms provided in Appendix A, an initial assessment can be conducted by a Soldier as long as he has a camera and a Global Positioning System (GPS). Electrical engineers on an engineer brigade staff or in a forward engineer support team-main (FEST-M) may be available to conduct a more thorough initial assessment. Interior electricians (Military Occupational Specialty 21R) on an engineer battalion staff and below are unaccustomed to working with high voltage and would provide little added value when identifying an assessor.

After assessments are completed and a course of action is decided upon, it will be important to keep in mind that upgrading an electrical grid is expensive and very technical. Most systems in Third World countries are very old and outdated; replacing some equipment could lead to the requirement to replace follow-on equipment so that equipment can work in unison. In many small countries, it is difficult to identify contractors who are technically capable and qualified to complete electrical grid upgrade contracts. Any major upgrades to an electrical grid would have to be supervised by the technical section of an engineer brigade in the U.S. Army Corps of Engineers (USACE) or Naval Facilities Engineering Command (NAVFAC). An engineer brigade would be subject to availability and workload, and USACE/NAVFAC would cost a percentage of the overall contract. When conducting assessments, the land-owning unit should work in coordination with the local provincial reconstruction team or with other government agencies to tap into that agency's experience and resources and to ensure that duplicative work is not being completed. When looking at short-term solutions, keep in mind that replacing one transformer or fixing a few poles on the grid will have little overall effect; a comprehensive plan is typically needed to have a long-lasting effect. When looking at solutions for power generation shortages, completing a short-term fix such as adding extra generators can have additional maintenance and fuel costs that can be up to twice as expensive as the purchase and installation of the equipment.

Organizations That Perform These Operations

Below is a list of Army units and organizations that provide capabilities in assessing an electrical grid. Capabilities are from Chapter 7 of the Modular Engineer Force Capabilities PowerPoint presentation.

- U.S. Army prime power capabilities: (There is one prime power battalion in the Army, located at Fort Belvoir, VA, with companies located at Fort Bragg, NC, and Fort Lewis, WA.)
    - Technical advice to commanders and senior engineers on electrical power systems.
    - Electrical power production up to 20 megawatts in support of command and control sites, hospitals, weapons systems, logistical support areas, and relief for tactical generators at fixed sites and critical facilities.
    - Electrical-related contracting officer representative assistance.

- Operation, maintenance, and minor repairs to other power production equipment, including host-nation fixed plants.
- Electric power transformation and distribution facilities and services.
- Connections to commercial distribution networks.
- Damage assessment and repair of distribution systems.
- Limited repair and maintenance of industrial electric systems and controls.
- Operation and maintenance of nonstandard distribution systems and equipment.
- Placing overhead or ground-laid powerlines and maintaining up to 60 miles of high-voltage powerline.

- FEST-M:
  - Infrastructure engineering planning and design.
  - Technical engineering expertise.
  - Contract construction.
- Engineer brigade (construction management section):
  - Monitoring the execution of construction missions and design modifications.
  - Engineering expertise and supervisory personnel for limited quality assurance and quality control.
  - Advice and technical guidance on host-nation support and contract support requirements.
  - Approval for final design for theater construction missions.
  - Technical guidance to the contracting officer representative on the technical aspect of construction scopes and schedules.
- USACE:
  - Contract administration and supervision (fee-based).
  - Quality control (fee-based).
  - Engineering reachback operations for technical engineering and design issues (sometimes fee-based).

Conclusion

The Department of Defense is not structured or resourced to facilitate work on an electrical grid as complex as that found in the United States. However, it is capable of assessing and supervising the repair of less complex systems found in countries where it is called to conduct stability or humanitarian operations.

When conducting assessments, it is critical to realize that most systems that need to be upgraded are old, have outdated equipment, do not meet current demand of the users, and the parts to fix the overall grid are very expensive and can take a long time to acquire. It is also important to remember that there are a limited number of contractors who can complete the work; it is imperative that qualified personnel supervise this work, as mentioned earlier.

Finally, as an electrical grid and the output of a power plant are upgraded, the demand of the local population will continue to increase. More accessible power leads to more pumps, more air conditioners, and more satellites, which increases the need for more power.

Appendix A[4]

Form EPS010. Electrical Power Systems – Power Plant

Identify this plant: _____#____of____ GPS _____

Type of power production: _____

Number of generator units: _____

Capacity of plant (MW or MVA): _____

Number of overhead circuits (lines) leaving power plant: _____

Overall plant appearance (age) _____

Describe overall conditions of plant (age, maintenance, appearance, etc.):

_____

Generator Nameplate and Information

1. Mfg/Brand/Model _____#____of___ Capacity (kW/kVA)_____

Output voltage: _____

Other nameplate info: _____

Generator age: _____

Prime mover: (circle) engine, gas turbine, steam turbine, other _____

Fuel: (circle) diesel, natural gas, steam from coal boiler, steam from nuclear, other _____

Form EPS010. Electrical Power Systems – Power Plant (Contd)

2. Mfg/Brand/Model _____#____of___ Capacity (kW/kVA)_____

Output voltage: _____

Other nameplate info: _____

Generator Age: _____

Prime Mover: (circle) engine, gas turbine, steam turbine, other _____

Fuel: (circle) diesel, natural gas, steam from coal boiler, steam from nuclear, other _____

3. Mfg/Brand/Model _____#____of___ Capacity (kW/kVA)_____

Output voltage: _____

Other nameplate info: _____

Generator Age: _____

Prime mover: (circle) engine, gas turbine, steam turbine, other _____

Fuel: (circle) diesel, natural gas, steam from coal boiler, steam from nuclear, other _____

4. Mfg/Brand/Model _____#____of___ Capacity (kW/kVA)_____

Output voltage: _____

Other nameplate info: _____

Generator age: _____

Prime mover: (circle) engine, gas turbine, steam turbine, other _____

Fuel: (circle) diesel, natural gas, steam from coal boiler, steam from nuclear, other _____

Form EPS010. Electrical Power Systems – Power Plant (Contd)

Non-Generator Equipment:

1. Equipment Type _____ Description: _____ Condition: _____

2. Equipment Type _____ Description: _____ Condition: _____

Questions for Power Plant Operator/Engineer

1. Is plant able to output rated capacity? _____

2. Are all generators functional? If not, explain._____

3. What is typical kW load of plant peak? _____ off-peak?_____

4. Controls: Automated synchronization? _____Remotely controlled?_____

5. Major causes for downtime?_____

Form EPS011. Electrical Power Systems – Substations

Transmission/Distribution Substations:

Number: _____

Identify this substation: _____#____of _____GPS _____

Transformer Capacity (MVA) _____ Incoming Lines (qty) _____ Voltage In (kV): _____

Outgoing Lines (qty) _____ Voltage Out (kV): _____

Substation Type: Step up transmission station, step down transmission station, distribution substation

Structures: Note the overall stability of the structures: (Any loose bolts, discoloration from fire or chemicals, bending, etc.) _____

Transformers: Number of transformers: _____#____of ____

Name plate information: _____

Describe any damage to the transformers: (oil leaking, fire damage, etc.) _____

Transmission / Distribution Towers and lines:

Number of total circuits: _____

Define your starting location: #___of ___ Point A: _____ GPS _____

Your ending location: Point B: _____ GPS _____ number of poles _____

Distance_____ mile/km

Structure Type: transmission sub transmission Structure

Height: _____

Structure Material: _____ If wood, describe condition: (Note any deterioration, leaning, etc.)_____

Is there any damage to the towers and lines at the points defined? Yes No

If yes, describe (Look for structural stability, discoloration, obstructions or downed lines, damaged transformers and components, etc.)_____

Form EPS011. Electrical Power Systems – Substations (Contd)

Sketch Layout:

(Show transmission lines connecting substations, indicate voltage levels, indicate quantity of circuits going out of distribution substations)

Photograph:

Estimate:

Map Detail:

Measure Sketch:

Endnotes

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2. Brain, Marshall. HowStuffWorks. "How Power Grids Work" and HowStuffWorks "Science." http://science.howstuffworks.com/environmental/energy/power5.htm. Accessed May 20, 2011.

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Chapter 3

Assessing and Managing Police Departments

MAJ Matthew Gomez

Introduction

Establishing (or re-establishing) security is a key task when restoring essential services. Without security, other restoration projects can become compromised, damaged, or lose their effectiveness if the population does not feel safe when conducting its daily business. Although a military presence can establish a sense of security, it should not be the final solution. A police force, forged with personnel who are familiar with the area and customs, is an effective means of establishing security while simultaneously showing the population that this security measure is there to stay.

The primary function of the police is to protect the populace by enforcing laws and by maintaining the peace. In the United States, this function can be accomplished by both a police department and a sheriff's office, which share similar requirements but have varying duties specific to their organization. The organization's size, equipment, and jurisdiction will differ based on numerous factors, such as population and area size. For the sake of brevity, this chapter will focus on information helpful in establishing a police department where none exists for a population size of roughly 50,000 persons.

In the United States, there are differences between the duties and responsibilities of a police department and a sheriff's office. Information about these differences can be found online or by contacting these agencies in any locale. For the sake of simplification, this chapter will often combine these duties and responsibilities, pointing out specific differences only if necessary for clarity.

This chapter is designed as an overview of what makes up a police department and will provide some tips on what a police department can or should look like. The methods, techniques, and procedures discussed throughout this chapter are meant as a guide and are not a step-by-step set of instructions. Should additional clarification or information be required, some sources and references are provided at the end of the chapter.

Overview of Police Departments

General overview

Before building or rebuilding a police department, a strategy should be created that outlines the purpose, goals, and objectives of the police department. This strategy will become the basis of the policies and procedures that direct the operation of the police department and the conduct of the department personnel. It is imperative that this vision be created either by or with the chief of police, since this individual will be the one who will implement the strategy and ensure the department grows in accordance with the vision. If the chief does not have buy-in, the strategy will fail and so, in turn, will the police department. Also, the vision should be shared with the community to ensure that it understands and supports the department.

Key personnel

As with any organization, a police department requires a senior officer to manage the department and staff and personnel to meet the department's mission requirements. The following section lists the key personnel in a police department as well as a brief description of their duties.

The **chief of police** oversees and directs all activities of the police department for the assigned area. This person's responsibilities include planning resources and coordinating the department's activities with those of other agencies.[1] The office holder is the chief law enforcement officer and is responsible for preserving the public peace within his assigned area by enforcing laws, preventing violence, and providing protection to others where a threat of violence exists.[2]

There are two ways to seek and select the leading officer of the police department: appointment or election. In the United States, the chief of police is appointed by the city manager, usually from within the police department, but is sometimes also competitively hired from outside the city. On the other hand, the populace generally elects the sheriff to his position. The method of choosing a chief of police should be determined based on the population's requirements, but consideration should be given to the chief's longevity and his ability to maintain law and order in the assigned area.

The chief of police usually assigns personnel to the other positions within the police department, selecting from a pool of qualified applicants. Recruiting options will be discussed later, but key billets are best filled by qualified applicants who have experience, if at all possible.

The **deputy chief of police** acts as the executive officer for the chief of police and is primarily responsible for the police department's operations. He can act in the stead of the chief of police if the chief is absent.[3]

Operations lieutenant: The operations section of the police department contains those members who are most in touch with the public, such as the patrol officers, traffic officers, and special operations personnel (e.g., the K-9 patrol or special weapons and tactics [SWAT] team). The operations lieutenant is the section chief of this department and manages all resources and requirements for this section.[4]

Investigations lieutenant: The investigations department conducts external investigations related to crimes within the police department's area of responsibility. The investigations lieutenant is the department's section chief; he manages the section's resources and requirements.[5]

Professional standards lieutenant: The professional standards section ensures that the police department operates within prescribed local laws and policies. It conducts internal investigations and recommends actions, as required. The professional standards lieutenant is the section chief of this department; he manages the section's resources and requirements.[6]

Support services lieutenant: All organizations require administrative and logistical support to operate. In the police department, the support services section handles this requirement. This section can contain personnel to handle records (both for department personnel and for criminal cases), court services, and dispatching. As with all other section leaders, the support services lieutenant is in charge of this section's resources and requirements.[7] A key section in this department is dispatch, which is the communications lifeblood of the police department. It

is through dispatching that the police department receives calls and dispatches police to respond to those calls. If starting a new department, it is strongly recommended that the police dispatch is tied in to an existing organization's dispatch or communications hub, since the police will be unable to do their jobs if they do not know when and where to respond to issues. The nature of the dispatcher's duties and responsibilities means that the person(s) filling this job and his section chief must be able to respond quickly, decisively, and with the authority of the chief of police to ensure the populace's safety.

As the police department is established, the exact natures of the duties for specific personnel will most likely change based on experience, ability, and competence. It is imperative, however, that as new personnel are hired, they understand that they must abide by not only their duty description but also with the police department's policies. Therefore, policies that outline behavior, expectations, and conduct must be clear, concise, and applicable to all department personnel.

It cannot be emphasized enough that creating a police department will have repercussions in other areas of the government. At a minimum, the new police department will either require creating a court system or will add a burden to an existing court system. Additionally, until such time that a detainee-holding facility is built, the new police department will need to incarcerate its detainees at some facility, whether that is a large detention facility (that will now need to prepare to receive those prisoners and the costs of maintaining them) or whether it is at another police department's larger holding facility. There will also be a need to link or to partner with other public service organizations, such as a fire department, to ensure that public safety is upheld.

The facility that houses the police department must be in the community area. When first building the organization, it may be easiest to collocate the department in an existing governmental facility. When building a facility, ensure the building is accessible by the community but is securable, has offices for the various personnel, and is able to be manned for 24 hours. If the community is building the facility for long-term purposes, it may also consider including holding facilities and court services when it builds the facility.

Organization

The police department's organization may vary based on budgetary constraints, technical capability, or any other number of factors. The diagram in Figure 3-1 is an example organization chart that is based on the duty descriptions above. This diagram is a guide and should be tailored to fit the new police department's needs and the requirements and availability of qualified personnel. For example, another managerial layer, such as a captain, could be added between the lieutenant and the deputy chief of police to handle basic managerial and administrative duties. This would allow senior personnel to focus on operations and future planning.

When organizing the police department, ensure there are enough personnel to cover a 24-hour period. Figure 3-1 shows a night and a day shift, but it may be more realistic to maintain three eight-hour shifts instead of two 12-hour shifts; the number of personnel and their abilities will determine which will work better for the department.

The number of personnel in each department will depend on the area and the requirement for police. An exact ratio of police to number of the members in a community is dependent on the amount of crime, but a good planning factor to start with would be one patrol officer for every

100–500 persons. This number can go up or down based on the assessment of the police chief, the personnel budget, and the geographical area of responsibility. Finally, divide the community into sections assigned to a patrol officer to ensure there is not excessive coverage in one area at the expense of one or more other areas in the community.

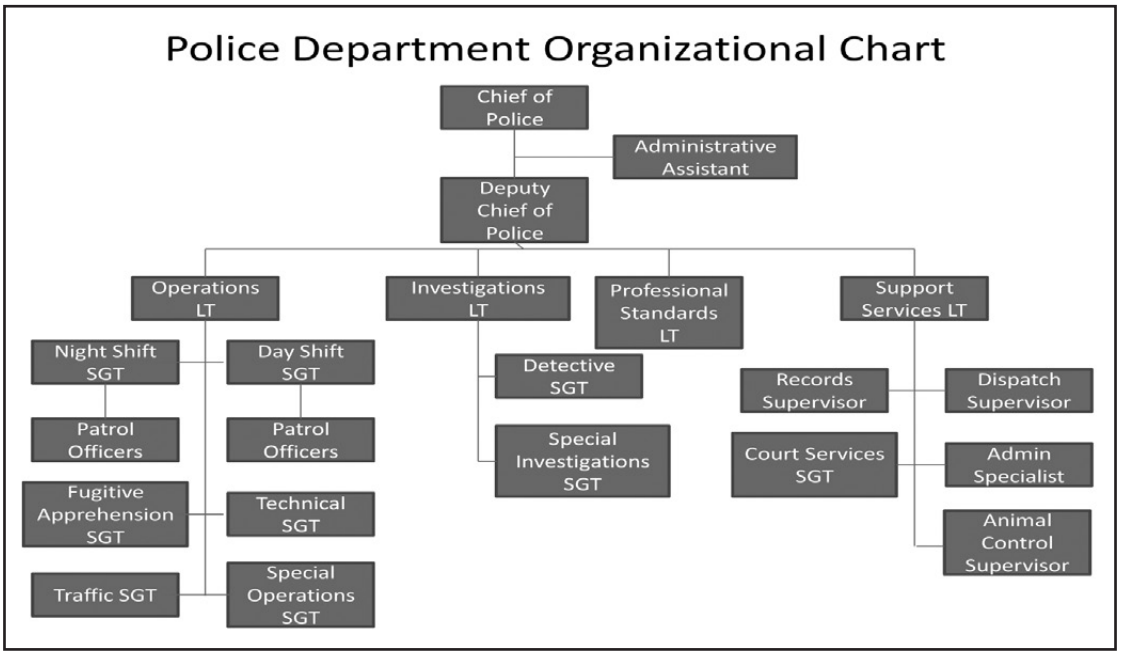

Figure 3-1. Police department organizational chart

Establishing the Police Department

Recruiting

In the United States, recruiting is accomplished through newspaper and Internet job postings for available and qualified applicants, usually those with some college education and/or prior law enforcement experience. When attempting to build from scratch or rebuild a police department where one did exist, these recruitment options may not be available. However, in either case, one tenet remains true: recruit those from the community who know the area and who have a personal stake in the safety and protection of the people in that area. For the most part, rigorous training can make up for lack of education and experience. But when in areas where cultural, tribal, and religious differences can affect the police's ability to properly discharge its duties, nothing compares to having locals policing locals.

An important factor when recruiting for a newly established police department is the key billets, as mentioned in the previous section. There may be a requirement to bring in personnel from outside the community to initially fill those billets or to train local new hires to fill those positions. When hiring, ensure that policies and procedures are in place that discuss the duty descriptions for each new hire, including the rank and pay structure, benefit packages (if possible), shift work, and what background checks will be conducted.[8]

Equipping

A police department will need some basic items to operate and will need some specialty items for the special teams. (The special team equipment will be addressed later in this document.) Here is a short list of essential equipment required for basic operations:

- **Personal protection:** Weapons (applicable to the situation, such as hand guns, rifles, and shotguns), body armor, flashlights, and handcuffs. If at all possible, ensure that weapon systems issued to patrol officers are the same type of weapon or at least share the same ammunition requirements. This serves to keep costs down and also allows the patrol officers to share ammunition in case of a prolonged firefight. (Purchasing one type of ammunition in bulk is generally easier to manage and is cheaper than purchasing multiple types of ammunition for differing systems.)

- **Communications:** Radio stations at the department (dispatch capability), radios for vehicles, and radios for personnel ensure that frequencies and coverage (range) have been addressed.[9] As noted before, the communications equipment for the dispatch section is imperative for smooth communications between the police department and the patrol officers in the field. When creating a police department from scratch, this is one area that should be considered for a higher budget to ensure the proper equipment is available for rapid communications capability.

- **Transportation:** Transportation needs include vehicles for traffic control, vehicles for patrols, and prisoner transport vehicles (such as buses or vans). Ensure the mode of transportation is applicable to the region. For example, if the jurisdictional area is in mountainous terrain, a four-wheel-drive truck would serve the department better than a street cruiser; conversely, if the terrain is mostly waterways or rivers, boats may be the primary means of transportation.

- **Uniforms:** Uniforms may vary depending on the weather, position, or duty requirements but help to make the police officer stand out while patrolling. Note that the uniform can project a sense of pride for the police officer; thus, it is recommended that distinctive badges or uniform colors be reviewed as part of uniform acquisition planning. Distinctive features may also assist in distinguishing the police from other agencies, such as the military or other police departments. Also, the uniform should comply with the region's climate, so uniform material or additional layers (such as warm or rain jackets) may be a planning and cost factor when purchasing uniforms. Consideration should be given to equipment belts or to having some means of helping the police officer carry the tools required for the job.

When acquiring equipment for the new police department, do not forget the support packages that are required. Maintenance, cleaning, and repair parts should be planned for, especially if the acquired equipment is old or comes from different sources. (For example, maintenance on a foreign-made vehicle is vastly different than on a locally made vehicle.) In addition to the equipment listed above, the consumable items a police department uses, such as fuel, ammunition, pencils, and paper, should be factored into the budget and equipment-sourcing plan. Finally, with each new type of equipment introduced to the police department, training on that equipment by all personnel must be factored in, which will affect the police department's time and budget.

Training

Training will vary depending on the governmental infrastructure and the ability to provide for both recruit and follow-on training. Should the facilities or capabilities not exist, a local training regimen can be created that focuses on the following: governmental laws, civil rights, and local laws and ordinances. Additional training must include patrols, traffic control, using firearms, self-defense, first aid, and emergency response.[10] For rapid training requirements or for reinforcing training objectives, on-the-job training with experienced personnel is a method, but if it is used as the primary training method, then risk factors will most likely increase exponentially. On-the-job training is *not* recommended unless there are absolutely no other means of properly training a new recruit.

Running the Police Department

Funding

There are a few ways a police department may procure funding; the more prevalent methods are discussed below:

- **Local funding.** The bulk of the police department's funding should come from local taxes and should be doled out by the city manager as part of the city's budget. One of the functions of the chief of police is to determine the department's budgetary requirements and to base those requirements on a budget request. Some factors to consider when determining a budget are personnel operating and maintenance costs, facilities, and equipment. Other functions to consider are prisoner expenses (the cost to keep and feed a prisoner, as well as medical expenses), processing costs (which may be mitigated by charging fees for some processing requirements), and any costs that are incurred when executing official duties (such as overtime for personnel if all police personnel are called in for a major operation).

- **Grants.** Special funding for specific programs, special equipment, or to help improve department operations can come in the form of grants. These grants are often blocks of money from city, state, or federal government agencies awarded for a specific purpose and cannot be used for anything other than that purpose.[11] When in an area where these programs may not exist, it is entirely possible to look into U.S. or foreign grants to help to offset certain costs that are associated with establishing a police department.[12]

- **Auctions.** In the United States, some funding comes in the form of auctioning land, vehicles, and other forms of property that are seized under lawful conditions. For example, if a person was to default on paying taxes and his property could be valued as compensation, that property could be seized and auctioned by the police department. A portion of the funds from these transactions are then transferred to the police department to augment budgetary spending.[13] When first creating the police department, this may not be a viable means of procuring funding, but it could be established as a future means of funding within the department's policies and procedures. Vehicles and other real property, including cash, confiscated in counter-drug operations also provide a ready source of income to many police departments.

It is imperative that prior to receiving funding a department establish a form of record-keeping. Any form of record-keeping may be used, from electronic to paper filing, but regularly

accounting for monetary receipts and monetary expenditures is a must. It is recommended that a filing be made public to help prevent fraud and corruption, but in some cultures this public display of finances may be frowned upon. Regardless, some sort of record-keeping must be kept, since it will help future police chiefs determine future funding requirements.

Special Programs

When building a police department, special programs should not be on the top of the list but must be considered for future growth and potential, both in terms of budgeting (for personnel and equipment) and for facilities. Special programs encompass many areas of expertise found in most police departments, such as SWAT teams, K-9, and special response teams for natural disasters.

Not all special programs need to be aggressive and reactive. Preventive teams can be created, sometimes using personnel already in the department; they can be deployed in the community to help to promote the police department. Some of these programs include Drug Abuse Resistance Education (DARE), security and threat assessment teams for homes and businesses, and establishing community outreach programs such as neighborhood watch groups.

Special teams will require additional equipment (such as additional weapons or protective gear), resources (such as facility space or vehicles), and training. These additional budgetary and time costs should not be considered lightly, hence the recommendation that special teams should be built into the long-term plan for the police department. Also consider distinctive uniforms or badges and equipment to delineate between regular forces and these special teams.

Measures of Performance/Effectiveness

It is difficult to measure the performance and effectiveness of a police department using charts. The true measure of a police department rests on the populace and whether they feel safe and secure and trust the police. An assessment of the population is perhaps the best way to determine whether the police force is competent in performing its duties.

Surveying the populace prior to building the police force will help create a baseline assessment of the area to determine the community's needs. Once the requirements have been determined through the survey, other means of measuring day-to-day performance objectives are: the number of arrests, the number of calls for service, and the number of citations the police force issues. After about a year in operation, conduct a survey of the population again to determine whether the populace's needs have been met to its satisfaction and to determine future goals and objectives.

For training the police force, there are many resources that specify the training standards, specifically through various state-sponsored police academies. Similar to the armed services, the exact training standards (go or no-go criteria) are not widely available via open-source Internet access; therefore, those academies must be contacted for manuals, training standards, and training objectives. A recommended site to use as a reference is www.policeacademyinfo.com, which lists police academies by state and provides phone numbers and addresses for each.

Another means of measuring performance is by using internal evaluations. How many calls are responded to, and how long does it take to rectify each matter? How many complaints are received from the populace, either because of police brutality or because of ineffectiveness? How diligent are the members of the police department in maintaining equipment accountability?

Are the police officers appearing regularly and fit for duty, and do they execute their duties in accordance with published standards? Regular evaluations of the department and its personnel will help to determine whether the police department, as a whole, is operating in accordance with the expectations of the chief of police and the community.

External Support

Many sources of assistance are available to help build or re-create a police department. Contacting a police or sheriff's department in the United States will yield great results, since personnel from these agencies can provide not only documented policies and procedures, but will most likely provide first-hand experience, mentorship, and lessons learned in their own careers. In order to collect the best information applicable to your project, try to locate a police or sheriff's department from a similarly sized population as the one in which you are attempting to build the police department.

Another excellent source of information and tools is the Department of Justice. Its website alone will provide a wealth of information, but their published *Guidelines for Starting and Operating a Police Department,* which is online at http://www.cops.usdoj.gov/files/ric/Publications/e0506066GuidelinesFinal.pdf, can be a very helpful tool to ensure that most, if not all, considerations are covered in your planning. The chapter on references and resources for law enforcement lists many books and websites that can provide more detailed information or assist in creating an operating plan or strategy for building a police department.[14]

Conclusion

When coming from a mature nation with established essential services, it may be difficult to fathom not having those services readily available and competent in executing their duties. However, building those services, including a police department, is only as difficult as you make it. Most people want to feel safe and secure and want to know that their police department can provide security while remaining free from corruption and abuse. The tools in this chapter provide some ideas to help to reach that goal; but in the end, it is up to the community and the police department to work together for a better future for both parties.

Endnotes

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Chapter 4

Assessing Medical Facilities and Health Care

MAJ John Ament

Introduction

Post-conflict damage of health care infrastructure creates an increased threat to the ability to prevent and treat disease. Increased rates of morbidity and mortality are the result of post-conflict damage to health care services and infrastructure. The rapid assessment of the host nation's health care requirements and the sustainability of health care capabilities will need to be conducted by qualified medical personnel as soon as possible in pre- and post-conflict environments. The rapid health care assessment is an attempt to mitigate the effects of a damaged health care system.

Population Estimates

Population estimates are an essential first step to determine how much and where medical care is needed. When conducting a population estimate, the first consideration is the amount of information that is readily available and how accurate and reliable the information is. When a population estimate is timely, accurate, and reliable, the response can be more organized, targeted, and speedy.

> During the initial response, population size and location help plan and mobilize assistance and allocate resources to those in need. After the acute phase, more accurate estimates of population size and of the number of people with specific needs (food, water, shelter, immunizations, etc.) can be used to monitor and evaluate the response and become part of an exit strategy (Henderson, 10).

Organizations and Methods

The International Committee of the Red Cross (ICRC) uses population estimates to direct emergency responses. Although the ICRC has no standardized method of doing this, experienced staffs estimate population size using various methods based on the type of terrain and the disaster. The ICRC has developed several field methods for measuring the population; some of these are aerial surveys, walks through the city, observation, counting the number of houses while driving through the affected area, asking villagers in the area, and observing the best and worst areas and estimating the average.

The International Federation of the Red Cross and Red Crescent (IFRC) does not have a standardized method to estimate population size and uses estimates from the government and United Nations agencies. However, the *IFRC Guidelines for Emergency Assessment* contains a procedure for producing crude population estimates (IFRC, 2005). The "proportional piling method" is useful when estimating quantities and proportions, especially when working with people unused to quantifying data. In this method, a beneficiary is given beans or pebbles and asked to divide them into groups according to size of herd, amount of money, or number of people in the village.

The International Organization of Migration (IOM) focuses on internally displaced persons (IDPs) or refugees. IOM uses registrations to count these groups and uses those numbers for repatriation or resettlement activities. IOM does not have a global standardized guideline for population estimates, but the organization sees the need for standardization of methods that will allow it to compare countries.

Medecins sans Frontières (MSF) [doctors without borders] uses the quadrant as the standard method to estimate the size of a population in the acute emergency phase. Other methods are described in *Refugee Health* (MSF, 1997) and the *Rapid Health Assessment of Refugee or Displaced Populations* (Depoortere and Brown, 2006). One option is to conduct a census when refugees arrive. This is time consuming, uses many resources, is not feasible when there are large influxes of new arrivals, and must be updated for accuracy. Another method is to count the number of shelters in the target area and calculate the number of refugees per shelter to determine the size of the population. Population size can also be indirectly estimated by vaccination coverage or other program activities that collect population-based data. MSF has also developed a computer-assisted tool called E-Pop, an Excel program developed for conducting rapid population estimates by area sampling. *Medecins sans Frontières* published a book to assist disaster planners titled *Rapid Health Assessment of Refugee or Displaced Populations,* which describes methods to conduct rapid counts of people in small, confined areas and software (E-Pop) to define the area to survey and calculate population size.

The Office of the United Nations High Commissioner for Refugees (UNHCR). The refugee registration handbook states the conditions when an estimate is more appropriate than a registration and lists four methods for estimating populations (UNHCR, 2000): (1) counting people at entry or transit points; (2) using local administrative records such as a census or school enrollment; (3) using lists compiled by refugee leaders; and (4) extrapolating. The first three methods are simple and involve a few steps. Extrapolation estimates population by determining the total area of the camp, counting the number of shelters in three sample areas, and determining the number of people per shelter. Aerial photographs or satellite images can be used to count the number of shelters. Population estimates are conducted in place of formal registration when there is insecurity, a rapid influx of people, or high occurrence of trauma or disease in arriving refugees.

The Office for the Coordination of Humanitarian Affairs (OCHA) mission is to coordinate humanitarian response, and it does not have an official method for estimating population, relying instead on other agencies to provide estimates. In 2006, the Internally Displacement Division in OCHA launched a project with the Norwegian Refugee Council to prepare guidelines for field staff on how to count and profile IDP populations.

The World Health Organization (WHO) often does an area study by drawing a map and uses local informants to provide details as to where people live and the geographical features of the area. Fifty randomly chosen households or a cluster sample of households are chosen. Although this method is used to conduct rapid health assessments, it can be modified to estimate population size. The WHO states that there is no entirely reliable, rapid method for population estimates and recommends using a combination of several methods.

Conducting the Estimate

Some methods used to complete population estimates could be simply to count the number of people passing an entry or a transit point when it is noticed that there is a rapid population

movement in a defined area. Low-level aerial photography or remote sensing can be used when there are large numbers of displaced people in a large area. Populations can be estimated by the number of shelters and the average number of people per shelter. A method may be to get the total area of the site, count all the people in randomly selected blocks of an equal area, and then extrapolate the population density of the sites to calculate the total population (Henderson, 10). Use more than a method or tool to ensure a more accurate population estimate.

Assessing Vulnerable Populations

Determinants of high death rates among affected populations and the major priorities for action have been identified. *Medecins sans Frontières* has determined that the provision of adequate food, clean water, sanitation, and shelter are more effective as an intervention than most medical programs. The focus of emergency health programs should be community-based disease prevention; health promotion; nutritional rehabilitation; and epidemic preparedness, surveillance, and control (Hanquet, 13).

In the emergency phase of vulnerable populations, there are 10 top priorities that ideally should be carried out simultaneously (Hanquet, 38). The 10 priorities are initial assessment, measles immunization, water and sanitation, food and nutrition, shelter and site planning, health care in the emergency phase, control of communicable diseases and epidemics, public health surveillance, human resources and training, and coordination. The health services established during the emergency phase (mainly curative care and measles immunization) usually need to be reoriented and probably reinforced during the post-emergency phase.

Initial Assessment

Initial assessment requires health priorities to be identified. This is done by rapidly collecting and analyzing data, which should lead to a prompt assessment within the first few days. Information is required on the background to the displacement, the population itself, the risk factors related to the main diseases, and the requirements in terms of human and material resources. This involves quantitative as well as qualitative information. Data may be gathered by sample surveys, mapping, interviews, and observation. Methods will often be approximate, and results may need to be corroborated later with other studies (Hanquet, 39).

Measles Immunization

Measles is one of the most severe health problems throughout the world, killing one in every 10 children affected in developing countries. Displacement, overcrowding, and poor hygiene in refugee or displacement camps are all factors that encourage the emergence of very large-scale epidemics. Mass vaccination of children from 6 months to 15 years old should always be an absolute priority during the first week and can be conducted together with the distribution of Vitamin A (Hanquet, 39).

Water and Sanitation

A clean and sanitary drinking water supply is a top priority. The role played by poor water supplies and inadequate sanitation in the transmission of diarrheal diseases is well known. During the first days of the emergency phase, a minimum amount of five liters of water per person per day is required. During the next stage, a provision should be made for 15 to 20 liters of water per person per day. Existing water sources must be assessed, and it may be necessary

to ensure a temporary water supply by tanker deliveries until wells can be dug. Plastic tanks are most often used for water storage, treatment, and distribution. Water quality can be checked with simple water sample kits (Hanquet, 39).

The organization of latrines and waste disposal is planned according to standards approved by UNHCR. The availability of one latrine or trench per 50 to 100 persons during the first days of the emergency is acceptable; this should be improved as soon as possible to one latrine per 20 persons or ideally one per family. Indicators in regard to water supply and latrines must be monitored in the same manner as disease incidence and mortality rates (Hanquet, 39).

Food and Nutrition

Population displacements are generally either the cause or the consequence of food shortages. Malnutrition is frequent in refugee populations and is an important contributory cause of death. Outbreaks of disease, such as scurvy or pellagra, resulting from vitamin deficiencies are also reported among refugees. Maximum attention must be given to the basic food ration during the first months after the refugees' arrival. This should be a daily minimum of 2,100 calories per person. It is usually necessary to organize general food distributions. Registration and a census of refugees upon arrival are essential for estimating food needs and identifying beneficiaries. The food and nutritional assessment is an important element of the initial health assessment, providing the basis for all decisions in regard to nutritional programs (Hanquet, 39).

Shelter and Site Planning

Inadequate shelter and overcrowding are major factors in the transmission of diseases with epidemic potential (measles, meningitis, typhus, cholera, etc.), and outbreaks of disease are more frequent and more severe when the population density is high. In addition, protection against sun, rain, cold, and wind is indispensable for refugee welfare, as is providing secure living space for families (Hanquet, 40).

Health Care in the Emergency Phase

Respiratory infections, malaria, diarrheal disease, and other common diseases must be dealt with in a decentralized network of health care facilities (health centers and health posts). Manuals and guidelines allow standardization among partners in regard to essential drugs and therapeutic policies. Medical needs (material and drugs) should be quickly assessed in anticipation of outbreaks of diseases known to occur locally (Hanquet, 41).

Control of Communicable Diseases and Epidemics

During the emergency phase, the four most frequent communicable diseases that together are responsible for the highest morbidity and mortality rates are measles, diarrheal diseases, acute respiratory infections, and malaria. Diarrhea is one of the main causes of death. The most common communicable diseases and of potential importance in refugee settings are meningitis, hepatitis, viral hemorrhagic fevers, Japanese encephalitis, typhus fever, relapsing fever, typhoid fever, influenza, leishmaniasis, plague, human African trypanosomiasis, schistosomiasis, poliomyelitis, whooping cough, tetanus, scabies, conjunctivitis, and dracunculiasis or Guinea worm.

In the emergency phase, the only immunization indicated is vaccination against measles. Ideally, all necessary immunizations should be administered to all children in the relevant age groups. Each incidence of disease exposes children to a high risk of death from acute dehydration. The swift installation of oral rehydration centers, spread throughout the refugee settlement, helps to decrease the mortality rates associated with diarrheal diseases. Refugee populations are at higher risk of outbreaks of communicable diseases (measles, cholera, shigellosis, meningitis, typhus, etc.).

Attention to basic living conditions is the main way of preventing epidemics, but once an outbreak occurs, decisive public health interventions are vital. Only early intervention in the initial phase can reduce mortality rates. Measures to control outbreaks vary with each type of disease. They can take the form of detection and rapid treatment for cholera or mass vaccination against meningococcal meningitis or against measles. Population displacement often takes place in an area where cholera is endemic. When hundreds of thousands of refugees are then concentrated in such an area, the task of coping with an epidemic requires major resources (Hanquet, 41).

Public Health Surveillance

Epidemiological surveillance is a tool for measuring and monitoring the health status of a population. It gives quantified information to those in charge and should be established from the beginning. It is based on the daily collection of selected health data and their analysis. This surveillance should only cover diseases or other health problems that can be controlled by preventive or curative interventions. The daily crude mortality rate (CMR) is the most useful health indicator to monitor during an emergency phase; it is expressed as the number of deaths per 10,000 population per day. A CMR over 1 per 10,000 per day is the best criteria of severity and indicates an emergency situation. Calculating disease-specific mortality rates helps in determining the major killer diseases and establishing priorities. One of the objectives of epidemiological surveillance is to warn of an impending epidemic. It also makes it possible to monitor the main diseases occurring in the population and measure the impact of health programs (Hanquet, 41).

Human Resources and Training

Different types of personnel are required to implement activities in all these areas: public health doctors, sanitation specialists, nutritionists, logisticians, administrators, etc. Once the different activities and tasks have been identified, staff requirements must be determined. Staff management and the organization of work is a complex task and must not be neglected. Home visitors are a particularly important category of staff required to ensure the link between the refugee community and assistance programs. They should be chosen from among the refugee or displaced population. Particular attention must be paid to both their training and to that of other local health staff (Hanquet, 42).

Coordination

Good coordination among the various operational partners is the key to effective emergency relief planning. There may be multiple partners in large-scale emergencies: UN agencies, host-country authorities, local and international NGOs, and representatives from among the refugee population. The UNHCR has a major role to play in the coordination of refugee work, which is especially important in complex situations where politics and diplomacy complicate logistical

and technical decisions. A good coordination system, which must be organized from the outset of a program, implies that one partner takes an overall leadership role, that a good level of communication is reached between all the partners, and that overall policy is standardized (Hanquet, 42).

Checklists

Health system assessment:

- Three rapid assessments to be conducted:
    - Rapid village assessment.
    - Rapid health assessment.
    - Hospital assessment.

A rapid village assessment needs to address several factors:

- Municipality, village, and grid coordinates.
- Agency conducting the assessment, the name of the assessor, and the date.
- Source of the information (in as much detail as possible).
- Road access in the summer, road access in the winter (i.e., car, four-wheel-drive, light truck, or heavy truck accessible).
- Current population (the number of persons, types, local, returnees, and refugees).
- IDPs (the number of IDPs from the municipality and from the village and the barriers preventing them from returning home):
    - Constraints to the return of IDPs (transportation, house damaged, house occupied, village empty, insecurity, fear of other ethnic groups, access to food and basic needs, health care, education, water, electricity, etc.).
- Assess which community leaders are present (e.g., politicians, police, teachers, health care workers, priests or religious leaders, and others).
- Assistance distribution availability (the mayor's office, mosques or churches, NGOs, and others).
- Damage to houses and damage to community buildings categorized as:
    - Category 1: No damage.
    - Category 2: Broken windows, broken door locks, broken door hinges, broken roof tiles, cut off from electricity, cut off from water; can be repaired.

- Category 3: Up to 30 percent roof damage, light shelling or bullet impact on walls, partial fire damage; can be repaired.
- Category 4: Over 30 percent roof damage; severe fire damage; the need to replace destroyed floors, doors, and windows; all piping and wiring is destroyed; can be repaired.
- Category 5: It is destroyed, it needs reconstruction, or it cannot be repaired.

- Electricity (whether it is working; if it is intermittent; approximately how many hours a day it does work).
- Education (whether the school is functioning and the number of classrooms).
- Water and sanitation (the number of wells, springs, pipe distribution, electric pumps, and the percent of households using it; petty conflict; and whether the quality is adequate or inadequate).
- Health care:
  - Number of hospitals functioning versus not functioning, the daily number of consultations, the number of doctors/nurses/medics available, and whether there are drugs and appointments available (whether the water sanitation is available and working).
- Sources of food that are available (humanitarian distribution, household gardens, household stores, shops and markets, and the nearest village with a market).

A rapid health assessment should address the following areas:

- Name of the unit conducting assessments.
- Demographic information:
  - Total refugee or displaced population.
  - Age/gender breakdown.
  - At-risk groups:
    * Children under 5 years old.
    * Pregnant or lactating women.
    * Disabled or wounded persons.
    * Unaccompanied minors.
    * Adults over 65.

- Average family or household size.
- Rate of new arrivals and departures.

- Background health information:
  - Main health problems in the country of origin.
  - Previous sources of health care.
  - Important health beliefs and traditions.
  - Strength and coverage of public health programs.
  - Immunization programs.

- Nutritional status:
  - Prevalence of protein or energy malnutrition in the population under 5 years of age.
  - Nutritional status before arrival in the host country.
  - Problem of micronutrient deficiencies (e.g., scurvy, pellagra, iron deficiency, anemia).
  - Average daily ration of food.

- Mortality rates:
  - Crude mortality rate.
  - Age-specific mortality rate.
  - Gender-specific mortality rate.
  - Cause-specific mortality rate.

- Morbidity rates:
  - Age-specific morbidity rate.
  - Gender-specific morbidity rate.
  - Cause-specific morbidity rate.
  - Information on cases of a disease that have not previously been reported in the population.

- Programs:
    - Immunization programs.
    - Oral rehydration solution (ORS) distribution.
    - Supplemental feeding programs and attendance.
    - Pre- and post-pregnancy clinic coverage.
- Environmental conditions:
    - Climate conditions (temperature, rainfall, etc.).
    - Geographic features (drainage, slope, soil, etc.).
    - Water sources (wells, reservoirs, rivers, tanks, etc.).
    - Local disease epidemiology (endemic infectious diseases).
    - Local disease vectors (e.g., mosquitoes, flies, rodents).
    - Availability of local materials for shelter and fuel.
    - Existing shelters, existing sanitation.
- Local health services:
    - Organizations providing services and type of service.
    - Ease of access by refugees.
    - Condition and size of facilities.
    - Extent and appropriateness of medication, equipment, and services.
    - Type, training, and number of personnel.
    - Status and condition of:
        * Cold storage facilities.
        * Vaccines and vaccination supplies.
        * Logistics.
        * Transportation.
        * Communication.

- Type and number of health care personnel:
    - Doctors.
    - Surgeons.
    - Nurses.
    - Nutritionists.
    - Anesthesiologists.
    - Medics.
    - Nursing aides.
    - Physician assistants.
    - Interpreters.

A hospital assessment addresses the following:

- Name of the unit conducting the assessment.
- Name of the local hospital.
- Hospital's location.
- General information:
    - Trauma level.
    - Hospital's contact telephone number.
- Points of contact:
    - Hospital administrator or chief of the hospital.
    - Patient admission information.
    - Security.
    - Air evacuation.
    - Emergency room.
- Overall condition of the building, roof, grounds, and roads leading to the hospital.
- Power: whether electricity is working, type, amps, adequacy, and generator source.
- Communications, phone lines, and their condition.

- Water: source, whether is it potable, whether there is a low rate or adequate pressure.
- Capacity, building dimensions, number of floors, number of beds, departments, and personnel.
- Emergency department, its location, number of beds, trauma capacity, and radio frequencies.
- Helipad, latitude and longitude, surface dimension, size, weight limit, and elevation.
- Ambulance services used and their names, telephone numbers, radio frequencies, and whether they are advanced life support-capable.
- Operating room, its location, number of suites, and surgical limitations.
- Intensive care unit, location, number of suites, limitations, and number of ventilators.
- Service availability:
    - Emergency department.
    - Computerized tomography scan.
    - MRI.
    - X-Ray machines.
    - Radiologist.
    - Laboratory services.
    - Pathology.
    - Blood supply.
    - Cardiologist.
    - Coronary care unit.
    - Anesthesiology.
    - Surgeons and type available.
- Most common disease demographics, the types, and control programs.
- Referrals, types, and referral hospital.
- Major surgical equipment, on hand and needed.

- Major dental equipment, on hand and needed.
- Drugs on hand, needed, shortages, and other supplies.

Sustainability After the U.S. Military Efforts Are Gone

- When possible, the military should have a very limited role in health systems reconstruction; however, it should provide appropriate services for the population when directed.
- When resources for health reconstruction are placed within the Department of Defense, they should be transferred to civilian agencies as soon as possible.
- The health of a population is essential to long-term economic development and can contribute to peace; health development seems to advance the peace process.
- "Buy-in" from the host nation, as health systems need to be generated post conflict and the process needs to begin early, last for many years, and be flexible/tailored to local needs.
- Goal of the stabilization process is to increase the capacity of the state to govern; a competent Ministry of Health constitutes an element of that capacity.
- Over the short and intermediate term, developing systems of health services can contribute significantly to reducing the potential for future conflict.
- When circumstances permit, the host government, through its Ministry of Health, should lead the process of planning.

Commander's Additional Considerations

- Consider complementary health care programs.
- Examine development and other nongovernmental agencies (NGOs, private volunteer organizations, etc.) operating in the commander's area of responsibility.
- Coordinate and determine project needs with local government agencies, civil affairs elements, engineers, and provincial reconstruction and development committees and/or provincial reconstruction teams to gain the greatest effect.
- Ensure synchronization and provide for project acceptance with follow-on project maintenance and sustainment, as required by documented government processes.
- Ensure that reasonable prices are paid for services and supplies that are received, and ensure that projects are constructed to a modest, functional standard.
- Determine what personnel, equipment, and supplies are going to be used and who will retain the equipment and supplies after military involvement.

- Perform humanitarian relief and reconstruction projects and services that immediately assist the indigenous population and the local population.
- What host-nation health care providers will be needed for sustainment?
- What facilities or medical care did the host nation lack before the conflict?

Conclusion

Quick action to assess the ability of medical personnel, supplies, and facilities will be required to prevent a medical crisis in post-conflict or humanitarian operations. Although many health-related organizations and NGOs provide medical care and support, there is no currently agreed-upon standard for this assessment. This chapter has provided a starting point for commanders and planners to understand the differences in medical requirements when dealing with vulnerable populations.

Estimating the size of the population in need of support is critical to understanding the scope of the requirement. In many cases there will not be an accurate estimate, especially if the population has been displaced due to violent conflict or natural disasters, and some innovative assessment techniques may be needed. As noted by researchers for MSF, in many cases the availability of clean potable water and sufficient sanitation measures will do more to contain or prevent the spread of life-threatening disease than medicine or medical care and should be a priority for stability force assessment.

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Chapter 5

Assessing and Managing Water Production

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Potable Water Services

General

Water is the most basic human need. Access to clean water drives the location of all human development. Planners must consider the control of water, the use of water, and the quality of water in developing phase IV operations. This chapter considers only the use of water in the context of potable (drinkable) water for human consumption. Water for energy, flood control, agriculture, and livestock are all essential, but they are beyond the scope of this discussion. Civil and environmental engineers specialize in developing water systems.

Anatomy of a potable water system

Most potable water systems have four subsystems: raw water source, water treatment, water storage, and water distribution. The subsystems are independent but linked, and a failure in any link in the chain prevents the other components from functioning as designed. For example, if the raw water quality changes, the treatment step may become inefficient or it may fail altogether.

Raw water sources

Raw water can be taken from wells (groundwater) or surface water inlets on rivers and lakes, or it can be collected from the rain directly. Tapping any source for additional water should be carefully analyzed for the impact to other water consumers and for conflict with local law.

Most people around the world get their water from surface sources. It is accessible and requires less energy to transmit it to treatment plants. Inlet structures may be simple pipes or complex structures demanding associated construction, such as dams, to work. All inlets have screens to reduce collection of debris, which should be protected and inspected periodically for clogs or damage. Most inlets will have collection locations or basins with a submersible pump that pushes water up to the treatment plant.

Wells collect groundwater from the water flowing in the interstitial spaces in the ground. The simplest well is a dug well or step well, which is a hole dug in the ground — usually by hand — until water is found. Stone or brick curbing is added to reinforce the side of the well from caving in. Dug wells generally have a low yield, and due to shallowness, they are susceptible to contamination or running dry. Any community that relies on a dug well is almost certainly water insecure. Drilled wells, on the other hand, are capable of reaching very great depths and providing large amounts of high-quality water. Depending on depth and soil porosity, well water can often be used without any follow-on treatment. Wells can often be placed at the point of use, reducing storage and distribution costs. Collected water is rarely planned for potable water use; however, it is high quality and in many places supplements municipal water.

Water treatment

Water treatment methods vary greatly given the raw water quality, available infrastructure, and required output. Impurities in water are classified as physical, chemical, or biological. Engineers add and sequence steps in the treatment process to remove impurities as efficiently as possible. The cleaner and higher quality the raw water is, the less treatment is needed. In the United States, a sequence of screening, flocculation, sedimentation, filtration, and disinfection is common.

- **Screening** removes the gross contamination such as sticks and plastics and can be designed to remove smaller contaminants such as algae and silt, if desired.
- **Flocculation** is the process of injecting chemicals in the water designed to stick to impurities and make them heavy enough to fall out in a sedimentation tank.
- **Filtration** generally refers to "rapid-sand" filtration that involves pushing water through a media to collect any impurities that were not precipitated by sedimentation.
- **Disinfection** is a final step to ensure that any biological agents in the water are destroyed and to prevent bacterial growth in the storage and distribution systems.

There are many other treatment methods. Reverse-osmosis is frequently used by military units and in desalination plants. It is energy intensive, but it is relatively compact and modular. Slow-sand filtration is at the opposite end of the spectrum. It is a very inexpensive, low-tech solution to the problem of treatment, relying on just a single layer of sand for the removal of impurities. Slow-sand filters require almost no energy and are very simple to maintain, but this solution may not scale well for larger requirements.

Water storage systems

Water storage is generally the simplest portion of any water system. Its purpose is to ensure an adequate supply while allowing the treatment system to run at its most efficiently designed capacity. It needs to be adequately sized for the treatment or distribution system that it supports and must be adequately secured against tampering. Many water storage tanks are located on towers to ensure adequate line pressure. Storage tanks that cannot be located uphill may need booster pumps to provide constant positive pressure. Water storage systems are also required to perform maintenance on treatment plants, such as periodic cleaning of screens and back-flushing of filters. Protection of water storage systems is critical for effective phase IV operations.

Water distribution systems

Water is normally delivered through a distribution network of pipes, generally of various sizes according to the demand. Smaller communities and developing economies will sometimes use water points or distribution routes. In this system, trucks deliver water to outlying areas at scheduled times. Pipe distribution systems are positive pressure. If the pressure on a system ever drops to zero, such as when a line breaks or when fighting a major fire, the potential exists for contaminated water to leak into the system.

Pipeline systems can be made from many different materials. Most potable water systems today use cement-line ductile iron pipe or polyvinyl chloride pipe, although many other options exist. Valves are buried with the pipe and have a stem running to the surface to actuate the valve.

Valves and meters should be mapped, numbered, and put on a maintenance schedule. They are critical for keeping the rest of the system running in the event of an accidental line break.

Water Demand and Usage

Demand estimation

The accurate calculation of actual water demand requires detailed surveys of the population and measurements of water supply systems that military units are normally not expected to conduct. For estimation purposes, planners should rely on existing data, local expertise, and some basic planning considerations. In a crisis, a population must have at least enough clean water for drinking and sanitation.

Planning guidance from the United Nations High Commissioner for Refugees shows that each person requires five liters per day for drinking and cooking and 25 liters per day for personal hygiene.[1] After the crisis period ends, some estimates suggest planning for as much as 100–200 liters per day of water to stay alive and healthy.[2] Demand for water varies and will depend upon cultural norms, traditions, and daily routines. Advanced economic societies assess demand simply by measuring usage.

Existing usage data from local governance or engineers should be evaluated for the age and the accuracy of the information. This method also proves ineffective in poorer, water-stressed countries where required demand is likely higher than current usage rates. Figure 5-1[3] assists planners in assessing and communicating what level of service the local community currently contains.

Source of demand

Water scarcity for individuals within a specific region will likely derive from a lack of access to water instead of its unavailability. Sufficient quantities are usually present; however, the problem lies in the inability to distribute the water, provide convenient access to it, or prevent groups from monopolizing it.[4] But even when provided some level of service, people may still choose to continue to use contaminated, open-source waters such as rivers, lakes, and wells simply out of convenience, habit, or cultural tradition.[5] Education about the benefits of clean water must accompany any effort to redistribute or improve access to clean water.

Meeting the demand

Planners must avoid assuming that the local population requires a new and expensive water treatment and distribution system to meet the immediate water demand of the population. Quick rehabilitation of the existing water infrastructure may serve to meet critical short-term humanitarian and stability needs. Such quick wins will more likely help stability forces gain much needed support from the population.[6] This method is also preferred, since operating, repairing, and resupplying infrastructure organic to a region will aid in developing the local population's and the government's self-sufficiency more effectively than newer, foreign infrastructure.[7]

Equality of distribution

Stability planners must pay attention to perceptions of inequality of water distribution and allocation. Often, existing infrastructure does not provide equal access to clean water. Even if people have access to more than enough water based upon some universal standard, they will base their opinion of fairness on a comparison with the quantity and the quality provided to others. If any group perceives inequality in quantity or quality for reasons such as race, religion, ethnicity, or disability, then a seemingly benevolent provision of clean water to a population may create new or renewed violence.[8]

Table 5.7 Typical levels of service providing access to safe water supply and sanitation

Level of service	Water supply	Drainage water disposal	Sanitation
Deficient	Water source unsafe or inadequate or return time travel to source more than 30 minutes	None	Open defecation or dirty communal latrine
Minimum	Communal point source with safe and adequate water and appropriate drainage, return time less than 30 minutes	Soakaway or other drainage at public water point. Some disposal of wastewater at household level on plot or onto field, or in urban areas, gutter or opened or covered drainage channel	Simple pit latrine on householder's plot
Intermediate	Point source (e.g. yard tap) on householder's plot with safe and adequate water supply and appropriate drainage	Soakaway on plot or open or covered drain from plot to safe disposal; connecting channels within plot (made by householder)	Ventilated improved pit latrine or pour-flush toilet on householder's plot
High	Piped connection into house with safe and adequate water under continuous pressure	Open drain to safe disposal or pipe to septic tank or sewerage	Flush toilet with septic tank or sewerage (if water supply is sufficient)

Figure 5-1

Water Sources

Source quality

Due to ease of access, most people in developing countries draw their raw water supply from surface sources. However, they often do not have the means to treat the water to remove contaminants. Immediate action should be taken to evaluate the quality of surface water sources and to remove any potential causes of contamination to the source. The quickest solution to providing clean water to a local population could potentially be as simple as protecting its existing surface sources from contamination.

Groundwater

Where surface sources are insufficient for supplying the demand, the best new source for clean water comes from groundwater. Groundwater from a deep-drilled aquifer is naturally filtered and can often be found in abundance. More than 30 percent of the available freshwater in the world is located underground. In regions where the treatment of water is difficult or unrealistic, a large aquifer of clean water can provide a reliable source of water to an entire community for an indefinite period. However, accessing groundwater requires more work, time, and capital compared to surface water.[9] Two challenges make accessing groundwater more difficult: locating it and tapping it.

Locating groundwater

Hydrologists rely on special geological training and equipment to identify the location of a deep aquifer. The scientific process they follow is not covered by this publication, but their expertise can potentially be accessed through the resources and contacts listed at the end of this chapter. The following general tips can assist planners. Some clues about the local geography can help identify the presence of groundwater. Mountainous and desert terrain typically require deeper drilling to reach water tables.[10]

Existing geological information in the form of well logs and geological maps may show the location of large regional aquifers. The existence of abnormally green and lush areas in aerial photographs can also indicate a shallow-to-moderate aquifer. A large number of deep existing wells in an area may indicate the likelihood of deep-water aquifers. Local well drillers may have an intuitive knowledge of the location of water based upon their experience of drilling in the past.

Petroleum well drillers and their geological survey crews may also have very good knowledge of groundwater depths and locations because they frequently encounter aquifers while attempting to reach deeper oil reserves. When deep-well aquifers cannot be located, drilling a well adjacent to large surface water sources (alluvial aquifer) will provide a high probability of success in locating groundwater. Although it is more vulnerable to contamination than a deep confined aquifer, it is the cheapest alternative, and it is constantly refreshed with new water from rain or other runoff.[11]

Well Drilling

Tapping into a deep aquifer requires the expertise of a professional well driller with a mobile drill rig and associated equipment (Figure 5-2). Each of the Department of Defense (DOD) services has some well-drilling capability; this is discussed at the end of the chapter. U.S. military well drillers have the ability to drill moderately deep wells to approximately 1,500 feet underground.[12] Host nations may also have existing well-drilling capacity within the local economy or their military organizations.

These sources should be the first assets to utilize if you need to contract this service. International drilling companies present in the area of operations may also be contracted to perform this work. When drilling the well, the driller will need space for the rig, a pipe lay-down area, and a place to dump or send the spoils from the well. U.S. Army Field Manual 5-484, *Multi-Service Procedures for Well-Drilling Operations,* March 1994, gives specific information on how military drilling operations are typically conducted.

Figure 5-2. Well-drilling rigs can be tracked or wheeled.

Well maintenance

The type pump used to draw water from the well should be one the host nation or the local populace is capable of maintaining and repairing. Well pumps and screens require periodic maintenance to retain a sufficient level of efficiency and to remain operable. Before drilling a well, train local maintenance personnel on this task and acquire formal commitment from the local government to perform it in a consistent manner.

Final considerations

Planners may also identify where water systems can gain efficiency to reduce overall usage. Sometimes a reduction in overall usage may be achieved by shifting usage behaviors or allocation. If this can be done without reducing to below the minimum per capita usage or by creating an adverse perception of equal access, it may make sense to take those actions instead of trying to increase the supply of clean water or finding new sources.

Water storage systems

Potable water storage systems provide stable pressure for the distribution system, capacity for emergency or fire demand, and capacity for the water treatment system to go offline for maintenance and repair. Most municipalities will construct two or more reinforced concrete or steel tanks above the population. Two or more tanks are constructed to allow the storage system itself to be maintained. Municipalities in flat areas often use elevated towers, although these cost more to construct and maintain and they reduce the length of the distribution main lines and the associated pressure loss (Figure 5-3).

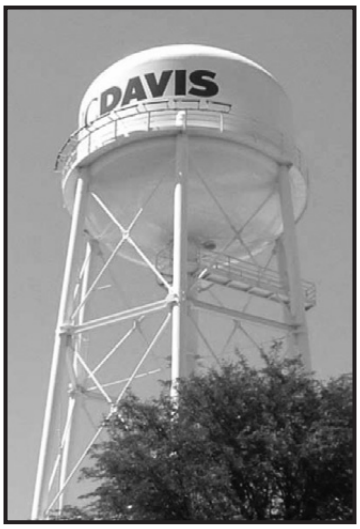

Figure 5-3. Common water tower

When hills are available, tanks and standpipes constructed at or near grade are most economical. Standpipes are barrel-shaped tanks that are constructed when some additional elevation is needed, but not enough elevation to require a tower (Figure 5-4). Very small communities may rely on earthen reservoirs with a gummite or a membrane lining (Figure 5-5). The size, number, placement, and types of storage facilities are determined by engineering analysis.

Figure 5-4. Standpipe towers. These are probably chemical process standpipes.

Figure 5-5. Underground storage reservoir (wet well)

Water storage systems should be sized according to expected consumption. Underscoping the capacity of the storage system can deplete a reservoir, whereas extended low demand can allow bacteria to grow and can create toxic, infected by-products. All water storage facilities should be protected from contamination by humans and animals as well as by sunlight, which can encourage bacteria growth. Elevated water has tremendous potential energy, and these types of facilities should be inspected by a competent engineer after any damage or repair.

Water Distribution Systems

General

Distribution systems deliver water from a well or other source to the final user. They are composed of main and service lines configured as loops and branches. Loop geometry permits water service to be maintained downstream in the event of a break or other service interruption. The distribution system is normally the most expensive part of the water supply infrastructure, and being located under streets and other utilities, it is the most expensive to replace or to upgrade.

Piping

Water piping comes in many sizes and materials. Ductile iron pipes, asphalt-coated pipes, and cement-lined pipes are popular for longevity and durability. Many types of plastic are also popular for cost and weight savings. Main line pipes will generally be 8"–16" in diameter (depending on water use and the system's geometry); service lines usually run 4"–8"; fire hydrants are fed from 6" service lines. Residential connections are typically 1.25".

Valves

Flow valves are required to isolate portions of the system. They are normally connected in the line with an external stem that is used to actuate the device. Valves boxes at grade can be accidentally buried easily, so the municipality should record and regularly actuate the valves to ensure they are ready when they are needed. Check valves and backflow preventers are critical

devices in the water system. These specialty valves prevent contaminated water from being siphoned back into the system in the event of a pressure drop, such as occurs with firefighting. They are required by all modern building codes and should have an annual inspection.

Pressure

Main lines are usually pressurized to between 75–150 psi depending on use. Pressure is stepped down to approximately 50 psi for domestic use. Burial depth for piping is usually 3–5 feet to protect it from traffic loads and ground freezing in cold climates. Loss from water lines is the difference between water treated at the plant and the water consumed by end users. It varies greatly depending on the age and the condition of the lines; 20–30 percent loss is common. High-tech tools exist to find sources of loss; however, using pressure gauges and inspecting places with unusually lush vegetative growth can identify damage with minimal investment.

Service restoration

Filling or refilling a water distribution system must be done slowly and carefully, since the kinetic energy of moving water, or water-hammer, can separate joints and cause breaks or leaks. Similarly, when filling lines, they must be disinfected and flushed of any debris that may have entered during construction. This is normally done by super-chlorinating to 100 milligrams per liter (mg/L) for three hours and then flushing with the installed fire hydrants. Once they operate in a steady state, the free chlorine residual at the end of the distribution line should be at least 0.2 mg/L. The American Water Works Association publishes guidance on residual disinfection requirements.

Additional Resources

Short-term assets

For assessing or restoring water services, phase IV planners should contact the J-4 engineer, who should be able to assess needs and access further expertise as needed. Each service has some level of organic support for potable water systems. The Army uses reverse-osmosis water purification units, as do Navy ships and expeditionary units, and may be capable of producing water in excess of the military demand. However, planners should not rely on this capability outside of providing critical humanitarian aid to individuals for a limited amount of time. Combat and construction engineer units may also have personnel with a limited capability of estimating the local population's demand requirements and/or assessing the conditions of the existing water infrastructure.

Long-term assets

For longer-term solutions, the Army, Navy, and Air Force have well-drilling capabilities. A list of all U.S. military well-drilling units is at the end of this chapter. U.S. Army Reserve (USAR) drilling detachments normally consist of 10 personnel, one truck-mounted drilling rig, and well-completion kits for 600-foot or 1,500-foot wells. There are currently three U.S. Air Force Rapid Engineer Deployable Heavy Operational Repair Squadron (REDHORSE) detachments that contain a well-drilling capability. These detachments are normally comprised of 12 personnel and a drilling rig capable of depths up to 2,000 feet, but have less mobility than the other services. The U.S. Navy's construction battalions each have well-drilling teams with similar capability and can conduct 24-hour operations.[13]

Available expertise

Each service has its own channel of expertise for reachback and technical support. The U.S. Army Corps of Engineers Reachback Operations Center (https://uroc-redi.usace.army.mil/default.aspx) provides remote engineering expertise to all DOD personnel who are deployed. The Army Geospatial Center (www.agc.army.mil), through its water detection response teams, maintains a global groundwater database, conducts remote sensing, and produces aerial water resource assessments and water appraisals. This data is provided to any DOD personnel and/or host-nation authority to provide potable water to civilians. Additionally, the Naval Facilities Engineering Command (https://portal.navfac.navy.mil) has a contingency operations business line that can contract with civilian expertise through the Contingency Civil Augmentation Program contract. These services are coordinated through the Navy region engineer.

Army Drilling Attachments	
Unit/Location	**Branch**
38th Engineer Detachment, Fort Bragg, NC	Active Component (AC)
247th Engineer Detachment, New London, CT	Army National Guard (ARNG)
257th Engineer Detachment, Phoenix, AZ	ARNG
269th Engineer Detachment, Live Oak, FL	ARNG
322nd Engineer Detachment, Kings Mills, Ohio	USAR
328th Engineer Detachment, Montgomery, AL	USAR
334th Engineer Detachment, Montgomery, AL	USAR
425th Engineer Detachment, San Antonio, Texas	USAR
484th Engineer Detachment, Montgomery, AL	USAR
747th Engineer Detachment, Missoula, MT	USAR
775th Engineer Detachment, Jackson, TN	ARNG
916th Engineer Detachment, Bismarck, ND	USAR
Air Force Drilling Teams	
307th REDHORSE,[14] Detachment 1, Barksdale Air Force Base (AFB), LA	Air Force-Reserve Component (AF-RC)
307th REDHORSE, Kelly AFB, Texas	AF-RC
819th REDHORSE, Malmstrom AFB, MT	AF-RC
820th REDHORSE, Nellis AFB, NV	AF-RC
823rd REDHORSE, Hurlburt Field, FL	AF-RC
Navy Drilling Team	
1st Naval Construction Division, Virginia Beach, VA	AC-RC

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11. Based upon information from oral presentation by the Layne Christensen Company.

12. Scarbrough, 1.

13. Douglas R. Caldwell, Judy Ehlen and Russell Harmon, *Studies in Military Geography and Geology.* Norwell, MA: Kluwer Academic Publishers, 2004, 313.

14. REDHORSE: A U.S. Air Force squadron-size (approximately 400 personnel) formation that is the USAF's equivalent of an Army engineer battalion or a Navy construction battalion (Seabees).

Chapter 6

Assessing and Managing Landfills and Sanitation

MAJ James Fitzgerald and LCDR Kerry Baker, USN

Overview of Waste Management

Many countries in which the U.S. military will conduct future operations suffer from inadequate or nonexistent waste management systems and poor sanitation practices. This chapter describes various types of solid waste collection systems, landfill designs and operations, and how to assess them. The principles in this chapter provide a basic foundation that will assist U.S. forces in understanding and implementing an effective waste management system.

Solid Waste

In simple terms, solid waste is any discarded material from commercial, industrial, agricultural, or other community sources. Solid waste can be solid, liquid, semi-solid, or can contain gaseous material.[1] Examples of solid waste include tires, domestic refuse (garbage), uncontaminated used oil and antifreeze, construction demolition, and debris.[2] The need to collect and properly dispose of solid waste in any region is primarily a health issue. Poor execution or a lack of solid waste management is a contributing factor in the most common vector-borne diseases that include malaria, dengue, and leishmaniasis.[3]

Waste Management Systems

Two primary elements must be working for a waste management system to be effective. The first element in waste management is collecting the waste. There are different collection methods or systems, each with its pros and cons, and each may be suitable for a region's capabilities. The second element in a waste management system is disposing of the waste. The disposal method and type of landfill will be determined based on the technical capabilities and financial resources available. The climate of the local area, in particular its average rainfall, will have a direct impact on designing the entire waste management system.

Collection Systems

An effective collection system is the first step in a waste management program. Four common collection systems are used: communal, block, curbside, and house to house.

A communal system involves the waste generator transporting the waste from its home or business to a community collection point. For this system to be effective, the population (or waste generators) must be willing participants in the waste collection system. In order to make this more effective, community storage sites should be located in convenient locations for the population. This type of collection system typically fails when the requirements placed on the home or the business become more than it is willing to accept.[4] A collection vehicle makes stops at each of the collection points, loads the waste, and transports it to the landfill.

A block system involves a collection vehicle making regular stops along a common route to collect waste. In this case, the collection vehicle will stop at frequent locations such as an intersection, ring a bell, and local homes and businesses bring the waste to the truck for disposal.[5]

This collection system requires less labor to load the collection vehicle than a communal system, because waste is brought by the individual and is loaded onto the transportation vehicle. This type of system will require that homes have adequate storage areas to hold the waste between collection runs and will require the population's active participation.

A curbside system is one with which many in the United States are familiar. In this case, the waste is placed in containers and is set by the side of the street. The homeowner or business owner will then retrieve the container once the collection crew has emptied it. The downside of this system is the likelihood of blowing trash and debris while the containers are awaiting pickup. Scavengers may sort through waste, containers may be stolen, or wildlife may knock over containers. This is the most economical collection system of the house-to-house options.[6]

A door-to-door system is one in which the local population is not involved. In this type of collection system, the pickup crew enters the residence or business and retrieves the containers. They empty the containers and then return them to their original location. The downside of this system is the poor productivity of the waste collection crew and the requirement they enter individual homeowner or business on-site waste storage areas.

Planning Considerations

Some populations live with extended family, either due to societal or religious norms. This may create a crowded living space, and families may have limited storage space for waste. As a result, they may not be able to store more than a very small amount of waste while waiting for collection. Likewise, if waste collection is a foreign idea to a society, they may be resistant to providing much effort to bring waste to a storage site on their own.

Conditions such as these may lend themselves to a door-to-door or block system. The population and density of that population are significant determining factors in the amount of waste that is generated. Figure 6-1 shows some planning factors for waste generation by persons in South Asian countries. The per capita waste generation for these countries is between 0.3 kilograms (kg) (0.6 pounds) to 0.9 kg (1.9 pounds) per person per day.[7] In comparison, the average American generates approximately 4.5 pounds per person per day. The more densely populated or the more developed a country or region is, the more solid waste will be generated.

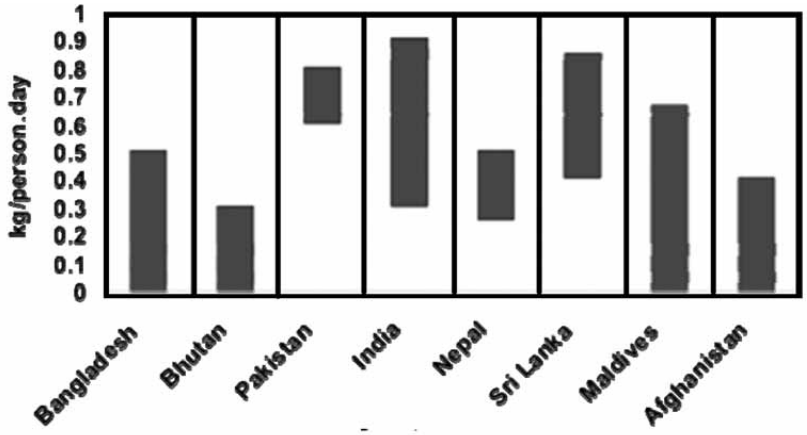

Figure 6-1. Domestic solid waste management in South Asia countries[8]

The local climate will also have a significant impact on the frequency of the required collection efforts. Regions that experience high volumes of rainfall or have high levels of humidity and heat will need more frequent collection than regions with dry, arid climates. This rainfall and heat will speed up the decomposition rate and may produce leachate or unpleasant odors, decreasing the overall sanitation of the area.

Collection Equipment

The type of transportation equipment available in the area will determine how waste is moved from the storage to the collection point and from the collection point to the disposal site. The methods available to move waste will also be a determining factor in the type of collection methods that may be used. In some developing countries, access to motor vehicles is limited and only handcarts are used. Depending on the amount of waste to be moved, the terrain in which the population is living, and their ability (or inability) to maintain equipment, handcarts may be the best method to move the waste to a collection point.

In most cases, modern equipment will be the most efficient means to move the waste from a collection point to the disposal site. Almost any type of vehicle that is capable of carrying a load could be used for this. The ideal vehicle is one that is specially designed for this purpose, such as those typically used in the United States, that compact the waste as it is picked up. This compaction helps to reduce the volume of waste at the landfill. However, if this is not available, any vehicle that can carry the volume and weight will be sufficient. Ideally, the vehicle will have sides high enough to minimize the waste that falls from the vehicle.

Landfill Systems

Coalition forces may discover the need to establish a new landfill or to put an existing landfill back into operation. In order to successfully accomplish this, some basic information about landfills should be understood. Two types of landfills are discussed in this section: small arid and municipal solid waste. Both landfills are suitable to dispose of solid waste that is typically produced by residences and commercial means. The disposal of chemical or hazardous materials is beyond the scope of this chapter. Burn pits are no longer an approved method of waste disposal and are not discussed here.

Small arid landfills

These may be suitable for handling the waste requirements in smaller populations or in areas where the precipitation is relatively low. These landfills have fewer physical requirements to construct. In areas where the waste disposal rates are less than 20 tons per day, a small arid landfill may be used. In the United States, small arid landfills are acceptable if there is less than 25 inches of precipitation per year and there is no evidence of ground water.[9]

This type of landfill requires a minimum of a 2-foot compacted clay liner for the landfill pit, but an additional liner is not required to collect water and other runoff. Leachate is a liquid byproduct produced as water percolates through the waste and leaches some of its properties. This leachate will collect at the bottom of the landfill along the clay liner. Because of the arid environment, leachate is not a large concern; however, it does need to be addressed in constructing the landfill. Decomposing waste will also create methane gas that must be vented from underground.

Municipal solid waste

This type of landfill has additional planning and materiel requirements to construct correctly because it will serve a larger population or it will have a greater likelihood to affect water sources in the local area. This is the typical type of landfill that might be found in or near any large urban center in the United States. It is constructed in a way that will protect water sources and is required to have a compacted clay liner as well as a geosynthetic liner to prevent contaminating water sources. Because of the volume of waste or the amount of average precipitation, the leachate must be collected and disposed of properly. Also, as with small arid landfills, decomposing waste will create methane gas that must be vented from underground.

Location Considerations

When determining the location of new landfills, several considerations must be factored into the final decision. The potential to contaminate drinking water sources, having available expansion space to grow the landfill, and proximity of the landfill to local populations should all be considered. Although the landfill should be designed and constructed to protect ground and surface water, it should be sited in an area that minimizes possible contamination from a leak in the floor liner. If possible, the landfill should be constructed in an area with a solid bedrock foundation or in soil areas high in clay content and away from usable aquifers. This will help to contain any leachate that may leak from the system.

The landfill should be designed to sustain many years of operation, and therefore must be sited in a location that has sufficient land available. Lastly, proximity to the public should also be considered. The landfill may not be pleasing visually or it may produce some odor that is not acceptable to the local population. This should be taken into consideration along with the travel times to and from the landfill.

Landfill Design

A comprehensive landfill design needs to be completed to ensure many years of operation. Designing a long-term sustainable system will mitigate the leachate and methane gas produced by the landfill and will protect the surrounding environment from leakage. Done properly, this will increase the efficiency of the landfill as well. If a landfill design incorporates the major components shown in Figure 6-2, the groundwater should be reasonably protected from contamination originating from the landfill. This includes leachate and methane gas-collection systems, a floor liner, and interceptor ditches to collect surface runoff. Monitoring wells is an option that may be used to detect any leakage of contaminates or gases from the landfill.

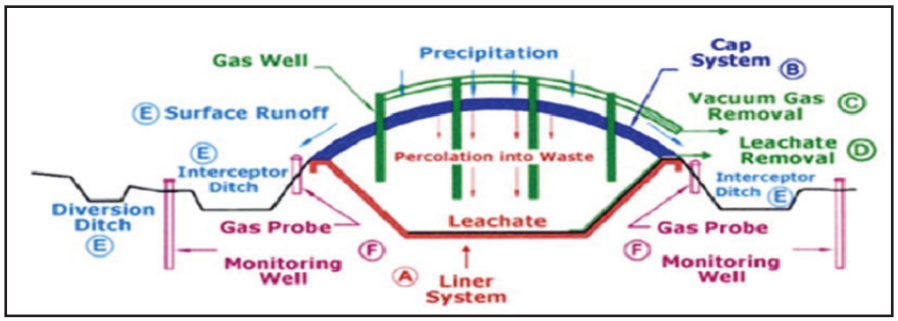

Figure 6-2. Landfill sketch[10]

Construction Materials

The landfill should be designed and constructed with an impermeable floor. This is typically achieved by first constructing a compacted soil liner above the bedrock or the embankment fill. Typical floor liner details are shown as an example in Figure 6-3. The thickness of this layer may be adjusted if a geosynthetic clay liner is used. This geosynthetic clay liner is a type of geomembrane that is used to decrease the permeability of liquid through a zone. If a geosynthetic clay liner is not available, then a minimum of 24 inches of compacted soil should be emplaced. If it is used, then the thickness of the compacted layer can be reduced to approximately 12 inches.

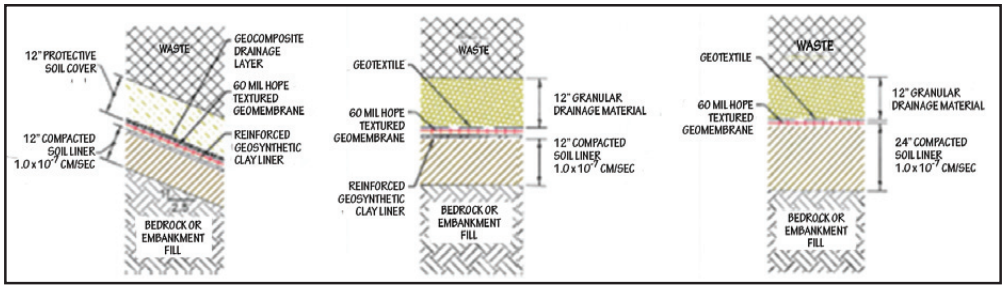

Figure 6-3. Typical floor liner detail[11]

Next, a 60-millimeter (mil)-thick, high-density polyethelene (HDPE) geomembrane should be emplaced. This provides an impermeable layer to contain the leachate. Textured geomembranes are available for use on slopes to reduce the slippage of material and personnel. On level areas of the landfill, this geomembrane is covered with a granular drainage material. This allows the leachate to flow to the low points for collection and also protects the geomembrane from damage by heavy equipment. Along slopes, a geocomposite drainage layer may be emplaced to aid in drainage of the leachate as well (Figure 6-3).

Leachate Liquid Waste

Byproducts of decomposing solid waste, water runoff, and microbes in the landfill are leachate and methane gas. In geographic regions that receive little precipitation, large quantities of leachate may not be produced and may not be a concern. In regions that have high levels of precipitation, large volumes of leachate liquid measuring hundreds of gallons a month may be produced. To collect this leachate, the landfill needs to be designed with sloping floors and a piping system that will allow for the extraction of the fluid. Figure 6-4 shows a typical cross section of a leachate-collection line. Once the leachate is extracted, it is typically hauled offsite and is treated in a wastewater treatment facility.

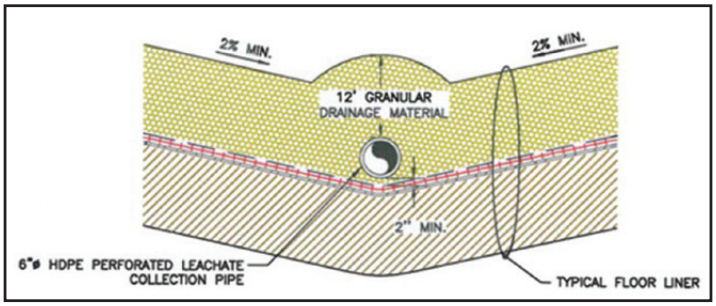

Figure 6-4. Leachate-collection line detail[12]

Methane Gas

Methane gas will also be produced through decomposition. It is *critical* to vent this gas from the waste to prevent buildup. Methane gas is flammable, so the buildup can become a significant safety hazard. Heat produced by decomposing waste may be enough to ignite the methane gas. If this occurs, the fire can burn under the surface of the waste and can be difficult to extinguish. Fires such as these can also produce byproducts that may be harmful to human health.

To vent this gas from the waste, extraction wells are typically drilled. It is possible to collect this gas and to refine it for use as natural gas; however, in most areas where coalition forces will be operating, this may not be possible. However, this gas must at least be vented to the open air. Figure 6-5 shows a typical extraction well. If the gas is vented to the air, the extraction well will not be connected to a collection system. The wellhead should be protected so that additional water is not introduced into the system.

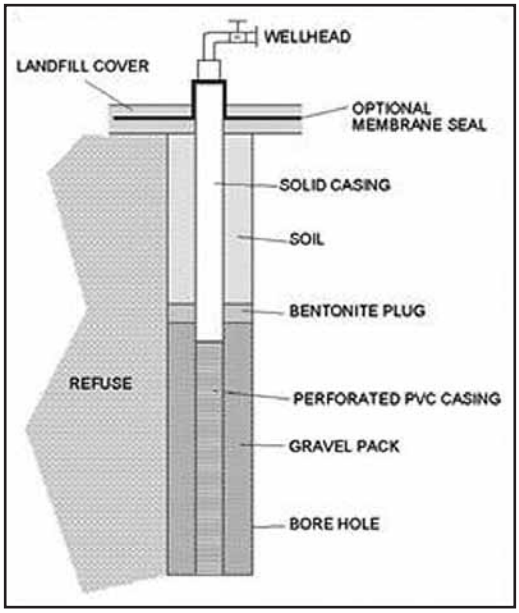

Figure 6-5. Typical wellhead[13]

Daily Soil Covering

The efficiencies of the day-to-day operations in the landfill should also be considered during design. The waste should be covered with soil daily, and the landfill design should facilitate this. Figure 6-6 shows an efficient way to section the landfill that allows for the waste to be capped as it is filled. Long, continuous sections the length of the landfill do not allow for a cover to be placed on the waste until the entire length is complete. With a more cellular layout, the waste can be capped with minimal exposure time. This daily covering of the new waste will decrease noxious odor as well as protect the site from human and animal scavengers.

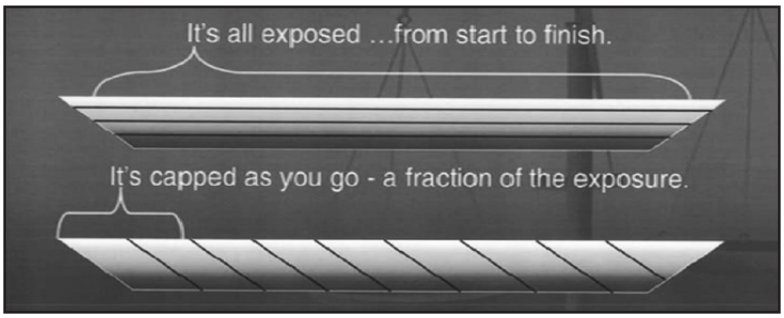

Figure 6-6. Methods of filling a landfill[14]

Equipment Requirements

Heavy construction equipment will be required to construct and run a landfill. A landfill compactor is required to maximize the space available in the landfill. An acceptable compacted density for solid waste is 900–1,200 pounds per cubic yard. A loader or a dozer will also be required to move soil within the landfill. This is required to close or open sections of the landfill. The dozer may be used for compaction if no compactors are available; however, this is not the most efficient method, since all of the weight is distributed along the track and does not provide the point loads to compact the waste correctly.

As shown in Figure 6-7, the compactor has steel sheepsfoot-style wheels that compact the waste. Although a dozer looks similar, it has tracks that spread the weight of the machine along the entire length of the machine, reducing its compaction efficiency. A scraper will also be useful to aid in these operations as well as move larger amounts of soil short distances. Finally, a water truck will be required to control moisture levels of the soil during construction and dust along haul roads, among other uses, on the site.

Figure 6-7[15]

Security

As discussed above, if the landfill has been designed properly, the flow of traffic through it should be smooth and facilitate sectional filling. A challenge that must be addressed during day-to-day operations is the presence of scavengers. These are typically very poor people who live in the area and use the landfill to find materials they may be able to use. They can present a significant safety issue inside the landfill, particularly when heavy equipment is in operation. However, in many parts of the world, people may depend on what they find scavenging to survive.

One way to mitigate this hazard is to place a transfer station outside the landfill where scavengers can access the waste. This allows them to continue a practice they may depend on and allows the landfill to operate under safer conditions. Attempts to keep scavengers out of the landfill entirely will more than likely be unsuccessful, or it will be expensive to maintain a high enough level of security.

Top Cover

In order to decrease the likelihood of vector-borne diseases originating from the landfill, each section should be covered nightly. The cover ratio for waste to soil is recommended to be 6-to-1. However, in practice, operators typically err in this cover ratio by emplacing too much soil on top of the waste. This will result in a shorter lifespan for the landfill, and the landfill will use up its stock of available fill material much quicker. When emplacing the top final cover, it should be designed and constructed in a manner that limits the amount of water that drains into the waste.

This can be achieved using two different methods. The first is more expensive and requires more resources. A typical cross section of this method is shown in Figure 6-8 and includes a vegetative soil over a protective soil layer of 1.5 feet, then a 40-mil geomembrane, and finally 1.5 feet of compacted soil over the waste.

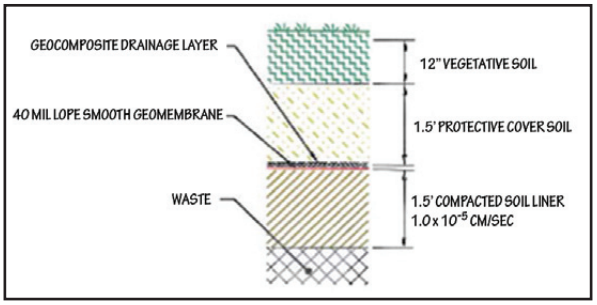

Figure 6-8. Final top cover detail[16]

An alternate method, and one that is likely to be more practicable in a developing country, is shown in Figure 6-9. This method is constructed with 1 foot of vegetative soil covering 54 inches of protective covering. This uses the natural methods to restrict the drainage of water into the waste. The soil acts as a reservoir to hold the water. The natural evaporation in the soil and plant transpiration will empty the reservoir, preventing drainage into the waste.

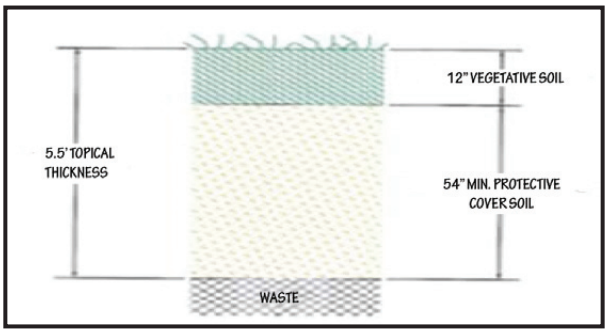

Figure 6-9. Alternate final top cover detail[17]

Conclusion

When coalition forces assess the waste management system in use or begin to plan a waste management system, they must consider the assets available and local culture. Other factors include the population density, cultural norms, climate, financial resources, and level of development. There may be no existing system in place or it may not be operating due to the current status of the government or the security situation. If coalition or U.S. forces are to put in place a system, then they should determine how the locals handle their waste at the present time. There may not be a comprehensive system in place, but the population may use a makeshift system.

When conducting an assessment, the first thing to look at is where the waste is being stored and collected. This can serve as an indicator to the type of system that may be the most effective if there is nothing currently in place. Solid waste may be found in common collection areas, tossed behind fences or walls at residences or commercial buildings, or accumulated in and around individual residences. Each of these may lend itself to better facilitate implementing a communal, curbside, or door-to-door collection system. The environment should be considered when conducting an initial assessment as well. A warm, humid environment with high levels of precipitation will create faster waste decomposition than will arid environments. This will affect the frequency with which waste needs to be collected and stored.

The next area to assess is waste disposal. The landfills described in this chapter are based largely on laws and regulations in the United States. Countries where the U.S. military finds itself operating may not have these same regulations, if there are any at all. However, the landfill designs and operations described above are best practices that focus on protecting the local population and the environment from disease and groundwater contamination. Effort should be made to meet these standards as practicable. Areas that should immediately concern U.S. forces when they look at existing disposal methods are large stockpiles of uncovered and unvented waste, unprotected groundwater, or the lack of any type of organized disposal methods. Large stockpiles of waste will attract rodents and birds, increasing the risk of spreading disease. They also have the potential to collect methane gas if left unvented, creating a fire hazard. Leachate that is not controlled by a proper landfill containment system should also be controlled as soon as possible to avoid or to discontinue contaminating drinking water.

Endnotes

1. New York State Department of Environmental Conservation, What is Solid Waste. http://www.dec.ny.gov/chemical/8732.html, accessed on 15 May 2011.

2. Ibid.

3. World Health Organization. The Health and Environment Linkages Initiative (HELI) site. Vector-Borne Disease. http://www.who.int/heli/risks/vectors/vector/en/index.html, accessed on 15 May 2011.

4. United Nations Environment Programme. Division of Technology, Industry, and Economics Site. Solid Waste Management, Volume I, Chapter 4, page 85, http://www.unep.or.jp/ietc/Publications/spc/Solid_Waste_Management/Vol_I/9-Chapter4.pdf, accessed on 15 May 2011.

5. Ibid.

6. Ibid.

7. C. Visvanathan and Ulrich Glawe, "Domestic Solid Waste Management in South Asia Countries – A Comparative Analysis" http://www.faculty.ait.ac.th/visu/Prof%20Visu's%20CV/Conferance/25/3R-MSWM.%20Visu.pdf, accessed on 17 May, 2011.

8. Ibid.

9. Deffenbaugh Industries Presentation to A432 Restoring Essential Services, Intermediate-Level Education (ILE) Class 11-01, 11 May 2011.

10. Deffenbaugh Industries Presentation to A432, Restoring Essential Services, ILE Class 11-01, 11 May 2011, Figure 2.

11. Ibid, Figure 3.

12. Ibid, Figure 4.

13. Ibid, Figure 5.

14. Ibid, Figure 6.

15. Caterpillar, Inc. Used by permission.

16. Deffenbaugh Industries Presentation to A432, Restoring Essential Services, ILE Class 11-01, 11 May 2011, Figure 8.

17. Ibid, Figure 9.

Chapter 7

Assessing and Managing Fire Departments

MAJ Gilberto Escobedo

Overview

Fire service is a basic life and property saving emergency service. It is ranked as one of the two most important services provided by a city, and the other service is law enforcement. The modern fire department provides many services to a community based on population size and requirements. However, the most basic service is to respond to and suppress a fire in a home or a business before it causes significant damage. Other services, such as emergency medical service, can be provided as needed.

Responsibilities of the Fire Department

Aside from the basic core fire prevention and suppression services, today's fire departments can respond to serious traffic accidents and emergencies involving hazardous materials; deliver emergency medical services; rescue persons from collapsed construction trenches, confined spaces, and collapsed structures; dispatch other public safety emergency services; inspect buildings; and enforce fire prevention code requirements. Furthermore, modern fire departments must be prepared to respond to large-scale rural and urban disasters and terrorist threats.

In order for the fire department to provide the above requirements, local governments must be able to allocate sufficient funds to departments to enable them to provide acceptable levels of diverse services.[1]

Organizational Structure

Fire departments are organized in a variety of ways. A fire department may be organized based on the number of neighborhoods for which the department is responsible. If the city's fire department is large enough, it will normally be organized around battalions. These battalions will be further divided into companies and will be arranged strategically around a city to provide fire coverage for areas up to 25 to 30 miles. The size of the area and the population will determine the number of fire stations for which the battalion is responsible.

Fire departments are usually internally organized into functional sub-sections, such as administration, operations, fire prevention, training, communications, emergency management, and equipment maintenance. Figure 7-1 shows the basic organizational structure needed by fire departments to operate efficiently.

Administration

The administrative duties include preparing and monitoring the fire department's operating budget; overseeing and carrying out human resource requirements, promotions, and payroll activities; and other miscellaneous duties. Based on the size of the fire department, there may be one administration section in the battalion that can provide administrative support to the fire companies assigned to the battalion.

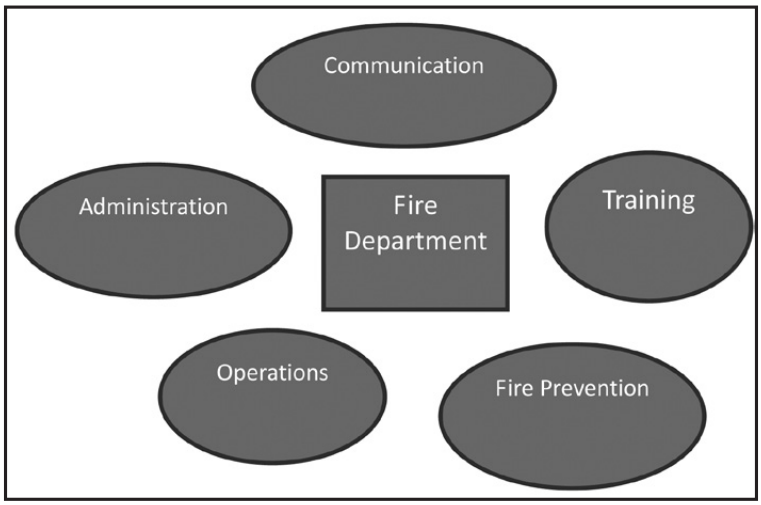

Figure 7-1. Organizational structure[2]

Operations

The operations department is responsible for fire suppression, emergency response, and rescue activities. This is normally the hub of fire department activities and is the section responsible for committing fire department resources to an emergency. Much like an operations section in a military unit, this section will also coordinate support requirements needed for training events, education outreach activities, and other requirements.

Fire prevention

The fire prevention section is responsible for inspecting new and existing structures to enforce fire prevention codes and standards. In a small fire department, this service may be viewed as a nonessential part of the fire department's workload. However, the ability to ensure that building codes and standards are followed will ensure that buildings are built with fire prevention in mind.

Training

The central purpose of the training program is to increase the professional skills of firefighting and rescue personnel. The training should include certification programs for firefighters, drivers and equipment operators, emergency vehicle operators, fire and rescue instructors, and other members of the fire department.[3]

The National Fire Protection Association (NFPA) provides training and equipping guidance to establish internal training procedures and programs to meet requirements that have been accepted by other fire departments around the world. The NFPA develops, publishes, and disseminates over 300 consensus codes and standards intended to minimize the possibility and effects of fire and other risks.[4]

Communications

The communications section is responsible for recording emergency requests for assistance and dispatching elements capable of responding. The most common means of reporting a fire to the fire department is by telephone, although in more remote locations this may be difficult.

In more modern fire and police systems, the communications sections may be joined to provide parallel response between fire and police departments. This is a means of saving manpower and equipment requirements.

Fire prevention and inspection

One of the most important duties of the fire department is to prevent the incidence of fire. The fire department may conduct monthly or quarterly inspections of buildings or structures as a means of ensuring homes and businesses are following basic fire-prevention guidelines. The fire department can also use this program to educate the community by providing information on how to prevent and respond to small home and business fires.

Planning a Fire-Protection Program

The initial phase of planning and organizing a fire department will be challenging. There are generally two types of fire departments. The first is funded and supported by a city or a town that is able to raise monies to pay firefighters and to purchase equipment. The second type of program is a volunteer fire department, which is supported by local citizens on a voluntary basis. The community or town will need to be assessed to determine if a fire department is necessary and practicable for the area. Once this is determined, the land and surrounding area will be assessed to determine the optimal location to site a fire station with supporting training space.

If a volunteer fire department is planned, then the population's support will be critical to the fire station's success. The community will need to appoint a fire chief and employ firefighters and must also determine how to maintain a fire department. The fire chief will be responsible for the firefighters and training activities, maintaining equipment, and making reports to the community.

Gathering Information

There are several tasks that should be accomplished before establishing a fire department. Completing these tasks beforehand will ensure not only the optimal location of the fire department so that it can respond to emergencies in the operating area in a timely manner, but also ensure that required regulations and training requirements are known and planned in advance.

Establish operating procedures by reviewing and gathering information on local laws, regulations, policies, and procedures from state or county departments. The NFPA is an invaluable source for personnel, equipment, and training recommendations that can provide a starting point for establishing or re-establishing a fire department.

Make a diagram of the area of operation showing roads, telephone facilities, and settlements and for recording community volunteers who will be a part of the program. This basic understanding of the area of responsibility will be refined over time but will provide a basic understanding of the area for initial planning.

An estimate of the initial and recurring annual costs to operate a fire department will enable planners to more realistically understand what the initial cost will be to start a fire department. This includes the cost of the apparatus and the annual operating expenses to maintain.

A key factor in establishing a fire protection program is the size of the responsible area and the road conditions. Based on population density, the size may include the area within a radius of two or three miles; the radius may be eight or 10 miles if the community is widely scattered. The road conditions and the extent of telephone services are other factors that should impact planning for fire support.[5]

Roles, Responsibilities, and Procedures

A written list of policies and procedures will help the department in everyday operations. At a minimum, the list should include:[6]

- Chain of command.
- Organizational chart.
- Articles of incorporation.
- Duties of the fire chief, the assistant fire chief, basic firefighters, equipment operators and drivers, the fire marshal, the battalion fire chief, and the fire captain.
- Policies and procedures regarding disciplinary actions, grievances, and general rules and regulations.

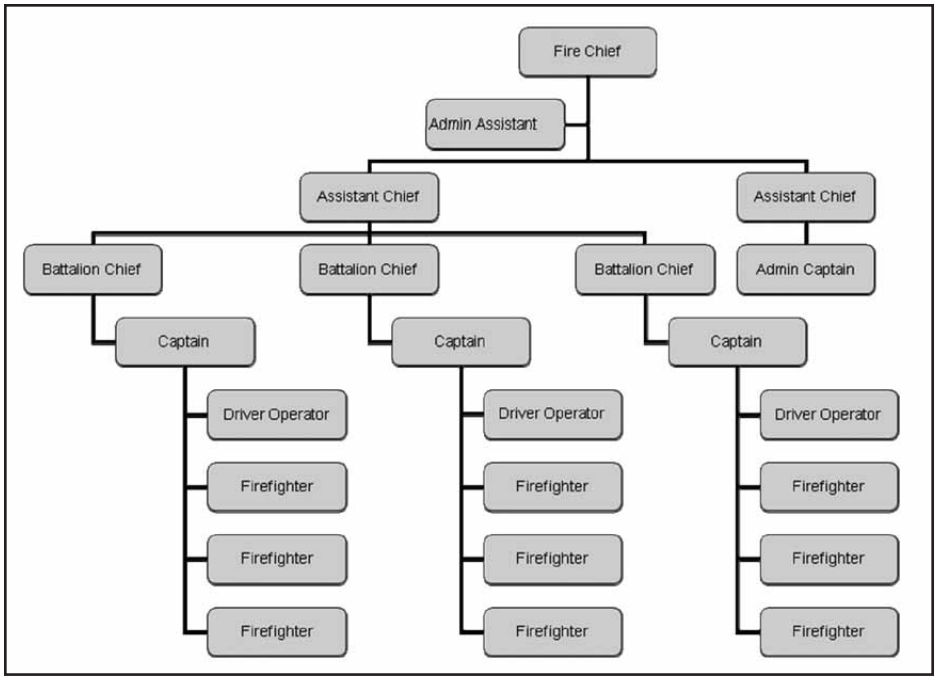

Figure 7-2. Sample organization chart[7]

Fire chief

The fire chief is the executive manager of the fire department and reports to the city manager. He manages the budget and established policies and procedures and oversees all the department operations, training, and equipment management.[8]

Fire marshal

The fire marshal is the head of the fire prevention department. His responsibilities are to maintain safety equipment requirements for firefighters and to develop and enforce ordinances, codes, and standards set by the fire department, the state, local government, and the NFPA.[9]

Assistant fire marshal

The assistant fire marshal ensures that fire safety codes and standards are in compliance and assists and educates the public and communities with any problems or code interpretation.[10]

Battalion chief

The battalion chief is responsible for directing personnel in fire-suppression operations, rescue situations, and training activities. He also assists and oversees the department's operations budget.[11]

Fire captains

Fire captains respond to and are responsible for operating their apparatus equipment and their company personnel. The captains plan and supervise and ensure that firefighters are prepared to respond to a fire, rescues, and medical emergencies.[12]

Where To Get Help

While planning a fire-protection program, try to get technical help by consulting with specialists who have the know-how and experience. State and local government agencies have policies and standing operating procedures on how to establish and operate a fire department. Other organizations that are helpful are nongovernment organizations (NGOs) and other government agencies. These organizations have departments and personnel who can assist in a crisis environment. They might even have the equipment or personnel to set up a fire protection program.

Also, the NFPA from Boston, MA, and the National Board of Fire Underwriters from New York, NY, will mail free publications on how to operate or organize a fire protection department in a rural or an unstable environment.[13]

Getting the Program Started

Once all the information has been collected, the next phase is to call a meeting of the affected community population to consider adopting a fire-protection program. Consider the following points that need to be answered when establishing a fire department. (Also see Appendix A at the end of this chapter, which has a sample checklist of items to answer when organizing a fire department.)

- An incorporated rural fire protection department funded by taxes and administered by elected officials of the community.

- A township or county fire department supported by general or special taxes.
- A voluntary association supported by community people.[14]

For rural communities, the most desirable and affordable program may be the voluntary association. This program would be supported with personnel and equipment and would be funded by the local community. If the population is large enough or if it has enough business revenue to afford it, the community may vote to provide funds for a fire department based on financial donations or taxes.

Putting the Program Into Operation

Fire station

Establish the fire department in the center of a small city or town to better serve the community. If possible, find an old, available building that can accommodate a kitchen, sleeping quarters, an assembly room (for firefighters and firetrucks), and space for training. If there is no suitable building available, it will be necessary to build a fire station that takes these requirements into consideration. Make a point of keeping someone on duty continuously at the fire station in case of an emergency. If this is not possible, arrange to have a central telephone office at the rural police station or assign a community member to sound the siren or alarm in case of a fire.[15]

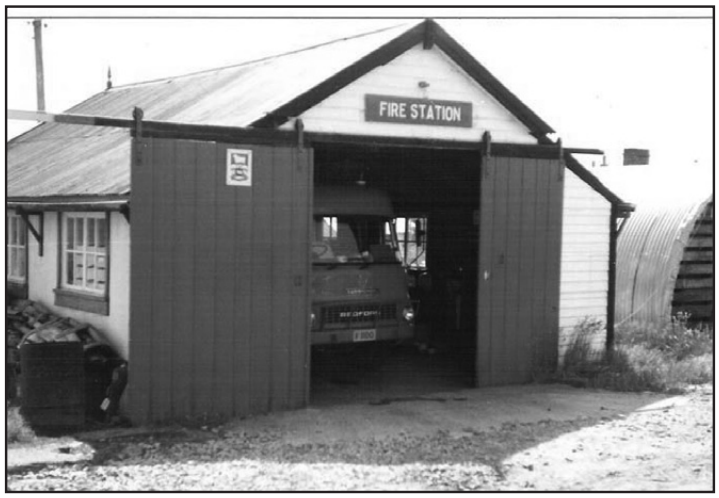

Figure 7-3. Fire station

Equipment

If possible, try to have two firetrucks — one that can carry 300–500 gallons of water and another that can carry 1,000 gallons of water for supplementary use. Depending on the area, water resources may be problem. Not every community has the luxury of having a fire hydrant at each corner to pump water. The water tank needs to be routinely checked for water level, maintenance, and serviceability.[16]

The two principal types of firefighting apparatus are pumping engines and ladder trucks. Pumping engines carry hoses and are equipped with a pump and water truck and various firefighting appliances. Standard pumps sizes are 750, 1,000, and 1,250 gallons.[17] Figure 7-4

shows a modern city pumping unit as well as a rural department pumping unit. Older equipment in many cases is much cheaper to purchase, although finding parts for older vehicles may be challenging.

Figure 7-4. Pumping engine[18]

Figure 7-5 shows a ladder truck on the left that is very useful in medium-size cities with taller buildings. This type of truck would not be very useful in a rural setting with mainly single-story buildings. The truck on the right would be very useful in rural situations where there are no water hydrants for fire trucks to hook hoses into for water resupply. This vehicle can be used to keep the water tanks for the smaller pumping trucks filled while suppressing fires.

Figure 7-5. Ladder truck and rural water truck[19]

A third type of truck is the rescue truck. This truck is used for rescue missions at the scene and generally carries special equipment such as the “Jaws of Life” for extreme situations. The vehicle shown on the left in Figure 7-6 is perfect for a rural setting. It has a higher undercarriage than many city-type vehicles as well as a reconfigurable rear-loading area to customize equipment-carrying options. The truck on the right is designed for city and improved surface roads due to its lower undercarriage and higher gross weight.

Figure 7-6. Rescue truck[20]

A set of two-way radios is helpful to communicate with nearby trucks and for requesting additional response units or water resupply. Heavy machinery, such as a tow truck or bulldozer, is helpful to pull debris out of the way or to move disabled vehicles. This machinery can be donated by local farmers or NGOs. Other types of equipment that can be donated by the local population are ladders and ropes.

Diagram of the area

A color-coded diagram of the area listing rural farms or villages is helpful. Use symbols and numbers to indicate telephones, water supplies, distances, road conditions, and home firefighting equipment. This map should be further divided into grid map sections or quadrants identifying northeast, northwest, southeast, and southwest, with a numbering system to identify populated areas or risk areas. Each grid can represent one square mile of rural area.

The fire department will use the grid map to help determine the area of responsibility and to find addresses in rural settings.[21] Post a copy of the diagram on the wall of the fire department in each of the major work areas. In addition, place the diagram inside firetrucks and sleeping quarters.

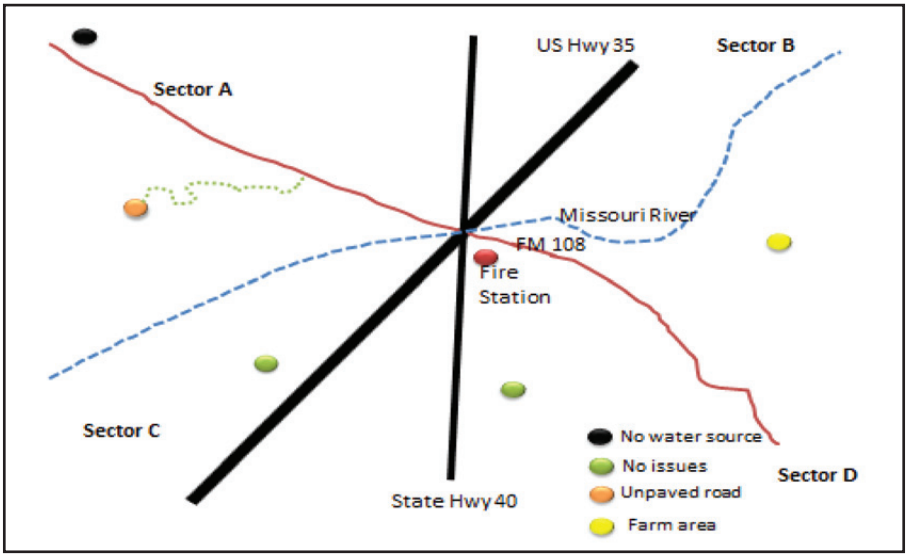

Figure 7-7. Sample diagram of the area to be protected by a rural fire department

Card file

Early during the process of establishing a fire department, create a card file through a collaborative effort between the resident and the fire department. The card records information that will be valuable to first responders. For example, the card can have the name, residence and location, the best route to take, the location of any water resources, and the layout of each building. A card file could be kept in the fire company by alphabetical order or by numerical sequence. On the back of each card could be additional information of value to firefighters, such as the volume of water in each neighborhood and the estimated amount of water needed for a particular home or sector.

When a fire is reported, the proper card can be pulled from the file and given to the truck driver. The information will be useful for planning purposes while firefighters are en route to the scene. For the residence, the card information is useful to know where the firetruck will come from. The residence owners should plan to remove obstacles prior to the arrival of the firefighters.

Conclusion

In order for a fire department to be successful, it needs to focus on and educate the community on fire prevention. It will need to provide firefighters the opportunity for professional development and growth and to establish career plans showing their progress in the fire department. Prior to establishing a fire department, ensure that an assessment of the area and of the resources available is completed. Equipment may be requested from a variety of sources, including NGOs or other government agencies. The key points are feasibility, sustainability, and responsiveness to the community the fire department has been established to support.

Appendix A[22]

Volunteer Fire Department

Major items that must be considered when forming a volunteer fire department are:

- Fire apparatus, hoses, and hookups, which must be compatible with water sources.
- Firefighting equipment, including personal equipment.
- Fire station:
    - Location.
    - Design.
- Staffing: As many members as possible (a minimum of 20 is recommended).
- Communication system:
    - From the public to the fire department.
    - From the fire department to the firefighter.
    - Between firefighters.
    - Between mutual aid agencies.
- Water supplies:
    - Hydrants.
    - Standpipes.
    - Lakes, streams, and other man-made sources.
    - Reliability and quantity.
- Private property: The ability of a fire department to enter onto private property to extinguish a fire that is endangering surrounding property or buildings.
- Mutual aid: Legal agreements with adjacent fire departments.
- Personal protection: Compensation for the firefighters in the event of an accident.

- Geographical boundaries:
    - Areas that will be included in the fire protection area.
    - Mutual aid areas.
    - Areas where fire protection will be required in the future.
- Population data:
    - The total population now.
    - Projected population in five years.
    - Seasonal variations.
- Physical data:
    - The road system.
    - Topography.
    - Weather conditions.
- Land use:
    - Total area.
    - Urban.
    - Rural.
    - Residential.
    - Wildland.
    - Grasslands.
    - Commercial.
    - Industrial.
    - Agricultural.
- Legal considerations:
    - Workers' Compensation Board requirements.
    - Indemnification of local government and fire department members.

- Funding:
    - Long-term capital planning in place to ensure the resources are available for future capital improvements.
    - Current operation of the department.

Master Planning Process

A basic, systematic approach should result in determining answers to the following questions:

- What are the financial resources of the community?
- What is the availability of volunteer personnel at various times of the day and night?
- What is the frequency of emergency incidents?
- What will be the range of services provided by the fire department?
- What type of fire department is preferred by the community?
- What is the demographic characteristic of the community?
- What is the level of fire risk in the community?
- What are the real fire problems?
- Do people know how to behave in fires?
- Do we have “high-risk” groups of people in the area?
- What kind of fires have occurred, and what losses have resulted from these fires?
- How could the fires have been prevented or the losses reduced?
- What specific fire risks now exist or are expected to exist in the foreseeable future?
- Is there an increase or decrease in the population?
- What is the present economic makeup?
- What are the future growth projects and land use and zoning plans?
- What is the condition of housing?
- What is the projected industrial growth?
- What are the transportation conditions?
- What plans are in existence at community, local government (regional district), or provincial levels that could influence the planning?

Endnotes

1. Mark DeMaranville, "Assessing and Managing Fire Departments." Presentation provided to elective students on 4 May 2011.

2. DeMaranville. These are the organizational basics of a fire department. Although these vary in size based on the size of the department, these activities are required to adequately form this organization.

3. DeMaranville.

4. NFPA (2011). "Codes and Standards." Retrieved 24 May 2011 from www.nfpa.org. This site provides a list of NFPA codes and standards used by fire departments worldwide as a guide for organizing, equipping, and training department personnel.

5. Canada, Province of British Columbia, Regional District Okanagan-Similkameen (RDOS). Retrieved on 25 May 2011 from www.rdosmaps.bc.ca/min_bylaws/finance/fireprotection/stepsinestablishingalocalfiredepartment.pdf.

6. RDOS, British Columbia.

7. This is a sample organizational chart developed from the presentation by Chief DeMaranville and from viewing the LFD organization chart. The administrative section of the chart would also contain training, communications, and human resources support.

8. San Diego Fire Department roles and responsibilities. Retrieved on 24 May 2011 from http://www.sandiego.gov/fireandems/about/suppressroles.shtml.

9. Ibid.

10. Ibid.

11. Ibid.

12. Ibid.

13. Nfpa.org

14. Fire Department bylaws of the town of Milton, CA. Retrieved on 24 May 2011 from http://www.milton.ca/council/bylaws/bylaws10.htm. This is bylaw 059-2010 discussing the establishment of the fire department in that city. This document delegates appropriate authorities to various city entities for the establishment, funding, procedures, and duties of both the city and the community.

15. DeMaranville.

16. Ibid.

17. Ibid.

18. Photo courtesy of Assistant Fire Chief Mike Lingenfelser, Kickapoo Township.

19. Photo courtesy of Fire Chief Mark DeMaranville, Leavenworth Fire Department.

20. Left photo courtesy of Assistant Fire Chief Mike Lingenfelser, Kickapoo Township. Right photo courtesy of Fire Chief Mark DeMaranville, Leavenworth Fire Department.

21. Scott Miller, City Manager, City of Leavenworth. Presentation to students on city management structures and organizations on 31 May 2011.

22. Canada, Province of British Columbia, RDOS. Retrieved on 25 May 2011 from www.rdosmaps.bc.ca/min_bylaws/finance/fireprotection/stepsinestablishingalocalfiredepartment.pdf.

Chapter 8

Assessing Economic Activity

MAJ Scott A. Hamilton

Overview

In planning contingency operations, stability operations, unconventional warfare, and civil-military operations, the United States pursues several initiatives. These are designed to rehabilitate countries and help them become self-sufficient and participate in the global exchange of economic trade and political discourse. Our government, our nation, and our cultural approach incorporate various agencies', organizations', and nations' cooperation to help to reconstruct what Thomas Barnett refers to as "The Gap Countries"[1] in various fields, including economic development, governance, rule of law, and security. The model for this is outlined in doctrine and ends in the transition phase with a transition of responsibility, operations, and ownership to another agency or entity.

Whether we are talking about a nonmilitary government agency or a Department of Defense operation, we are missing a significant variable that can and will contribute to a successful transition. This chapter discusses this variable and how it can be incorporated and applied to achieve more significant and efficient levels of success in transition and continuity.

As a general rule, our agencies do well in security operations, governance operations, and rule of law. This can be no surprise when we consider some relevant pieces of information. Security operations are headed by military and law enforcement professionals who have years and decades of experience in their fields. Rule of law operations are headed by attorneys and criminal justice professionals with degrees, training, and experience in these diverse fields. Governance operations are led by people from government agencies who have degrees and experience in a variety of fields and parts of governments.

Operations outside of these subjects are where we have greater disparity of proper expertise, although we do not lack subject matter experts with experience and understanding. Primarily, the fields of economic development are where we fail to prepare and to succeed. One of the fundamentals of free market economics is the importance of small business in macroeconomic contribution. We believe and practice the theory that small businesses in large numbers are more beneficial to production in a national economy than is one single or a few large firms with a large output. Therefore, to explain this disparity, this chapter addresses the fields of economic capacity redevelopment in stability operations and, more importantly, in preparing to transition our project initiation to our withdrawal and disengagement.

Economic Development and How to Improve Applications in the Field

Economic development in any free market country operates around a set of several theories. All of these theories follow their set format and structure, but all free market theories are fairly similar in their construction and basic operational beliefs. The free market operates on the bidirectional flow of products or services in exchange for capital. In the United States, we believe there are four basic paths for the flow of capital. These flows of capital are the circular flow of capital, the horizontal flow of capital, the inflow of capital, and the outflow of capital.

Circular flow of capital

The circular flow of capital is the primary flow in which capital goes from subject A to firm Z. This is what we experience when we receive our paychecks and pay bills or purchase items. Capital is used by firm Z to pay employees or to purchase materials, pay debts, and so on. This flow generally stays at the base operating level and travels in circles. Capital is exchanged between individuals and banks, which use it in loans to firms. Companies pay individuals, banks, and so on in a circular flow. An individual buys something from a firm that deposits funds in a bank. An individual withdraws funds from the bank and pays a bill to a firm. The firm then pays its individual employees. Capital continues in this circular form and increases the available monetary supply for firms and individuals each time it travels in circles.

Horizontal flow of capital

The horizontal flow of capital is money that comes out of the circular flow track of capital and goes to governments. Capital paid by individuals and firms to governments in the form of taxes, fees, and licenses is used in government programs, institutions, and projects. This capital is removed from the circular flow of capital, but the benefit of this capital remains in the common core. Governments use their capital to pay employees, procure services, and purchase supplies. Governments, therefore, do their part to contribute to the continuous circular flow of capital and use their capital to procure and maintain public facilities, institutions, and other benefits for the public good. So the money that is removed from the circular flow of capital still contributes to the circular flow, and that means that at the worst it is nullified, but that it is not a negative drain.

Outflow of capital

The outflow of capital is when capital is taken by users from inside an economic flow; users send it outside that circular and horizontal flow to another country. A great example of the outflow of capital is when immigrants come to the United States to earn money and then send that money to their families who live in other countries. This may be capital in the form of money, but it is also seen in labor capital. This is significant in many places where we are deployed, where we see members go to another country to seek work. When working people leave the community or the country to find work elsewhere, their community loses its potential productivity. This capital will not be within the continuous and circular flow of capital and cannot contribute; therefore, it is a loss.

Inflow of capital

The opposite of the outflow of capital is the inflow of capital. This is a phenomenon that sounds positive but is a detriment to economic development. When we use our funds, such as the Commanders Emergency Response Fund (CERP), microgrants, and other U.S. government funding sources, we are the source of the inflow of capital. The precise definition is capital that comes to users from outside sources and is not tied to local economic activities.

One great example of the detriment caused by an inflow of capital occurred when the United States spent $1 million in renovations to open the Karada water park in Iraq. The project was to renovate the infrastructure and repair damaged facilities, and was opened with great fanfare. The water park was welcomed by the people in Baghdad and was generally left alone by insurgent groups. However, the project was doomed to failure because of the funding source. No entity or ministry took responsibility for maintaining the continued operation of the park. Funding

came from a source outside traditional economic means, and no governmental ministry had the authority to procure additional funding for operations. Consequently, the park fell into a state of disrepair and went back to the damaged condition it was in before. This project failed because funding was from an inflow of capital instead of a circular flow or horizontal flow of capital.

Two of these capital flows are healthy and necessary, whereas two of them are damaging to economic development. The circular flow and the horizontal flow of capital are both necessary for the progress of microeconomic and macroeconomic development; the inflow and the outflow of capital are both detrimental to microeconomic and macroeconomic development. Robust economies, such as those of developed economic systems like the United States, can absorb the damage done by the inflow and outflow movement of capital. Developing economies, where we are currently conducting an overwhelming majority of our operations, are severely handicapped by inflow and outflow of capital activities. The inflow/outflow symbiotic relationship can be used to benefit, but only when the source of funding uses the capital to provide startup capital for the recipient to initiate relationships with institutions within the circular flow.

Governmental organizations and initiatives

The U.S. Agency for International Development (USAID) is usually the agency that takes the lead in economic development, along with the Department of State (DOS). USAID operates under a handicap in this field because it is not large enough to cover all requirements, which reduces its effectiveness and potential in some geographic areas. Economic development is not the primary function of the DOS and is therefore not its priority of effort. The DOS does work with other agencies that have representatives in U.S. Embassy missions to assist in this goal.

For example, the U.S. Department of Agriculture assists with agricultural business development and agricultural output. The Department of the Treasury assists in the development of banking systems and ministries of business and finance to develop financial and economic systems. USAID works in business development, small business initiatives, and training programs to teach these skills to people interested in developing a business. USAID also works to improve personal skills for people to be able to enter a changing work force. The USAID's intent is the proper foundation, but USAID does not have the assets in capital or personnel to comprehensively cover the need and demand in some of the areas where our operations take us.

Several reports from personnel working in USAID initiatives have indicated that U.S. military operations are a hindrance to what USAID is trying to accomplish. Some of these complaints reflect underlying frustration over the inabilities of USAID initiatives to achieve a notable level of success. While these complaints should not be discounted, they stem from many different reasons and at times may be inaccurate. Some of these observations, not only from USAID personnel, are also accurate. As in all things, we need to conduct after action reviews of what we are doing and what we can improve to sustain these operations.

Projects versus programs

U.S. military units working to implement economic development within their geographic areas of operations should consider the task and purpose of these projects. In order to better refine this discussion, we need to clearly define *project* and *program*. A project is a short-term event that continues in a temporary functional process intended to fulfill a specific design for a specific period of time. A program is a longer term event designed to continue on its own momentum without continued involvement.

For example, when we develop a relationship that hires a group of people to pick up garbage along a roadway that we consistently use, this is a project. The project depends entirely on the unit to supply it with capital and has no other means of sustainment. Therefore, the project is an inflow of external capital destined to disappear as soon as the unit departs. A program would be more along the lines of when we rebuild a school or a clinic that is tied to host-nation ministries. These programs are funded, staffed, and managed by the appropriate ministry as soon as we have completed it. In other words, projects may depend entirely on U.S. funding, whereas programs should be designed to continue without U.S. involvement.

When we fund projects, we are fulfilling the role as an inflow of capital medium for those people who receive their paychecks from us. Subsequently, we play the role of the outflow of capital from the perspective of our country. Consequently, we achieve little positive impact beyond the duration of the project. In this role, we create a class of have-nots who suddenly have a little but then suddenly are have-nots again when we terminate the project. Emotional backlash from this phenomenon re-creates the economic development problem we had in the first place. If we wish to develop lasting peace and lasting development, then we have to approach our economic development process as sustainable economic development and less as dependent economic development.

The Application of Principles to Build Success

The Kauffman Foundation of Entrepreneurship[2] uses the term *expeditionary economics* to refer to what we are doing in our economic development operations outside our country. In conjunction with the Command and General Staff College Foundation, the Kauffman Foundation held a conference regarding expeditionary economics. The conference, the Summit on Entrepreneurship and Expeditionary Economics, was held 25–27 May 2010 at the Ewing Marion Kauffman Foundation in Kansas City, MO. The summit addressed several key points that are applicable and important to the whole of our government and the whole of our nation's approach to this objective. Kauffman Foundation President and CEO Carl Schramm describes the emerging idea of expeditionary economics in four principles. In his speech, Mr. Schramm addressed these principles:

- A proven model for economic growth and development is available in entrepreneurship in the United States.
- Post-conflict economic reconstruction must become a core competency of the U.S. military.
- Economic growth must become an integral goal of the United States' post-conflict and post-disaster strategy.
- U.S. military planners should look beyond international development organizations and should consult people with practical experience.[3]

Arguably, we have a stock of experience within our ranks as well as available subject matter experts. Institutions of higher learning, institutions of excellence, and successful entrepreneurs often create liaison relationships in operations and programs around the world. By developing our programs to include these resources, both inside and from outside our services, we can develop more efficient programs.

The Kauffman Foundation's discussion points are extremely valuable, completely relevant, and address necessary perspectives for the United States to consider. Given the scope and wealth of information available to us, we have resources to develop a plan of approach. In his speech, "The Press under a Free Government," President Calvin Coolidge made two significant quotes. The first quote was, "The business of America is business." This quote indicates that our country should be able to provide a wealth of information from business subject matter experts. The second poignant quote is in the last paragraph of that speech:

> It can safely be assumed that self-interest will always place sufficient emphasis on the business side of newspapers, so that they do not need any outside encouragement for that part of their activities. Important, however, as this factor is, it is not the main element which appeals to the American people. It is only those who do not understand our people, who believe that our national life is entirely absorbed by material motives. We make no concealment of the fact that we want wealth, but there are many other things that we want very much more. We want peace and honor, and that charity which is so strong an element of all civilization. The chief ideal of the American people is idealism. I cannot repeat too often that America is a nation of idealists. That is the only motive to which they ever give any strong and lasting reaction.[4]

U.S. Small Business Administration

As Mr. Carl Schramm identified and President Coolidge intimated, we have a wealth of experience within the United States upon which to draw. In order to draw from these sources, we have to know where this foundation can be located. The U.S. Small Business Administration (SBA) is such a resource.[5] On the military side of operations, we look to develop projects that add to stability; our doctrinal format focuses on transition. What transition currently means is that we transfer responsibility to an unidentified and nameless list of other agencies.

We expect that these agencies will be a government agency, a government official, a nongovernment organization, or even possibly another military unit. We tend to expect that one of these entities will pick up where we leave off and enable the continued growth of economic development. We often initiate a project and hope that someone will be there at the transition point to take over as we depart. To plan on the principle of hope makes for a poor foundation. We should take the extra planning step and initiate our programs with the planned intent of independence for the program we have initiated.

The online resources the SBA makes available are designed to be a guide for persons interested in starting a small business. The benefit of the webpage itself is that all of the considerations for creating a small business are included. The SBA has provided an easily accessible and user-friendly system to develop a training plan that will assist personnel in creating a more focused and efficient cadre who are able to deal with complex issues in economic development in stability operations. Essentially, personnel who are working along the lines of effort in economics can be trained and focused in these facets that are essential to sustainability. This is not to say this training and these tools are the only things that will create a total success in development. These resources will provide our people who are working in these fields with a roadmap to assist with developing operational understanding that will be more compatible with DOS and USAID activities and our national goals.

The Business Plan

In order to create a successful economic development program, we have to incorporate those elements that are essential to success in business. There are four elements to consider when creating a successful business that will become an economic contributor. A firm that participates in the circular flow and the horizontal flow of capital and does not rely on or participate in the inflow and outflow of capital is an economic contributor. The key to successful business begins with the business plan. On the SBA's website are resources that identify essential elements of the business plan[6] and a template for the business plan[7] itself.

When we are faced with developing and creating sustainable economic programs, we need key personnel who are capable of approaching the situation with the proper economic development thought process. We have demonstrated an ability to create some short-term projects while our forces are operating in a geographic area. We really want to create programs that are going to become job-providing anchors in that immediate vicinity, which will contribute to long-term economic growth. Building economic growth at the local and regional levels will contribute to establishing peace and stability, allowing us to disengage from that geographic area and region.

Ultimately, we are going to be at a point in time at which we will transition. This is a foregone conclusion, since our units will transfer out and transition with another unit, or our military forces will be removed through the natural progression of events. In any event, we should prepare from the transition point backwards with each identified firm, program, or project. Ideally, we want these programs to become self-sustaining and capable of operating on their own, whether we are looking at a private enterprise or a government-owned firm that is part of a centrally planned economy. In order to accomplish this, we can organize the format of the business plan into a checklist that provides benchmarks to focus our considerations.

Measures of Effectiveness and Measures of Performance

The effect we want to create through our tactical operations does not change regardless of the activity in pursuing economic development activities. The effect we want is to have a geographic area that has an established and working economy. Using that definition, what we want to see are several businesses that are capable of creating the circular flow of capital and providing employment, goods, and services in such a manner that unemployment is reduced. The measures of effectiveness we are looking for at the operational level do not change either. What we are looking for are several local centers that create and grow in influence in such a way that towns, cities, and provinces become centers of business and create a circular flow of capital while contributing to the horizontal flow of capital. In order to create these effects, our military operations have to tie in with our nonmilitary partners and their economic development programs and allow the two approaches to grow together, ideally becoming seamlessly contributive in economic relationships.

The previously mentioned SBA website can provide a rough network of measures of performance. These measures start with two basic premises. First, we want to know that the person with whom we are dealing has a business plan. If he does not, then we can assist with developing a business plan. In the course of developing the business plan, we want the business, or potential business, to have financing other than U.S. military or government funding. The keystone measure is that a sponsored business has a financial relationship with a nongovernment financial institution, specifically a bank or a similar financial lending institution. We also want to see that this business has identified suppliers, subcontractors, and other business relationships

that will supplement this business and allow it to continue once we have terminated our business relationship. The business plan itself provides the measures of performance in a natural format that helps both the business and our economic development efforts.

Elements of a business plan[8]

The elements listed below and the discussions that follow are predicated on a fully developed economic system with public and private lending institutions and a functioning banking system. These conditions frequently do not exist in underdeveloped and developing nations, such as where U.S. forces are currently conducting stability operations. Therefore, be creative in adapting or discarding specific elements of the business plan to meet local conditions.

1. Cover sheet.

2. Executive summary (statement of the business purpose).

3. Table of contents.

4. Body of the document.

    a. Business:

        (1) Description of the business.

        (2) Marketing.

        (3) Competition.

        (4) Operating procedures.

        (5) Personnel.

        (6) Business insurance.

    b. Financial data:

        (1) Loan applications.

        (2) Capital equipment and supply list.

        (3) Balance sheet.

        (4) Break-even analysis.

        (5) Profit and loss statements.

        (6) Three-year summary.

        (7) Detail by month, first year.

        (8) Detail by quarters, second and third years.

(9) Assumptions on which projections were based.

(10) Pro forma cash flow.

c. Supporting documents:

(1) Tax returns of principals (partners in the business) for last three years and personal financial statements (all banks have these forms).

(2) A copy of the franchise contract and all supporting documents that have been provided by the franchisor (for franchise businesses).

(3) A copy of a proposed lease or a purchase agreement for the building space.

(4) A copy of licenses and other legal documents.

(5) A copy of resumes from all of the principals.

(6) Copies of letters of intent from suppliers, etc.

Essential elements of a good business plan[9]

A business plan should be a work in progress. That is because a business will evolve over time and will be influenced by outside factors, such as the economy and local conditions. Even successful business owners should maintain a current business plan to ensure they remain knowledgeable on the elements that can affect continued success.

Business plan executive summary. The executive summary is part one of the business plan, and it is the most important section of the plan. It provides a concise overview of the entire plan, along with a history of the company. This section tells the reader where the company is and where its owner wants to take it. It is the first thing that readers see; therefore, it is the thing that will either grab their interest and make them want to keep reading or it will make them want to put it down and forget about it. More than anything else, this section is important because it tells the reader why the owner thinks his business idea will be successful.

Market analysis. The market analysis section is part two of the business plan. This section should illustrate the owner's knowledge about the particular industry his business is in. It should also present general highlights and conclusions of any marketing research data he has collected; however, the specific details of his marketing research studies should be moved to the appendix section of his business plan. This section should include an industry description and outlook, target market information, market test results, lead times, and an evaluation of the competition.

Company description. The company description is part three of the business plan. Without going into detail, this section should include a high-level look at how all of the different elements of the business fit together. The company description section should include information about the nature of the business as well as list the primary factors the owner believes will make his business a success. When defining the nature of his business (or why he is in business), he should list the marketplace needs he is trying to satisfy. This should include the ways in which he plans to satisfy these needs using his products or services. Finally, the owner should list the specific individuals and/or organizations he has identified as having these needs. Primary success factors

might include a superior ability to satisfy his customers' needs, highly efficient methods of delivering his product or service, outstanding personnel, or a key location. Each of these would give his business a competitive advantage.

Organization and management. Organization and management is part four of the business plan. This section should include the company's organizational structure, details about the ownership of the company, profiles of the management team, and the qualifications of the board of directors. Who does what in their business? What is their background, and why is the owner bringing them into the business as board members or employees? For what are they responsible? These may seem like unnecessary questions to answer in a one- or two-person organization, but the people reading the business plan want to know who is in charge, so tell them. Give a detailed description of each division or department and its function. This section should include who is on the board (if there is an advisory board) and how the owner intends to keep them there. What kind of salary and benefits package does the owner have for his people? What incentives is he offering? How about promotions? Reassure the reader that the people on the staff are more than just names on a letterhead.

Marketing and sales management. Marketing and sales strategies are part five of the business plan. Marketing is the process of creating customers, and customers are the lifeblood of the business. In this section, the first thing the owner wants to do is define his marketing strategy. There is no single way to approach a marketing strategy; the strategy should be part of an ongoing business-evaluation process and unique to the company. However, there are common steps he can follow that will help him think through the direction and tactics he would like to use to drive sales and sustain customer loyalty. An overall marketing strategy should include four different strategies:

- A market penetration strategy.
- A growth strategy. This strategy for building the business might include:
    - An internal strategy such as how to increase human resources.
    - An acquisition strategy such as buying another business.
    - A franchise strategy for branching out.
    - A vertical strategy in which he would continue providing the same products but would offer them at different levels of the distribution chain.
- Channels of distribution strategy. Choices for distribution channels could include original equipment manufacturers, an internal sales force, distributors, or retailers.
- Communication strategy. How is he going to reach his customers? Usually a combination of the following tactics works the best:
    - Promotions.
    - Advertising.
    - Public relations.

- Personal selling.
- Printed materials such as brochures, catalogs, and flyers.

After he has developed a comprehensive marketing strategy, he can then define his sales strategy. This covers how he plans to actually sell his product. His overall sales strategy should include two primary elements:

- Sales force strategy. If he is going to have a sales force, does he plan to use internal or independent representatives? How many salespeople will he recruit for his sales force? What type of recruitment strategies will he use? How will he train his sales force? What about compensation for his sales force?
- Sales activities. When he is defining his sales strategy, it is important that he break it down into activities. For instance, he needs to identify his prospects. Once he has made a list of his prospects, he needs to prioritize the contacts, selecting the leads with the highest potential to buy first. Next, he should identify the number of sales calls he will make over a certain period of time. At that point, he will need to determine the average number of sales calls he will need to make per sale, the average dollar size per sale, and the average dollar size per vendor.

Service or product line. The service or product line is part six of the business plan. What is he selling? In this section, describe his service or product, emphasizing the benefits to potential and current customers. For example, do not tell his readers which 89 foods he carries in your "Gourmet to Go" shop. Tell them why busy, two-career couples will prefer shopping in a service-oriented store that records clients' food preferences and caters even the smallest parties on short notice.

Focus on the areas where he has a distinct advantage. Identify the problem in his target market for which his service or product provides a solution. Give the reader hard evidence that people are, or will be, willing to pay for his solution. List the company's services and products and attach any marketing or promotional materials. Provide details regarding suppliers, availability of products or services, and service or product costs. Also include information addressing new services or products that will soon be added to the company's line. Overall, this section should include:

- A detailed description of the product or service (from the customers' perspective). He should include information about the specific benefits of his product or service. He should also talk about his product or service's ability to meet consumer needs, any advantages his product has over that of the competition, and the present development stage that his product is in (e.g., an idea, a prototype, etc.).
- Information related to his product's life cycle. Be sure to include information about where his product or service is in its life cycle as well as any factors that may influence its cycle in the future.
- Any copyright, patent, and trade secret information that may be relevant. This should include information related to existing, pending, or anticipated copyright and patent filings along with any key characteristics of his products or services for which he cannot obtain a copyright or patent. This is where he should also incorporate key

aspects of his products or services that may be classified as trade secrets. Also, be sure to add any information pertaining to existing legal agreements, such as nondisclosure or no-compete agreements.

- Research and development activities in which he is involved or in which he is planning to be involved. These would include any in-process or future activities related to the development of new products or services. This section would also include information about what he expects the results of future research and development activities to be. Be sure to analyze the research and development efforts of not only his own business but also that of others in his industry.

Funding request. The funding request is part seven of the business plan. In this section, the business owner will request the amount of funding he will need to start or expand his business. If necessary, he can include different funding scenarios, such as a best- and a worst-case scenario, but remember that later in the financial section he must be able to back up these requests and scenarios with corresponding financial statements. He will want to include the following in his funding request: his current funding requirement, his future funding requirements over the next five years, how he will use the funds that he receives, and any long-range financial strategies he is planning that would have any type of impact on his funding request.

When he is outlining his current and future funding requirements, be sure to include the amount he wants now and the amount he wants in the future, the time period each request will cover, the type of funding he would like to have (e.g., equity or debt), and the terms he would like to have applied. How he will use your funds is very important to a creditor. Is the funding request for capital expenditures or is it for working capital, debt retirement, or acquisitions? Whatever it is, be sure to list how he will use the funds in this section. Last of all, make sure he includes any strategic information related to his business that may have an impact on his financial situation in the future, such as going public with his company, having a leveraged buyout, being acquired by another company, the method with which he will service his debt, or whether or not he plans to sell his business in the future. Each of these types of strategic information is extremely important to a future creditor, since it will directly impact on the owner's ability to repay his loan(s).

Financials. Financials is part eight of the business plan. The business owner should develop the financials after he has analyzed the market and set clear objectives. That is when he can allocate resources efficiently. The following is a list of the critical financial statements to include in the owner's business plan packet.

Historical financial data. If he owns an established business, he will be requested to supply historical data related to his company's performance. Most creditors request data for the last three to five years, depending on the length of time someone has been in business. The historical financial data he would want to include would be his company's income statements, balance sheets, and cash flow statements for each year he has been in business (usually for up to three to five years). Often, creditors are also interested in any collateral he may have that could be used to insure his loan, regardless of the stage of his business.

Prospective financial data. All businesses are required to supply prospective financial data, whether they are a startup or a growing business. Most of the time, creditors will want to see what the owner expects his company to be able to do within the next five years. Each year's documents should include forecasted income statements, balance sheets, cash flow statements, and capital expenditure budgets. For the first year, he should supply monthly or quarterly

projections. After that, he can stretch it to quarterly and/or yearly projections for years two through five. Make sure that his projections match his funding requests; creditors will be on the lookout for inconsistencies. It is much better if he catches mistakes before they do. If he has made assumptions in his projections, be sure to summarize what you have assumed. This way, the reader will not be left guessing. Finally, include a short analysis of the business owner's financial information. Include a ratio-and-trend analysis for all of his financial statements (both historical and prospective). Since pictures speak louder than words, he may want to add graphs of his trend analysis (especially if they are positive).

Appendix. The appendix is part nine of the business plan. This section should be provided to readers on an as-needed basis. In other words, it should not be included with the main body of the business plan. The plan is the business owner's communication tool; as such, it will be seen by a lot of people. He will not want everyone to see some of the information in the business section, but specific individuals (such as creditors) may want access to this information to make lending decisions. Therefore, it is important to have the appendix within easy reach. The appendix should include:

- Credit history (personal and business).
- Resumes of key managers.
- Product pictures.
- Letters of reference.
- Details of market studies.
- Relevant magazine articles or book references.
- Licenses, permits, or patents.
- Legal documents.
- Copies of leases.
- Building permits.
- Contracts.
- List of business consultants, including attorneys and accountants.

Any copies of his business plan should be controlled; keep a distribution record. This will allow him to update and maintain his business plan on an as-needed basis. Remember, too, that he should include a private placement disclaimer with his business plan if he plans to use it to raise capital.

Conclusion

In general, economic development operations will fall under the purview of those units and Soldiers conducting civil-military operations. Civil-military operations include the staff

functions under the "9" heading, as in the S-9, G-9, C-9, or J-9, but will involve other functions as well, such as the S/G/C/J-8, and also includes civil affairs brigades and battalions. However, civil-military operations are not limited to only those units and personnel working in those military occupational specialties. Experience has taught us that any unit operating on physical deployments may be conducting economic operations without having those particular Soldiers attached to their units.

One way or another, nearly every unit is operating in these economic development operations at some level. By adapting this model in military operations, we create several benefits. We are coordinated with the national goals of our government and synchronized with other units. We all follow the same model: we are contributing to the development of undeveloped areas that are creating conditions that threaten our own national interest. Ultimately, we want to create economic programs because we want to reduce those places in the world that become a direct or indirect threat to our country and our people. Preparing our economic operations and activities to become self-sustaining and self-operating satisfies the transitional objective that creates both a success in the stricken region and a success for our mission.

We can start to shape this effect by using the essential elements of the business plan, as stated by the SBA and the business plan outline to work these programs with the specific intent of sustainability and continuity. These formats provide us with the measures of performance we need to help our projects develop into programs, which will assist us in achieving the measure of effect for which we are looking.

References

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Endnotes

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Chapter 9

Cross-Cultural Negotiations During Stability Operations

Maj. Jason M. Work, USAF

General

Negotiations are a critical component of stability operations. Whether one is negotiating a simple contract for office space or an agreement for multinational operations, the risks and the opportunities are similar. Cross-cultural negotiations follow the general flow of all negotiations but have unique issues that require consideration and warrant additional planning. Understanding these issues and having a plan to mitigate the risk are vital to a successful outcome. Further, choosing the right strategy based upon one's familiarity with the culture can be critical to successful cross-cultural negotiations.

Contextual Factors of Cross-Cultural Negotiations

Operational context is the external conditions that are beyond the influence of the negotiating parties.[1] These are the operational variables that determine the condition in which the negotiations will take place. Just as U.S. Army Field Manual (FM) 3-0, *Operations,* uses political, military, economic (internal and international), social, information, infrastructure, physical environment, and time (PMESII-PT) variables to frame the operational environment, negotiators during stability operations should use the same framework to understand the negotiating environment.[2] Analyzing these variables will assist the negotiator in understanding the cultural nuances in these areas as well as pre-identify issues and interests vital to the other party. This preparation also allows negotiators to understand the mental framework within which the other party is operating. Additionally, understanding the other party's perspective on each of these variables will allow negotiators to more effectively communicate their position, lobby for their interests, and anticipate the other party's stance on various issues.

Political. The political environment surrounding the negotiations is central to most stability operations negotiating environments. Often there are multiple layers of political unrest or tension that may influence the negotiations. Negotiators must understand the macropolitical environment as well as the regional or tribal political environment. Fully understanding the power players within the area, as well as identifying their interests, can be a daunting task for any negotiator. Nonetheless, a negotiator must have at least a rudimentary grasp of the political positions and the interests of the parties involved in negotiations. This will help to fill in the political picture and identify additional parties that may need to be involved in negotiations. Failure to do so can lead to an impasse or, even worse, an agreement that may be untenable when the real political powers become known.

Military. Understanding the military environment where they are operating is usually second nature to U.S. military members. The difficulty arises during stability operations when conventional fielded forces may not be present on one or more opposing sides. Negotiators in stability operations must understand the potential military capabilities of each factor or side within the negotiations. The negotiator must also take time to research and understand other paramilitary or nonconventional forces that may be acting in the operating area. The negotiating team must also analyze the potential impact of the negotiations on the military balance within the

area. Some agreements may upset this balance and may have unintended consequences unless the impacts are carefully considered and accommodations made.

Economic. Fully grasping the economic picture within a country or city can be overwhelming, yet a negotiator must attempt to understand at least the basics. A negotiator must understand the sources of income and the economic prospects within the area of operation. Major sources of revenue must be understood, and the general currency and the banking system should be discovered. Agrarian societies are generally very different than industrialized areas, and these factors must be considered. This analysis will go a long way toward understanding the perspective of the other negotiating party. Additionally, this economic research may educate the negotiator on what financial resources might be available and which financial endeavors might be beyond the ability of the other party. This analysis should help the negotiating team solidify its position while identifying potential interests of the other party.

Social. Understanding the social environment within a country will go a long way toward preventing cultural mistakes. Analyzing the society's general approach to gender, the role of the family, and social norms can go a long way to preparing the negotiator to act properly in the negotiating environment. Additionally, understanding the formal and informal sources of power within the society and the role of government, religion, and law will further help the negotiator envision the negotiating environment and identify issues and interests of the other party.

Information. Understanding how a society or culture gets information can be a powerful tool during negotiations. Western cultures are bombarded with information via mass media and the Internet, so they tend to be much more informed on issues. Ready access to these information sources decreases the chance of surprise data playing a significant role in the negotiation. On the other hand, cultures that rely on experts or on first-hand knowledge may be more difficult to negotiate with from a Western perspective because of their inherent disbelief of data until it has been verified. Researching and preparing for the cultural impact of the information flow on the negotiations can help the negotiator to control the acceptance of information during the discussion.

Infrastructure. The role of infrastructure in the negotiation may or may not be a central issue. During stability operations, infrastructure can be a critical interest or issue to the negotiation. Fully understanding the role and relationship of infrastructure to the agreement being discussed can give the negotiator key leverage.

Physical environment. Physical terrain, weather, and other environmental factors can have an impact on the negotiations. The negotiator must understand if any physical characteristics represent issues, concerns, or possible areas of leverage to the negotiation. The cultural approach to this operational variable can also have a great deal of impact on the negotiations. If your position is to dam a waterway that is sacred to the culture within the area of operations, the potential for conflict is high. Likewise, if an area or terrain feature is of religious significance and your unit is occupying that area, a major concession may be required for negotiations to begin.

Time. The negotiator must always analyze the time frame for the negotiated agreement. Understanding the impact of this time frame on all parties is vital. Time can be an issue or a source of leverage for either party. Additionally, time can be a source of power when one party needs an agreement immediately and the other party is willing to delay. The negotiating party must fully understand its imposed timeline and how much flexibility each party has within the timeline before entering into the negotiation.

Several other important environmental factors affect cross-cultural negotiations. These include legal differences; political tensions between the two parties or within the country; the role of government and bureaucracy; instability or the level of security within the country or the negotiating environment; ideological differences, including religion, human rights, and the proper form or role of government; cultural differences; and the number and importance of external stakeholders.[3] All of these environmental factors should be analyzed and carefully considered before entering into negotiations outside of one's own culture. A negotiator's initial preparation should include a macroanalysis of the role of each of these factors within the society and the general cultural perspective on each issue. This macro view is not enough, however. The negotiator must also include a detailed analysis of the each of these factors as it applies to the key issue of the negotiations.

Sources of operational cultural information. Multiple resources exist for obtaining operational cultural information. Each source will provide its own interpretation of the cultural nuances in a particular region of the world; therefore, a well-prepared negotiator must review a cross section of information to ensure he is prepared to negotiate in the climate he will encounter. Local higher headquarters or geographic combatant commander intelligence sections (J-2) will have the most up-to-date information. Additionally, U.S. Embassy personnel within the country are also excellent sources of information. More general information can be obtained from the following sources:

- Central Intelligence Agency *World Fact Book* located at https://www.cia.gov/library/publications/the-world-factbook.
- U.S. Department of State websites at http://www.state.gov.
- Library of Congress Country Studies Series at http://www.loc.gov/rr/frd.

Further, several academic studies have been undertaken to analyze the cultural aspects of negotiation. The most prominent are studies by Geert Hofstede, which can be located at http://www.geert-hofstede.com.

Tactical context factors are the negotiation variables over which the parties have control.[4] Negotiators must consider these factors before entering into the negotiation process but must also understand that these factors tend to change as the negotiation progresses. Understanding the relative bargaining power; the levels of authority of each party; the level of friction between parties; the nature of the interdependent relationship between the parties; the cultural view of relationships; and the established relationship between negotiators, desired outcomes, and the importance of these outcomes to each party and the immediate stakeholders are all critical to successful outcomes.[5] Negotiators must ensure that they conduct a detailed mission analysis of these factors before entering the negotiating room, or they might find themselves at a decided disadvantage.

A common mistake during mission analysis of tactical variables is only looking externally. It is equally important during cross-cultural negotiations to understand one's own position in relation to these factors. This will help clarify roles, issues, and interests before the negotiations. Additionally, this internal reflection can identify biases, assumptions, and information gaps that can be mitigated prior to entering into the negotiation process. A classic example during stability operations negotiations is to analyze the decision-making authority of the local government and ensure the other negotiating party has the required authority for the decision. Once the

agreement has been reached, the U.S. military member must then send the agreement to higher headquarters for approval. Occasionally, this approval is not given, and the negotiator must go back to the bargaining table. In this instance, the U.S. negotiator did not have the appropriate level of authority for the negotiation. This breaks down the relationship and may actually hurt future negotiations. One must fully understand one's own position and level of authority before the negotiation begins.

Cultural Difference in Negotiations

Role of culture in negotiations

The environmental variable that is most often a source of apprehension before a negotiation is culture. Differences in culture can lead to significant tension during negotiations; therefore, it is important that negotiators take steps to identify and understand the cultural differences that will impact the negotiation. Once the critical differences have been identified, it is simply a matter of researching a particular culture's approach to these areas and implementing a plan to reduce the cultural tension surrounding the differences. Five key areas warrant consideration when conducting an analysis of cultural differences that might impact a negotiation: individualism versus collectivism, possession of power, value system, approach to uncertainty, and approach to time.

Individualism versus collectivism. A key cultural difference is the general approach the culture takes toward individuality. This view will govern how the negotiator approaches authority, decision making, self expression, interpersonal relationships, individual freedoms, and personal versus group interests. Additionally, a culture's view on individuality affects its view of rights and duties, the importance of law versus customs, the method of reconciliation, the role of hierarchy and status, and the view of equality. Some Westerners and Americans in particular are extremely individualistic. This means that individual rights, freedoms, and achievements are generally more important than duty to one's family or country. It is quite the opposite in non-Western cultures. These cultures tend to value interdependence and community goals over the individual's rights.[6]

This approach to individualism, the role of relationships, and the use of language determines whether a culture is made up of high- or low-context communicators. In a culture that utilizes high-context communications, nonverbal communication is more prevalent and relationships are highly valued. In these cultures, rather than directly expressing one's ideas or positions, it is assumed that you understand the other person's meaning or position based on his body language and tone. Negotiations in high-context environments can be challenging for Westerners because language is not direct and the meaning is often hidden in the nuances of the language. Low-context communications are characterized by direct discussions of key topics, the importance of facts and knowledge, and task-oriented behavior. Low-context communications are exemplified by most military officers. This direct approach can be in conflict with the needs of a high-context communicator; therefore, the cultural approach to communications must be understood by the negotiator.

A culture's approach to individuality will also govern its approach to planning for negotiations and methods for achieving outcomes. Individualistic cultures focus on short-term goals and tend to be more aggressive during negotiations, while collectivistic cultures focus on long-term goals and tend to be more conservative and cautious during the process. In general, individualistic

cultures tend to focus on individual outcomes and are not as willing to commit the time to a higher level, collaborative outcome.[7]

Finally, the cultural view of individuality also impacts the preferred conflict resolution method. Highly interdependent cultures tend to avoid conflict and prefer to accommodate or collaborate to resolve conflict. This is in contrast with individualistic cultures, which tend to favor a competitive negotiation style that encourages conflict and takes a direct approach to conflict resolution when necessary.[8]

Possession of power. In cross-cultural negotiations, it is important to understand the other party's approach to power. Some cultures delegate power freely to lower levels, which may speed the negotiation process, but this comes with risk of failure to uphold the agreement or poor decision making. Other cultures tend to centralize power at the top; therefore, negotiators may be more cautious and may require additional time to consult superiors during the interaction, but they generally do not change their position once an agreement has been reached.

Value system. A culture's value system can tell a negotiator a great deal about how the other party will approach the negotiation and which type of tactics will most likely be employed. Cultures that are generally assertive, individualistic, value wealth generation, and have a lesser concern for quality of life issues tend to be more aggressive and competitive in their negotiating methods. Cultures that value empathy, relationships, and community tend to be more collaborative or compromising. A good negotiator will anticipate the other party's method of negotiation based on the cultures that dominate its value system.

Approach to uncertainty. Cultures view uncertainty and lack of information differently. Cultures that are uncomfortable operating in an ambiguous environment will tend to insist on well-structured negotiations. These interactions are characterized by clearly defined rules and procedures and interests and issues based on facts and data. Other cultures that are more comfortable with ambiguity will not insist on clearly defined procedures and may be more willing to let the roles of the negotiation change over time as the situation warrants.[9]

Approach to time. This is perhaps the most talked about aspect of cross-cultural negotiations. A culture's approach to time tells a lot about how negotiators may choose to present their argument or the style they may choose for negotiating. Some cultures are deeply steeped in history; therefore, they will use historical information to frame the argument or present issues. Other cultures, like America, tend to be forward thinking; therefore, history plays a very small role in negotiations. Additionally, a culture's view of the time horizon is important. Some cultures tend to be short-term oriented, whereas others look for long-range outcomes and deep relationships. Some cultures view formal negotiations as a long, time-consuming endeavor and will schedule long periods of negotiation and plan to utilize the entire schedule, whereas others see it as lowering productivity and will want to conclude the deal quickly.[10]

Caution concerning cultural generalities. Individuals are a product of many cultures including, but not limited to, national, regional, religious, and ideological cultures. Based on this fact, it is inherently difficult to generalize a particular negotiator or team. This does not undermine the importance of planning and understanding the cultural differences that might interfere with the negotiation. Rather, this implies that flexibility, politeness, and genuine interest in the other party's concerns may overcome any lack of cultural understanding.

Strategies for Cross-Cultural Negotiations

Preparation is the key to cross-cultural negotiations. In stability operations, preparation for negotiations is similar to any other mission analysis that will be conducted. One must analyze the other party's centers of gravity (interests) and potential courses of action, while in turn understanding one's own capability and desired end state. The negotiation process is simply the ways and means of this operation.

The first step in the process is to identify the purpose of the negotiation. It is critical to clearly understand and be able to articulate one's own goal or desired outcome. Along with this desired end state, it is essential to identify underlying interests and issues that may impact the negotiations. This will allow the negotiator to understand the problem more thoroughly and to negotiate more effectively.

The next step in the process is to further analyze one's own environment. Using PMESII-PT as a guide to fully developing the operational picture is an excellent technique for internal analysis. This process should continue to identify informational gaps that are central to the negotiation and to generate additional requests for information. Utilize the environmental context to determine the limitations of your authority and any potential legal, political, or security issues or interests that must be represented. Identify moral, ethical, or ideological issues that might arise, and outline your position in these key matters. Ensure that all key stakeholders have input into the process and that their interests are clearly understood and represented in the negotiation process.

Next, begin to analyze the mission of the other party. The goal of this analysis is to identify the desired outcome, the underlying issues, and the interests of the other negotiating team. Begin with a PMESII-PT analysis and then drill down. Explore environmental factors that might influence the other party's position. This is an attempt to determine the root cause of all issues and to clearly determine the underlying interests of the other party. Attempting to determine the baseline issues and to bring potential solutions or compromises to the table strengthens a negotiator's bargaining power. Identify any key stakeholders in the process, and ensure they are present for the negotiations.

The next step in preparation is to identify any potential sources of friction. An environmental analysis of legal and political issues, current tensions between the two parties, the role of government and bureaucracy in the desired outcome, and ideological differences is important. Identifying these issues and having a clear plan of action to address each is a solid negotiation strategy. This analysis will naturally lead to detailed research on the other party's culture. The cultural aspects of individuality, power location, value systems, approaches to uncertainty, and the concept of time warrant careful consideration. A successful negotiation hinges upon an accurate understanding of your own culture as well as how the other cultures react to each of these elements. It is not enough to understand why the other party does what they do if you do not understand how that will impact you and how you might mitigate the risk or turn it into an opportunity.

The next logical step in the preparation process is to consider the immediate contextual relationships within the negotiation. Now that you have the data on your and the other party's position, it is easier to determine the balance of power in the relationship. It is also possible to assess the current relationship between the parties, identify the causes of conflict, and anticipate any changes to this relationship as new information comes to light. During this time it is also possible to identify critical information or interests that should not be shared with the other party.

Additionally, based upon your cultural analysis, the role of an interpersonal relationship should be understood. With this knowledge, the steps to build this interpersonal relationship can be planned and war-gamed to ensure they meet the required level of relationship based upon high- or low-context communications.

Once information gathering is over, it is time to determine the actual strategy and tactics to be employed. In determining a strategy and the actual execution tactics, it is important to consider the impacts of these decisions on both the relationship and the outcomes. The chosen strategy must be a delicate balance between achieving the desired goals and maintaining or improving the relationship. In stability operations negotiations, the relationship will be more important than the actual outcomes. In other negotiations there will not be an opportunity for a long-term relationship; therefore, the outcomes will take precedence. Selecting a competitive, collaborative, avoidance, or accommodation strategy and its associated tactics must match the desire end state in terms of goals and relationships. Competitive negotiation styles focus on win-lose outcomes, whereas collaborative negotiations focus on win-win outcomes. Accommodating-negotiation styles focus on conflict avoidance and concessions, whereas an avoidance-negotiating style does not enter into negotiations unless absolutely necessary and then attempts to exit while losing as little as possible. Each of these strategies must be analyzed in the cultural context of the other party. If the selected strategy does not fit the cultural negotiation style, it needs to be modified to prevent conflict with the other party.

The tactics of a negotiation should be based on one's familiarity with the culture. In general, if the negotiator has a low familiarity with the culture, agents or a mediator should be employed to avoid cultural friction. Additionally, a negotiator may seek to convince the other party to negotiate in a style similar to his own culture.[11] If one's cultural familiarity is moderate, then the negotiator should attempt to adjust to the other culture's approach or to coordinate a negotiation approach that utilizes aspects of both cultures.[12] Finally, if one's knowledge of the other party's culture is high, then the negotiator should embrace the other culture's negotiation style as long as it fits the strategy required. If the cultural negotiation style does not match the desire outcomes, then the negotiator must improvise an approach or must create a jointly agreed-upon approach that matches the desired outcomes.

Relationship building is the second phase of negotiations. Most cultures require some form of relationship building before negotiations can commence. Based on mission analysis of the other party's culture, the amount and form of required relationship building should be understood. Further, based on this knowledge of culture, the correct atmosphere and the nuances of the relationship-building phase can be planned. The details of how to greet the other party, methods of introduction, what topics are generally accepted for discussion and which are taboo, whether the custom is to sit or to stand, whether food or beverages should be involved, whether gift giving is required, and how long the relationship building should take should be planned. The relationship-building phase should put all parties at ease and build social capital should cultural mistakes occur.

Information gathering is the next phase of negotiation. This is the process by which the two parties discover the goals, interests, and issues of each other. Each party will question the other party concerning its desires and will attempt to discern key data. It is important in all negotiations to ensure that your line of questioning follows your overall strategy and tactics. Any information gaps you identified during mission analysis should be filled during this process. Protecting vital interests you do not wish to disclose is a key element of the information-gathering process. Further, this is the phase where the tactical balance of power can shift

dramatically as new information becomes available. Negotiators must consider the impact of each data point on the overall tactical situation. Before providing information, the negotiator must consider how the information will be viewed from the other party's cultural perspective and ensure this meets the overall strategy.

Information bidding is the fourth phase of the negotiation. This is the heart of the negotiation. Now that information has been shared, it is time to get to the desired outcomes. Since Americans tend to be competitive negotiators, this phase has the greatest potential for cultural conflicts. Many cultures view direct conflict as being negative. In order to avoid conflict, they may actually accept a position that is untenable just to move on. They may later revisit the topic as if negotiations never took place or may present new information to reopen the topic. Views on status and individuality will also surface during the bidding process. Western negotiators must be careful to consider the impact on status and perception while driving toward their desired outcome. The emphasis on relationship versus outcome in the strategy must be fully understood. Competitive strategies tend to achieve their outcome at the cost of the relationship. An accommodating strategy tends to build a relationship while sacrificing the outcome. A properly employed collaborative process should balance both requirements. The role of concessions in the information-bidding process cannot be underestimated. In many cultures, minor or even inconsequential concessions go a long way toward building status. In some cross-cultural negotiations, the primary objective might be easy to agree upon, but the minor items may be more difficult.

Closing the deal is the next phase of the negotiation process. This is probably the most formal of the phases and should be properly researched during the preparation phase. In some cultures, deal closing can be as simple as a handshake and general acceptance of the terms. This is in sharp contrast to other cultures that require a formal ceremony and an announcement. The actual execution of the deal closing must be fully understood, and it must meet the cultural norms of the role of individuality, the role of power, the value system, and the role of time.

Implementing the agreement is the final phase of the negation process. This step seems relatively simple after the negotiation. This may not be the fact, and a more rigorous commitment beyond simply overseeing the task may be required. This is especially true in stability operations. All of the cultural factors that impact the negotiation will also be present during the implementation phase. The strategy for implementation should match the strategy for negotiations. If the balance between the relationship and the goals becomes skewed, the agreement may not last. Without a congruent overall strategy, cultural frictions may surface and may drive both parties back to the negotiating table. The implementation team must continually assess both the operational and the tactical context to ensure the agreement continues to fit the actual environment. Additionally, as the agreement is executed, the team must continue to assess the cultural aspects to ensure the agreement meets the desire end state.

Conclusion

When negotiating with a different culture, it is important to understand the operational and tactical factors that will impact the negotiations. Additionally, during the preparation phase of the negotiation, it is vital to understand the dynamics of individuality, power, time, values, and uncertainty. These five factors and the cultural approach to each can have a significant impact on the strategy and the tactics chosen. Marrying cultural awareness and strategy and tactics that balance the desired level of relationship and outcomes is the key to success in cross-cultural negotiations.

Cross-Cultural Negotiation Checklist

Preparation

- Determine own goals, issues, and interests.
- Conduct internal analysis (PMESII-PT).
- Conduct external analysis (PMESII-PT).
- Identify cultural differences and sources of friction: role of individualism, power, values, uncertainty, and time.
- Identify role of relationships in negotiation.
- Determine strategy: competitive, collaborative, accommodating, avoiding.
- Determine tactics: low, medium, high cultural familiarity.

Relationship Building

- Execute greeting and introduction in accordance with cultural norms.

Information Gathering

- Execute information gathering in accordance with strategy and tactics.
- Balance relationship versus outcome.

Information Bidding

- Execute information bidding in accordance with strategy and tactics.
- Balance relationship versus outcome.

Closing the Deal

- Execute deal closing in accordance with cultural norms.

Implementing the Agreement

- Monitor deal within operational environment (PMESII-PT).
- Monitor deal within cultural norms (individualism, power, values, uncertainty, and time).
- Monitor deal within strategy (relationship and outcome).

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Chapter 10

Working With Nongovernmental Organizations and Other Actors

MAJ L. Scott Engrav

Nongovernmental Organizations and the Military

Nongovernmental organizations (NGOs) and the military play essential roles in responding to humanitarian emergencies. Both provide humanitarian assistance in some of the most challenging and dangerous conditions on earth. NGOs and the military have worked together to provide humanitarian relief to millions of people in Somalia, Bosnia, Haiti, Kosovo, Pakistan, and in Indonesia after the tsunami.[1] But cooperation between NGOs and the military has been complicated by the U.S. military's use of foreign humanitarian assistance as part of its counterinsurgency strategy to "win the hearts and minds" of the people in Afghanistan and Iraq.

What is an NGO?

Joint Publication (JP) 3-08, *Interagency Coordination During Joint Operations*, Volume 1, defines NGOs as "private, self-governing, not-for-profit organizations dedicated to alleviating human suffering; and/or promoting education, health care, economic development, environmental protection, human rights, and conflict resolution; and/or encouraging the establishment of democratic institutions and civil society. (This term and its definition modify the existing term and its definition and are approved for inclusion in the next edition of JP 1-02.)"[2]

Military and NGO Coordination

Coordinating and integrating efforts in a disaster between NGOs and the military should not be equated to the command and control of a military operation.[3] Military operations depend on a command structure that is often quite different from that of civilian organizations and may present challenges to both groups. NGOs do not operate within military or governmental hierarchies. It is best to identify a military liaison within the NGO community to manage efforts.[4]

Mechanisms

Larger NGOs, such as World Vision, CARE, and Catholic Relief Services, usually have a staff member assigned as a liaison to the military. Sometimes this person is retired military. These are important positions, because language and operational differences between NGOs and militaries can be obstacles to effective coordination. An NGO staffer who understands how to work with military personnel will usually make a working relationship much more productive, but this is not always the case. NGOs will often depend on an NGO coordinating body or a regional association to provide some framework for interaction between the military and the NGO community.

Coordinating with NGOs

Military personnel should understand that NGO staff members are a part of a larger organization. They usually have a specific, sometimes autonomous, and essential function. When trying to identify who is the right person with whom to coordinate, it is important to consider three things:

the type of coordination needed, the sector that this coordination will concern, and scale of the operation.[5]

- **Type.** What exactly are you trying to coordinate — refugee movement, water supply, medical, or transport? This will give you an idea of what NGO staff type and level with whom you will need to coordinate.

- **Sector.** Identify with NGO staff members in the sector or area of service with whom you will coordinate. Medical and health service sector coordination will require working with different NGO personnel than will working with refugee protection or transportation coordination.

- **Scale.** For small coordination activities, it may be more useful and efficient to coordinate with lower-level NGO program officers and staff members who deal with specific tasks. For larger scale activities, NGOs will often appoint a military liaison staff member or office, or will work with the United Nations (UN) to establish either a civil-military operations center (CMOC) or other coordination mechanism.

If you are really lost and do not know where to begin, start with the CMOC.

Sometimes NGOs will work with the U.S. Agency for International Development's (USAID's) Office of U.S. Foreign Disaster Assistance (OFDA), which may act as the broker for humanitarian coordination between the military and the NGO community. OFDA is a well-respected U.S. government agency and is part of USAID. It is often among the first to arrive on the scene after a natural or man-made disaster. Military officers may prefer to deal with one government agency rather than numerous independent NGOs. OFDA does not represent NGOs directly, but OFDA staff members often recommend including various NGO personnel in humanitarian coordination efforts. OFDA funds many NGO activities during emergencies and can use its government and donor status, combined with its existing relationship with military units, to ensure that the NGOs' needs, requests, and ideas are heard.[6]

NGOs and military units both have significant incentives to coordinate and collaborate, which are essential to success. NGOs need many things from the military, including logistical assistance, communications, intelligence, and security. NGOs often have longstanding operations in a region and can provide the military with an understanding of ground-level conditions. They may assist military units in developing the type of situational awareness units need to manage population movements, assistance projects, and general humanitarian activities.

Humanitarian Information Centers, Humanitarian Operations Centers, Human Affairs Centers, and Civil-Military Operations Centers

For more formal coordination, various organizational forums — humanitarian operations centers (HOCs), CMOCs, on-site operations coordination centers (OSOCCs), and humanitarian affairs centers (HACs) — may be formed to officially coordinate activities among the many organizations involved in humanitarian operations. Coordination can also be done online.[7]

Humanitarian information centers (HICs) are set up by the UN to serve as central coordination points. NGOs may be required or may voluntarily register with a HIC to get updates on meetings, regional news, and local developments. HICs are normally located in central activity

areas, often close to UN offices, or where the international community establishes an unofficial headquarters.

CMOCs or HOCs are often established as the official coordinating center between NGOs, the UN, governments, international organizations (IOs), and the military.

OSOCCs originated in Rwanda and essentially filled the same role as the HOCs in Somalia. It is another place for official coordination between NGOs, the UN, donors, other IOs, and the military. The numbers, names, and types of coordination centers will vary. One or several may be operating in a given relief effort.

For NGOs, these are places to meet with UN and military staff members and to learn about pertinent political and military developments. For UN and donor agencies, they are a place to obtain ground-level information from NGOs and military units. These forums help develop an overall picture of the humanitarian crisis and can coordinate funding, donor activity, and logistical and military operational support for relief activities.

ReliefWeb is an Internet site managed by the UN. It is a useful source of information on complex humanitarian emergencies and natural disasters. Several other online resources are also useful for the detailed information they offer on how best to interface with NGOs. Three of those online resources are:

- Interagency Standing Committee, "Civil Military Relationship in Complex Emergencies" (2004), www.humanitarianinfo.org/IMToolbox/10_Reference/Civil_Military_Relations/2004_Civil_Military_Relationship_In_Complex_Emergencies.pdf.

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Where to Coordinate with NGOs

The coordination centers mentioned above or a particular NGO's headquarters are typical places to contact NGOs during a disaster. NGOs can also be contacted in person, by telephone, or by email. Most NGO personnel are helpful and easy to talk to. They can tell you where, when, or how they coordinate among themselves. Military personnel can also contact the NGO coordination body, which will have contact information for member NGOs, can indicate what NGOs are doing in the region, and can identify which NGOs are active in specific sectors. NGO headquarters or coordinating bodies will usually provide the names and contact information for specific country directors, program officers, logistics officers, and other NGO staff.

NGOs and Military Relations

Militaries and NGOs from many countries respond to international humanitarian crises. In countries affected by disaster, host-nation forces are often mobilized to maintain order and to assist with relief efforts, reconstruction, transport, communications, and coordination efforts. The U.S. and European Union militaries are most commonly found in large-scale humanitarian

emergencies only when specific strategic or political interests are involved. NGOs can respond to any situation they choose, provided they have the resources and the capabilities. NGOs respond to almost all international humanitarian emergencies regardless of the possible associated political or strategic value.

U.S. military efforts are guided by specific directives and doctrine that establish what types of humanitarian assistance can and should be deployed under specific circumstances.[8] NGOs are also often constrained by the priorities, strategies, funding cycles, and preferences of donor agencies and countries. NGOs may sometimes use their own capacity and resources during the initial stages of an emergency and can act independently of any donor for a time before needing to seek financial support from outside.

NGOs and military units share geography and space. Each works in difficult settings. NGOs and militaries have adapted to difficult conditions with different management structures, cultures, and protocols. Because both NGOs and the military act as humanitarian actors, each can relate to a specific mission or objective. NGOs are extremely responsive, requiring little logistical support or supporting bureaucracy in making decisions. Although NGOs and military units may have different approaches to achieving an objective, they both understand what that objective is. This understanding of a common goal is often enough to start a dialogue between the two organizations.

NGOs and militaries share the goal of changing a current condition. Militaries are becoming more involved in complex humanitarian emergencies and humanitarian actions because humanitarian considerations are a cornerstone of current counterinsurgency doctrine. Humanitarian and development efforts speak to the political aspect of the operation and to establish conditions for transitioning responsibilities to civilian control. NGOs are devoted solely to changing humanitarian conditions.

NGOs and military units both provide valuable services during humanitarian emergencies; neither can replace the other completely. NGOs are nimble, quick, efficient, and focused on populations. They target their operations to ensure that the civilian population's needs are met. Military units are forceful, capable, and supported by large organizational and physical infrastructure that can be used in a variety of ways. NGOs and military units both share the difficulty of being in a complex emergency setting. Soldiers and NGO personnel experience conditions of stress, fatigue, and danger.

NGO Perceptions of the Military

Many NGOs believe they should take the lead in humanitarian operations because they have been doing it longer, but they cannot take on large-scale disasters alone. Some (but not all) NGO personnel have mixed feelings about the military. This may be due to ignorance, previous bad experiences, or philosophical opposition. Cultural differences between NGOs and the military are significant. In numerous field cases, articles, and personal accounts, NGO staff members have expressed a few common sentiments.[9]

- Militaries are designed for fighting wars, not for conducting humanitarian assistance operations.
- The military's primary motives are political and are not genuinely humanitarian.

- Military aid is conditional.
- Military personnel have no humanitarian training and do not understand the needs of the displaced population.
- Militaries pay too much attention to force protection and security to make them effective humanitarian agents.
- Militaries have rigid and inflexible management structures that make it difficult to coordinate with other organizations or to respond to dynamic humanitarian crises.

Almost all of these points are based on generalizations and uneducated statements. Some are just false. Militaries now have extensive training facilities and programs dedicated to training military personnel for a variety of situations. Soldiers are quite able and efficient in conducting humanitarian operations.

Cooperation in Emergencies

NGOs and militaries are interdependent in humanitarian emergencies. They are not the only actors, but are linked more closely together than with any others because of their focus on a common objective. Scale, type, and intent may be different, but NGOs and militaries help maximize each other's efforts. In a 1997 study, the Refugee Policy Group came up with a series of conclusions about comparative advantages of NGOs and the military:[10]

- NGOs can obtain and manage humanitarian supplies faster and more efficiently than the military. NGOs have a better understanding of what displaced persons need during emergencies and are best suited to procure the right types of supplies.
- NGOs are more efficient in providing medical care and supplies to displaced persons than the military. The military is often focused on providing medical services to combatants and military personnel only. The military has more in-patient capabilities, but NGOs use the local medical infrastructure more efficiently.
- NGOs are better at tapping local resources, information, and capacity. NGOs are immersed in local populations and can absorb information faster. Due to force-protection restrictions, military units are often isolated and left in the dark.
- NGOs are better at managing refugee camps and providing water and sanitation services because of their close relationships with the UN High Commissioner for Refugees. NGO staff members are also often trained or specialize in various aspects of camp management.

In many instances, NGOs would have been unable to provide humanitarian services as efficiently without military assistance. Some advantages of the military are:[11]

- Militaries have a monopoly on security and the use of force. They can provide security for humanitarian operations, displaced persons, and both NGO and UN staff and infrastructure. NGOs cannot do this if they wish to retain their neutrality and impartiality.

- Militaries can collect intelligence and provide information about population movements; security conditions; road, river and bridge conditions; and other conditions that affect humanitarian operations. NGOs have very little capacity to collect and digest information.

- Militaries have huge global airlift capacity. The U.S. military can airlift humanitarian supplies and materials under almost any condition and on very short notice. NGOs have few aircraft and almost no lift capacity.

- Militaries have large-scale communications infrastructure and capacities. NGOs often depend on communication capacities from militaries or UN agencies (or both) because large satellite stations, bandwidth, and other regional or global communications are expensive.

- Militaries can respond to maritime and/or chemical, biological, radiological, nuclear, and high-yield explosives emergencies. NGOs have almost no capacity to do this.

Conclusion: Who Leads the Way in Humanitarian Emergencies?

NGOs and military units operating in humanitarian emergencies share many goals and should work together to make humanitarian operations efficient.

For the military, long interventions are dangerous, costly, and inefficient and are subject to "mission creep." Militaries are vital elements to humanitarian operations, but they need an exit strategy. For NGOs, humanitarian relief operations are part of bringing a society toward independent development, health, and empowerment. The relief effort is only one aspect of longer term development strategies. NGOs are in it for the long haul; therefore, the military should not be in charge.

If the military sees its role as providing support to civilian efforts, then civilians will remain responsible for the overall strategy and for the ultimate outcome. Ultimately, decisive social, political, and economic results are the realm of the NGOs, the other IOs, and the indigenous authorities. Logically, they have the dominant role and therefore have the larger responsibility.[12]

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Chapter 11

City Management Organizations and Structures

Herman A. Llorin

Introduction

Coalition, military, and interagency personnel, in cooperation with the host nation, may be required to restore essential city management organization and structure as part of stabilizing and reconstructing a city. Understanding the different organizational methods is important to restoring city management organizations and structures. When re-establishing the organizational structure of a city, coalition forces should focus on how best to serve the public by using a population-centric methodology to get an overview of organizational requirements.

Although there are several methods of accomplishing this, one of the methods familiar to military personnel is through the lens of political, military, economic, social, information, infrastructure, physical environment, and time (PMESII-PT) (Figure 11-1). Using this as a starting point, coalition, military, and interagency personnel will identify the relevant facts in their area of operations and how these facts relate to the mission. The region's cultural environment will also be of great importance in identifying relevant facts (Figure 11-2).

Description	Factors	Relevance
Political/Governance - Political actors, agendas, government capability, capacity, etc.		
Military/Security - Capabilities in the area of operations (equipment, mission, resource constraints, etc.)		
Economic - Individuals/groups related to production, distribution, and consumption (trade, development, finance, institutional capabilities, geography, and regulation)		
Social - Networks, status, and norms (demographics, tribes, religion, migration trends, urbanization, living standards, literacy/education level, etc.)		
Infrastructure - Basic facilities, services, and installations		
Information - Individuals, organizations, and systems which collect, process, disseminate, and/or act on information (media and telecommunications)		
Physical environment		
Time		

Figure 11-1. PMESII-PT[1]

Cultural Matrix			
1) Major Cultural Groups	2) Their Interests	3) Cultural Codes, Traditions, and Values	4) Traditional Conflict Resolution Mechanisms
Identify the major cultural and/or tribal groups in your AO	Identify the interests and driving factors of the major groups in your AO	Identify cultural codes, traditions and values of the major cultural groups	Identify how and what establishments perform conflict resolution within your AO
5) Traditional Authorities	6) Disruptions to These Mechanisms/Authorities	7) How Spoilers/Stabilizing Forces Leverage These Factors	
Identify the relevant traditional authorities that interact with the population within your AO	Describe the limits of influence and power the existing traditional authorities have within your AO	Describe how AGEs can leverage and/or exploit the existing cultural and tribal dynamics within your AO	

Figure 11-2. Cultural matrix[2]

Assessment

In assessing city management organizations and structures, coalition, military, and interagency personnel should take into account factors leading to stability and instability (Figure 11-3). Determining factors leading to stability or instability should be viewed through the eyes of an independent observer. Factors of stability may include city management organizations and structures that ensure security and stability. Other stability factors may include key events that support the growth of stability. Key events that increase stability could also include environmental factors such as weather systems that hamper movement of criminals or insurgents. Key city personnel may also assist to help stability.

Factors of Instability		
Grievances and/or Factors of Instability	Events (Windows of Vulnerability)	Actors' Means and Motivations
What are the grievances and/or factors that foster instability?	Potential situations that could contribute to an increase in instability?	Who are the actors and what are their means and motivations that enable them to contribute to an increase of instability?
Factors of Stability		
Resiliencies	Events (Windows of Opportunity)	Actors' Means and Motivations
What are the processes, relationships and institutions that can reduce the effect of grievances?	Potential situations that might offer opportunities for mitigating violent conflict and promoting stability?	Who are the actors and what are their means and motivations that enable them to contribute to an increase of stability?

Figure 11-3. Factors of stability and instability[3]

On the opposite end are factors of instability, such as legitimate grievances against city management. Key events that increase instability might occur during certain periods of the week or year. Finally, the presence of individuals or groups that might cause instability must always be taken into account.

In a population-centric approach to reconstruction and stabilization, the populace of a city is a key determinant in the success of the mission of coalition, military, and interagency personnel. In particular, the perception of the populace with regard to city management organizations and structures must be taken into account. A positive perception of city management enhances the stability in the city. A negative perception of city management and structures has a detrimental effect on stability.

Tools for Assessing

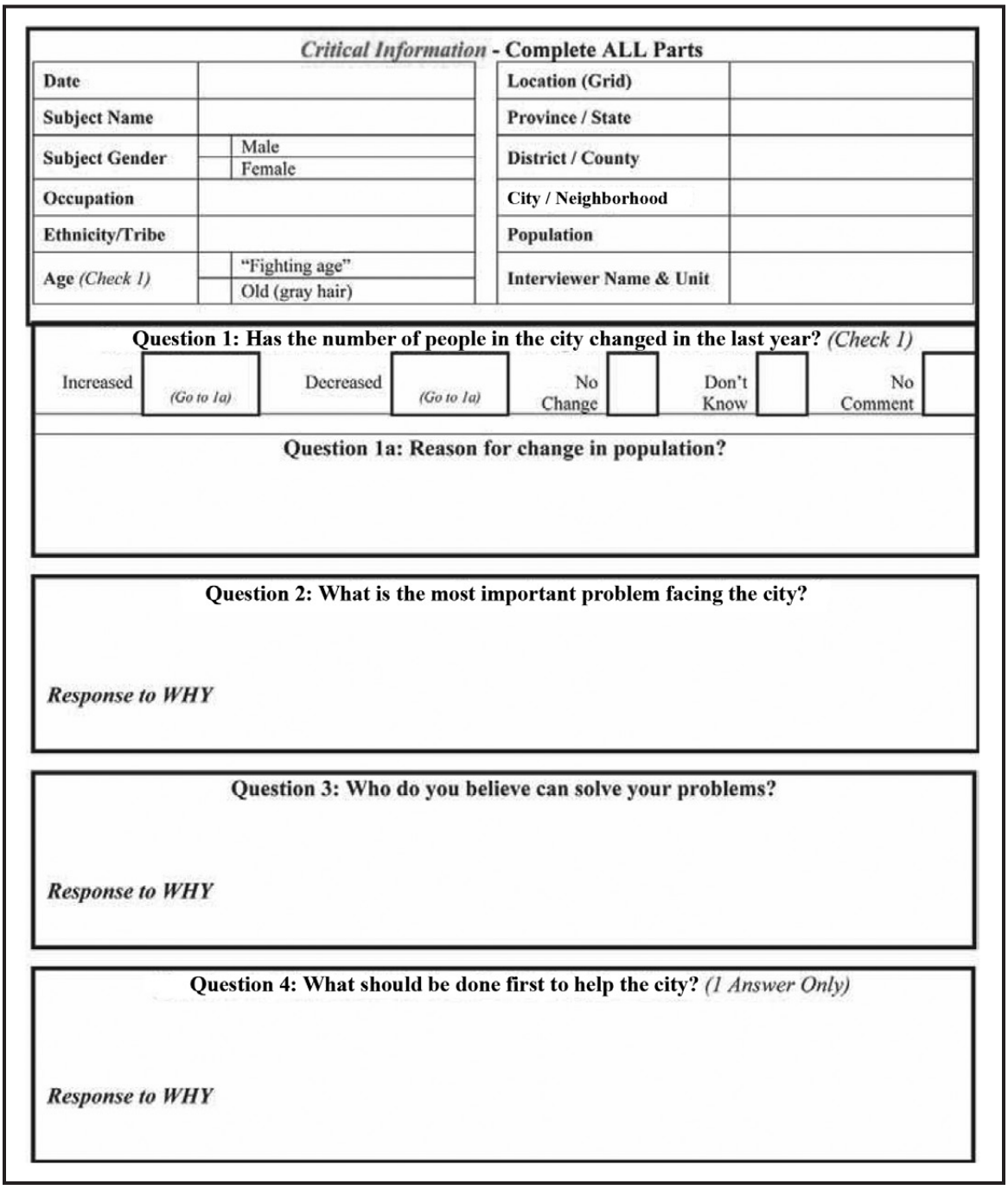
Understanding and visualizing how city management organizations and city structures function is the next step in the stabilization of a city. Coalition, military, and interagency personnel, in partnership with the host nation, should conduct surveys of the population and engage city leaders, influential groups, bureaucrats, technocrats, and key individuals in the city. A four-question methodology, such as the tactical conflict survey, is useful in determining the needs of city (Figure 11-4):

- Has the number of people in the city changed in the last year?
- What are the most important problems facing the city?
- Who do you believe can solve your problems?
- What should be done first to help the city?

In asking these questions, coalition, military, and interagency personnel may ask for additional details such as place, occupation, age, gender, and other factors that might be relevant to the mission. The gathered data is put in a database program and processed into manageable data that can be displayed in usable charts and graphs. The process of gathering and sorting out the data is made possible by sectioning the city into neighborhoods or grids.

Other factors that are taken into consideration include sustainability, ownership, long- and short-term impacts, support from other organizations in the area of operations, political and cultural contexts, transparency and accountability, and flexibility. Resource requirements might include money, personnel, equipment, time, and expertise.

Each stabilization and reconstruction mission is unique. Although city management and city structures for the host nation might be similar in many ways, the needs of the populace of each city vary. With that in mind, coalition, military, and interagency personnel must meet the needs of the populace first to stabilize the city.



Critical Information - Complete ALL Parts

Date		Location (Grid)	
Subject Name		Province / State	
Subject Gender	Male / Female	District / County	
Occupation		City / Neighborhood	
Ethnicity/Tribe		Population	
Age *(Check 1)*	"Fighting age" / Old (gray hair)	Interviewer Name & Unit	

Question 1: Has the number of people in the city changed in the last year? *(Check 1)*

Increased *(Go to 1a)* | Decreased *(Go to 1a)* | No Change | Don't Know | No Comment

Question 1a: Reason for change in population?

Question 2: What is the most important problem facing the city?

Response to WHY

Question 3: Who do you believe can solve your problems?

Response to WHY

Question 4: What should be done first to help the city? *(1 Answer Only)*

Response to WHY

Figure 11-4. Tactical conflict survey[4]

This chapter examines a notional city management organization and structures in the context of a U.S.-based city management model (Figure 11-5). Functioning city management organizations and structures are hallmarks of a legitimate government.

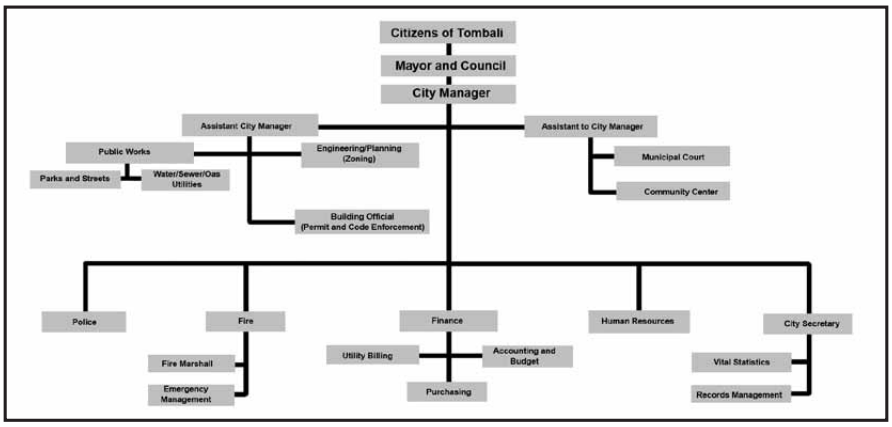


Figure 11-5. Notional organization chart for a city[5]

Overview of U.S. City Management Models

Many city government political structures use the "strong mayor" concept, the city manager concept, or a combination of the two. A city using the strong mayor concept empowers the mayor with administrative powers similar to that of a chief executive officer. The mayor has veto power over proposed city legislation and the power to hire and fire officials. The main weakness of this type of system is that the mayor may not be totally familiar with local government issues affecting discrete portions of the population. The policies of the mayor may not always agree with the issues of other members of the elected council.

Another system is the elected mayor, city manager, and the commission form of government. The mayor works with the commission and the city manager. Under this form of city government, the mayor represents the people, while the department chiefs of the city report to the city manager. The appointed city manager is normally a trained professional versed in public administration and city operations management.

In a city commission-type of local governance or city manager form of government, the mayor is appointed from the elected body of the city council. The main weakness of this type of system is that the mayor is not directly elected by the people. City council members are normally elected from city wards, districts, or as council members at large.

Organization of the System

The mayor. City governments normally have a mayor who may be elected by the local population in some form of election or selection. The mayor is often the chief executive officer. Sometimes the mayor is appointed by the city council and serves only as a titular head of the city with little power.

The city commission/council/selectmen. These bodies of elected or selected representatives serve as the legislative arm of the city government. Their main role is to serve their constituents with services, policies, and assistance requested or needed by them.

City manager. The city manager is the chief administrative officer of a city in a council-manager form of government. The city manager is responsible for the daily operations of the city. In the capacity as chief executive officer, the city manager oversees all city departments and ensures the

effective and efficient delivery of city services to the city's populace. The city manager is also responsible for hiring and firing employees.

City services may be divided into several functions:

- **Administrative support (essential and nonessential).** Administrative support includes support functions such as the city clerk, information technology, human resources, and legal assistance. These functions are essential to the operations of a city. There are also nonessential functions that are valued positions but are not necessary for the operations of a city. Administrative support staff members work in city hall.

- **Police (essential).** The police department performs law and order services for the city. Larger police departments may be comprised of an administrative unit, patrol officers, detectives, special weapons and tactics officers, traffic control, K-9 units, parking enforcement, special investigative units, a Drug Abuse Resistance Education program, crime prevention, and community-oriented policing services programs. The city police department overall is one of the most essential and important services provided to the populace of a city. The three services that are essential for a police department to provide are administrative support, uniformed patrol officers, and investigative detectives. Other programs are added to a police department based on need, funding, and size of the population served. Police officers normally operate out of police stations located throughout the city.

- **Fire (essential).** The fire department performs fire protection for the city. The fire department is normally comprised of an administrative unit, fire suppression, fire prevention, and emergency medical services. The fire department is considered an essential service. Fire stations are normally interspersed throughout the city to provide responsive fire protection coverage.

- **Public works (essential and nonessential).** The public works department provides infrastructure support services in a city. Essential services in public works include water production and distribution, sewer, solid waste collection, structural engineering, electrical power management, gas, building and structural inspections, street maintenance, storm drainage inspection and repair, and city vehicle fleet management. Water, sewer, and refuse services are considered essential. The remaining functions may be considered nonessential. Many of the essential and nonessential public works functions may be contracted out to the private sector. Electrical power and natural gas management and distribution may be handled by public or private utilities. Public works employees normally work in different buildings throughout the city. Some employees, normally higher level supervisors, work in city hall. Front-line supervisors and other public works employees may work at satellite offices located throughout the city.

- **Planning and community development (essential and nonessential).** The planning and community development department plans the physical and socioeconomic framework of the city. Essential services include zoning policy; housing development; economic development and building codes; water production, storage, and distribution; sewer construction; electrical expansion requirements; gas; and refuse management. Nonessential services include parks and recreation, community centers, swimming pools, performing arts centers, and cemeteries.

Assessment of Services

Elected officials and each department under the purview of the city manager must be responsive to the needs of the city's populace. Service metrics assess the effectiveness of city departments.

Mayor and city council. The effectiveness of the mayor and the city council may be measured by votes during elections or referendums. An effective mayor or city council member is often re-elected to office.

Administrative support. Performance measures for administrative support may include the number of business or building permits requested and issued, notary public services given in a month, billable hours for the legal department, the number of support calls for information technology services, the number of public affairs press conferences given, and the number of cases closed by the municipal court.

Police department. The police department's performance measures may include the number of calls for patrol officers to respond to a request for support, the number of serious crimes solved by the detective section, the number of traffic citations given in a certain month, and the number of outreach programs for crime and drug prevention.

Fire department. The fire department's performance measures may include the number of fire service calls and the incident response time. (The acceptable time for fire response is 6–8 minutes.) Other performance measures may include the number of calls for emergency medical services, the number of fire prevention measures instituted, and the number of building inspections conducted.

Public works. The public works department's performance measures may include the number of inspections performed on buildings and infrastructure; the workload for the engineering department; the number of miles of streets maintained; the amount of storm drainage load; and the number of permits granted to build residential, commercial, and industrial facilities.

Budget Development

Essential and nonessential services for a city are funded by the monies received from taxes and other fees generated by the city. The city manager meets with the mayor and elected city council members to receive guidance for the strategic direction and budget guidance necessary for the city manager to carry out the city agenda. The city manager directs the development of the budget plan for the city through each department director.

Each department director plans and provides a detailed budget recommendation, along with supplementary budget recommendations, back to the city manager. The city manager and the finance director work together on the budget, taking into account city revenues and service costs. Another round of discussions is held with department directors to reallocate budget priorities based on fiscal guidance received from the finance director.

The recommended budget is presented to elected officials for additional review and guidance. After the approved budget is completed, the public is invited to review and comment on the proposed city budget. If there are no significant objections by the public, the proposed budget is adopted.

Transparency in City Government

The mayor and the city council are normally elected officials for their respective office and occupy positions of public trust for a specified period of time. Citizens are encouraged to take part and voice their input through the ballot box or through regular public meetings held by city officials. Citizens may also participate directly by membership in advisory panels and commissions. In addition, citizens may directly contact their elected representatives to seek redress for grievances or to voice complaints. Meetings are open to the public and to the press. City officials notify the populace of any important and binding agendas in advance.

Department of Defense Units

In accordance with Department of Defense (DOD) Directive 3000.05, *Stability Operations*, in the absence of host-nation civil authority, the DOD may be called upon to perform or assist civil authorities in city management functions. The following military or interagency units may be helpful in developing and managing these functions.

City management, administrative support, planning, and community development

The civil affairs brigade performs populace and resources control, humanitarian assistance, civil information management, nation assistance, and support to civil administration.

Police functions

Military police brigades, U.S. Navy shore patrols, and Air Force security forces perform police, security, and law enforcement functions. Specialized military units such as the criminal investigation division investigate crimes. Marine expeditionary units have limited organic capabilities to perform security functions.

Interagency

The Department of Justice and the Department of Homeland Security may assist in training new officers and officials in the rule of law.

Private sector

Numerous private sector security companies specialize in security. Many of these have been contracted for security work with both the Department of State and the DOD.

Public works and fire department

U.S. Army engineer brigades and forward engineer support teams perform engineering and public works support. Air Force equivalents include REDHORSE (rapid engineer deployable heavy operational repair squadron engineer) squadrons. The U.S. Navy equivalents include the Seabees. In addition, U.S. Army brigade combat teams have organic logistics and engineering support units. U.S. Army sustainment brigades are able to provide equipment, logistics planning and delivery, and manpower support. U.S. Marine expeditionary units have limited organic capabilities for the performance of public works activities.

Private sector engineering support companies include DynCorp International, Kellogg, Brown & Root, Fluor Daniel, and Northrop Grumman.

Conclusion

A U.S.-based city management model, such as that discussed in this chapter, is just one of the many models that may be used to facilitate city management. In stability operations, the specific city management model used should reflect the needs of the population and should take into account cultural factors. It is vitally important to restore city management organizations and structures to ensure the government's legitimacy. It is also important for the host nation to take the lead while external entities provide support and analysis.

References

A presentation given by Mr. Miller, the City Manager of Fort Leavenworth, KS, is the primary source of this paper. Other sources for this paper include the Center for Army Lessons Learned (CALL) *Afghan PRT Handbook,* dated February 2011, and the draft copy of JP 3-07, *Stability Operations,* dated 2011.

Endnotes

1. CALL Handbook 10-41, *Assessments and Measures of Effectiveness in Stability Operations,* 2010. Available at http://usacac.army.mil/cac2/call/docs/10-41/app_a.asp. Accessed 29 May 2011.

2. CALL Handbook 11-16, *Afghan PRT,* 2011. Available at http://usacac.army.mil/cac2/call/docs/11-16/toc.asp. Accessed 29 May 30, 2011.

3. Ibid.

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5. City of Tomball, City of Tomball Organization Chart, 2011. Available at http://www.ci.tomball.tx.us/city-manager/organization_chart.html. Accessed on June 3, 2011.

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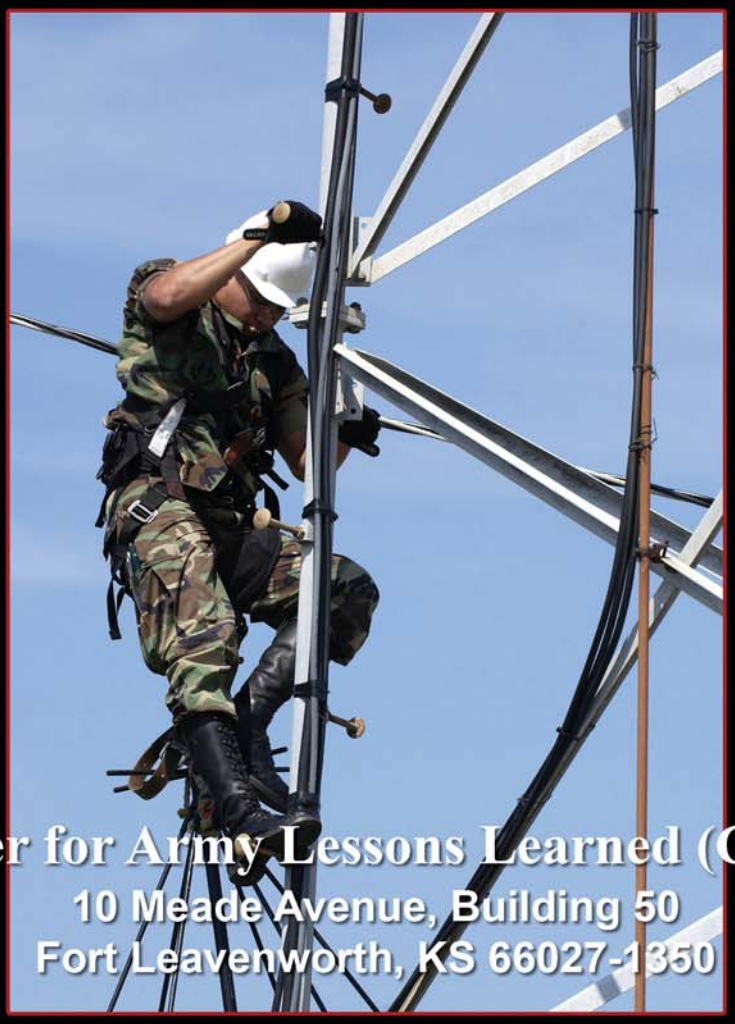

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