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Summary

Directed mainly at policy makers and leaders in mine-plagued nations and government and non-government mine action planners, the article argues for holistic mine action strategies, coordinated priorities, and best management practices. The authors establish the need for nations to take charge of their mine action organizations and present strategic management methodology to implement self-determination concepts. They insist that humanitarian demining must start with the end in mind, an integrated and nationally prioritized requirement analysis of each of the mine action areas—mine awareness, mine field assessment and surveys, mine and UXO clearance, victim assistance, and humanitarian demining management. They also suggest that nations should consider reconstruction and development programs, as well as mine action, when contemplating resource mobilization.

With nationally prioritized programs, and mine action centers managed by host nation-dedicated managers, nations can expect to achieve optimum resource allocation and, most importantly, to look after their people as a first priority. The author’s recommend that nations look to industry for dedicated, first tier mine action program managers.

1. Introduction

By way of introduction we relate Andy Smith’s description of the beginning of a typical humanitarian demining effort. At present, Smith writes in the October 1998 Journal of Humanitarian Demining, “Humanitarian demining in most affected areas begins with a U.N.-led emergency response, which is controlled by ex-pats, who usually have a military background and are largely paid for by ‘easy-marked’ donations from U.N. countries. At the same time, as the U.N. arrives, the speciality charitably-funded clearance groups, which are funded by an individual government’s aid budget or by trusts and donor charities, tend to move into the area. Following the charitable groups come the commercial companies, contacts of the military, and the broader humanitarian community. Deminers may appear regionally-based but are actually initiated by profit-taking outsiders.” Further, while a few new charitably funded demining groups still exist, most of the new players are commercial companies. For example, with the massive funding available for work in the former Yugoslavia, European groups are anxious to get involved and new affiliations and companies arise weekly.

Our point in relating Smith’s scenario is to highlight the apparent lack of holistic strategic planning and management processes that would help coordinate and manage scarce humanitarian demining resources. While planners and resource suppliers have increased dramatically since the early-90s, we find no apparent corresponding management strategies to coordinate planners’ and suppliers’ interests. Humanitarian demining documents suggest that governments, non-governmental organizations (NGOs), and other donor organizations have entered the demining operation without an integrated plan to help synergize their donated resources and have become immune to the cry for help. Our experience in humanitarian demining, combined with our research of the humanitarian demining and technology literature, reveals that the humanitarian demining industry’s customers, the 70 or so mine-plagued nations, would benefit greatly from an integrated plan to strategically manage their humanitarian demining efforts. In general, our paper is addressed to the leaders of those mine-infested nations, calling on them to establish clear priorities in relation to the needs of their affected people. The key to developing an integrated approach to humanitarian demining is integration. They assert that all components of mine action—mine awareness, mine assessment and survey, mine and UXO clearance, victim assistance, and humanitarian demining management—are interrelated and integral parts of any comprehensive international demining operation, stating that these initial steps were not taken in Bosnia. International companies, local contractors and local forces tackled the larger Bougainville mine problem and they are still at work to-day, competing for funding and influencing priorities. Oakley et al. claim this lack of a comprehensive demining strategy is a high price—human suffering remains, and economic output is still less than half its 1990 figure. They further claim, regarding Kosovo, that despite the widespread belief that mine clearance is an integral part of post-conflict peace-building, economic revitalization and sustainable development, there is no agreed model for addressing or even coordinating these different needs and roles. They conclude that to be effective, international mine action planners must develop a comprehensive management strategy now. Otherwise, the “fighting may have ended, but the mine crisis is only beginning.”

In addition to the above we must consider, that many humanitarians consider it to be their role to ensure a comprehensive management strategy to help those countries. Hidden Killers 1998 concludes, in part, that the landmine crisis cannot be successfully overcome, if the countries affected by the mine crises do not tackle the problem, and if the international community cannot support and coordinate the international response (iatrics ours) in eradicating the landmine plagues. In addition to Hidden Killers 1998, we found several writers who stress the need for a comprehensive management approach to mine action operations. We briefly cite the more adamant writers below. Note that we replace humanitarian demining with mine action, which refers to all those activities that address the problems faced by populations as a result of landmine pollution.

Retired Ambassador Robert Oakley et al. argue, in a Los Angeles Times article, that international demining planners need to develop a comprehensive demining strategy, suggest that the international community must develop a coordinated U.N. response to landmine contamination and develop an integrated approach to humanitarian demining. They assert that all components of mine action—mine awareness, mine assessment and survey, mine and UXO clearance, victim assistance, and humanitarian demining management—are interrelated and integral parts of any comprehensive international demining operation, stating that these initial steps were not taken in Bosnia. International companies, local contractors and local forces tackled the larger Bougainville mine problem and they are still at work to-day, competing for funding and influencing priorities. Oakley et al. claim this lack of a comprehensive demining strategy is a high price—human suffering remains, and economic output is still less than half its 1990 figure. They further claim, regarding Kosovo, that despite the widespread belief that mine clearance is an integral part of post-conflict peace-building, economic revitalization and sustainable development, there is no agreed model for addressing or even coordinating these different needs and roles. They conclude that to be effective, international mine action planners must develop a comprehensive management strategy now. Otherwise, the “fighting may have ended, but the mine crisis is only beginning.”

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ncellor th. Following an international demining committee, organizations for the management of Action Programmes, Schulze, the Austria Vice and international and scientific communities, established an approach to the high cost of demining programs so that they must be seen as integral parts. An established aspect of rehabilitation of agricultural production is the comprehensive nature, even to the point of setting among donor nations. We need to conserve and disburse mine action resources for the long term, anticipating that public and private sectors factor awareness, and vigilance may wane over time. Nurturing the humanitarian demining constituency over the long term may be less complicated if mine-infested nations can present centralized, responsible, well-constructed general managers to manage the mine action centers that report incremental progress on a consistent basis. Finally, we note a current appalling situation that amplifies our plea for holistic strategic management. James East emphasizes that mine-infested Thailand signed the Ottawa Agreement, compelling the Thai military to earnestly start mine removal on the Thai-Cambodian border. However, the Thai Mine Action Campaign, with only one staff member, is the Thai representative in the CORD, has not yet started conducting surveys to determine where the mines are. East quotes the Centre's frustrated assistant director: "We have been here for a year and we have not yet removed one mine" even though U.S. military experts trained the Thais in mine action when the Centre was established in 1991. The Centre's 13-person staff awaits US$201 million budget approval from the Defense Ministry. The 99 trained deminers are "wandering their thumbs in their barracks," according to East, despite American pledges to help in financing mine clearance and survival dogs, mine detectors and mine-removal vehicles. This indicates that while U.S. training was successful, remaining may be necessary soon (demining skills tend to die if not used) due to the Mine Action Centre's lack of an integrated or holistic approach to their mine problems.

3. The Mine Action Strategic Management Defined

Strategic management, in our context, expresses a commitment to identifying, prioritizing, and implementing the optimum mix of available mine action resources for a given mine-infested nation. The key to strategic management is that it is a process, recognizing that the resources equation to address mine problems will most likely differ from one mine-infested geographic or political area to another. That is, mine action resources must, not constants, be tailored to the environment and an evaluation of the host nation's abilities to sustain a long-term commitment. Our strategic management process starts with the end in mind—a host nation, U.N. or NGO-supported Requirements Analysis of the mine-infested environment—then works back examining all resources available to the host nation's mine action centers, irrespective of mine action agendas not indigenous to the host nation.

The first part of strategic management focuses on a clear understanding of the host nation's vision, goals and objectives of what other donors will bring to the table. The host nation, in developing its strategic plan, with the help of the lead donor, selects the optimum mix of available mine action resources based on a requirements analysis of the intended environment. All components of mine action—money, personnel, production, surveys, mine and UXO clearance, victim assistance, and information management—must be examined in the requirements analysis and reflected in the resource mix. The prioritization reflects a condition for the general action and is the government able to support a long-term commitment? What type of equipment is employed and what is its condition? Relative to the mine action organization, will the military and civilian sectors cooperate, with the civilian sector leading the policy decisions and the military implementing? This is generally a condition for U.N., World Bank, and NGO support. What is the structure of their existing humanitarian demining organization? What is their demining experience?

The second part of the strategic management process is implementing the strategic plan (the resource mix), through a cyclical process of planning, organizing, resourcing, controlling and sustaining the implement mine action program. It's not enough to develop the optimum resource mix. To fully exploit, host nations must effectively and efficiently manage the application of those resources, through a national mine action center, to achieve their mine action visions. We believe that obtaining or developing an independent, host nation-dedicated, sophisticated general manager to manage the mine action center for the long term is as important as developing the strategic plan. Indeed, it is part of it and we will address this challenge in our conclusions.


In this section we discuss our two-part strategic planning phase followed by the implementing management cycle.

Strategic Planning Phase

We suggest host nations start by studying the contaminated areas concurrently with the mine action center organization. Typical questions that might be asked during the strategic planning phase are: Has a National Level One Survey been considered? What types of mines are present or suspected? Casualty data? What is the soil content? The foliage! The culture of the people in the mine polluted region? What is the land used for? Urgency of mine clearance? Economic implications? Political considerations likely? That information is critical to establishing a mine action plan. The cycle involves planning, organizing, resourcing, controlling, and sustaining all wired together by coordination (Figure 1). We rely on UNMAS for mine action organization terminology and standards.

Plan

Planning implements the strategy discussed above and starts with the general manager or minister-in-charge determining the goals (or targets) that must be achieved to reach the national leader's mine-free vision. Following goal establishment, we implement measurable objectives necessary to achieve those goals. The general manager may next want to establish and schedule the sequence of activities necessary to accomplish the objectives. The planning process actually starts while performing the Requirements Analysis that indicates the resources needed to accomplish the mine action goals. The Requirements Analysis (figure 1) describes the project and identifies the objectives and events leading to goal accomplishment. We take for example our organization, U.S. Central Command, when we enter a nation that has sought U.S. mine action assistance, the planning matrix (similar to a schedule) we use is designed to help us develop the next logical step and reach the host nation back to help manage their humanitarian demining operations. The matrix we construct is relatively simple, listing the activities required to start-up the organization on the left side and down the top (usually in months). Then we start filling in what should be done and by whom. This approach works best with new start programs. (Once the host nation has the MAC and humanitarian demining committee operating, we can more effectively support their goals and assist them with resolving their most significant problems through a train-the-trainer process and data on materials and equipment.)

Two significant events occur during the Planning phase that might also serve as examples. Following the Department of State Policy Assessment Visit, which includes site visits and requests for demining assistance, we begin developing the U.S. Humanitarian Demining Country Plan. This plan, which we draft in continuous coordination with the host nation, mine action leaders, etc., serves as our resource strategy. It is written to accurately capture all resources and direct them toward the required support of the host nation. This plan, which is written and made public, develops an initial mine survey budget for the year. After the host nation receives approval for the funds, we may initiate the next logical step in our mine action operation. We also include a section on training, specifying the requirements for those individuals who will be responsible for the mine action program.
ecution of the plan. How do we arrange our human resources to best accomplish the objectives we set out while planning? Also, defining processes is extremely important—how does work get done at the national MAC and regional MACs? Among donors within the MAC?

We recognize many aspects of “organizing.” The host nation establishes their national humanitarian demining Committee, national MAC, and regional MACs. The donor community and the donor organizations do not support to best address host nation requirements, problems and needs and the U.S. organizes its support to provide its part of the required support. In our case in the survey and coordinate our Country Plan and ensure that our planned support complements and synergizes the host nation assets and donor support to the host nation. If a military-only organization exists, we will recommend some sort of a civilian-led, military implemented hybrid organization that all donors can support.

If some sort of donor organization is not in place, we attempt to facilitate support and to better coordinate efforts. Part of our Requirements Determination Site Survey (actually a requirements analysis) is designed to determine who is doing what in the host nation, who has the lead, and where the U.S. fit in the big picture (our aim is a viable self-sufficient program.) This also includes helping organize donor support to the host nation.

Resource

Resourcing provides funding and personnel to support the MAC and RMACs and should be coordinated while developing a Country Plan. Based on the Requirements Analysis, all aspects of the mine action program must be considered in the resource plan, providing donor organizations not already part of the nation’s demining plans as an opportunity to fill in needed funding or resource gaps.

At U.S. Central Command, we start resource planning in earnest during the Requirements Determination Site Survey while we’re confering with the host nation and NGOs interested in helping the host nation. We then draft the U.S. Country Plan, staff it with all interested agencies including the host nation’s own demining organization, and organize a coordinated draft plan to host nation representatives, U.S. humanitarian demining program managers and force providers (trainers) for approval. The briefing is conducted at what is called a Resource Allocation Planning Meeting. The end result is a resource planning (the Country Plan that is), again, technically approved by the multiple humanitarian demining organizations and the host nation (although not yet signed). The agreed upon plan is then signed by the U.S. Ambassador to the host nation and sent to the decision authority within the U.S. government to provide the resource. U.S. resources are approved through the Interagency Working Group, which represents upper-level decision-makers from several U.S. Government agencies. In the event that approved resources are less than required, the plan is reworked to account for shortages and coordinated once more with all involved agencies supporting humanitarian demining, including especially the host nation’s effort eliminate shortfalls.

We would caution general managers regarding establishing control measures for the various programs. Evidence suggests that control systems produce two kinds of invalid data: invalid data about what can be done and invalid data about what has been done. Military dispensers, perhaps unsophisticated about planning and control, may wish to please their organizations more than report data accurately. Quality Assurance management (systemic quality) should be practiced through rigorous demining training and strictly enforced safety practices. Quality Assurance, in addition to Measures of Effectiveness, are techniques we would recommend host nations establish for controlling the quality of reporting progress, thus helping ensure effective and consistent U.S. and other donor support. Regarding the importance of reporting progress, we reiterate here the necessity of Mine Action Centers in providing the host nation’s long term outlook.

In general, the U.S. does not attempt to control the host nation mine action program. Accounting procedures are established by the host nation. They determine the quality of the instruction being conducted in any of the elements of mine action. Measures of Effectiveness (MOEs) are established for measuring two things—how well the host nation is conducting humanitarian demining and how well the U.S. support is assuring the host nation. These MOEs are often different from the host nation’s or other donor’s Measures of Effectiveness. The general manager must gather the appropriate information to assess MOEs and adjust his program as necessary to sustain and improve U.S. and other donor support.

Sustain

We repeat Patron’s warning that donor fatigue at some point is going to set in among donor nations. General manager’s mind is to conserve and distribute resources for the long term, anticipating that public and private sector focus, awareness, and vigilance may wane over time.

In this phase, the U.S. focus changes from extensive, daily follow-up, management organization to maintaining, consulting and looking more long term for new technologies and techniques that might help speed efficiency and improve safety for the host nation. Our presence is scaled back to 30-45 days per quarter, usually focused on specific elements of mine action such as mine awareness. For example, our mine action assistance program consists of a formal annual visit called the Requirements and Verification Visit specifically designed to review and update the host nation’s humanitarian demining requirements, what we think the host nation needs, is receiving equipment which previously donated is being used properly and effectively. Obviously, we spend considerable time in the host nation throughout the year but the Requirements Analysis Verification Visit is conducted to work with the highest levels of the host nation government and to ensure the host nation understands we hold them responsible for the supplies and equipment provided. The results of the Requirements Analysis Verification Visit are then used to update the Country Plan, changing or modifying U.S. support to the host nation in light of the status of their goals and objectives as well as what other donors intend to provide. Our Country Plans cover two years and are coordinated with all agencies associated with humanitarian demining in the host nation (including the host nation). U.S. Country Plans are posted on the web as well as other donor support.

Resource

• Fund MAC, RMACs
• Donor involvement
• U.S. training, equipping

Figure 1
• U.S. ROSS
• U.S. RAPM
• U.S. RDSS event

The implications of this approach are beneficial in that it involves all players and the host nation is continually involved in the management of the mine action program. It also helps break down bureaucratic stovepipes. Coordination is central to the five management steps discussed above. In situations where there are conflicting desires and agendas between donors and the host nation, violent and open coordination is absolutely critical.

In our program, the establishment of a formal donor committee and good lines of communication with the host nation is essential. The donor committee must be chaired by an organization that can help ensure all donor support the host nation with minimal redundancy or waste. The donor committee provides the forum for coordinating donor plans and de-conflicting resource arguments. Coordination is the key success factor in the management of the MAC—indeed, achieving a degree of cooperation among the mine action function—may be the general manager's greatest challenge.

5. Conclusions and Implications

a. While we suggest that strategic planning for mine action is distinct from management planning, in practice management leaders generally combine the functions; thus, the Strategy would be developed in the Planning Phase of the management cycle. We made the distinction to emphasize the importance of determining a country’s total mine action requirements before contemplating resources, which most countries tend to do not to. Our Strategic Management logic would also apply to governments that decide to undertake their own mine action operations. Host nations should lead the Requirements Analysis phase and provide a general manager to lead their Mine Action Centers. Host nations would do well to advertise their general management needs to international management consultant firms. The investment

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• QA first, QC second
• U.S. safety standards
• MOE for country donors

Figure 1

• U.S. ROSS
• U.S. RAPM
• U.S. RDSS event

Requirements and Planning Management
• ROSS is Requirements and Verification Visit

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the many different donor agencies involved. We note that as a development agency the World Bank supports member country programs that help lead to the eradication of poverty and to the promotion of sustainable development. Its support of mine action is based upon the recognition that mine pollution is, for many affected countries, a significant obstacle to the reestablishment of normal development activities. In this context, it shares with UNDP a perspective which views mine pollution as a development problem with long term consequences and, necessarily, with long-term solutions which extend far beyond initial humanitarian concerns. Also, in contrast with the Bank shares responsibility with UNDP for convening donor groups in reconstruction situations and thus has a major role in resource mobilization and in setting long term agendas for international support for mine action and other needs. Similar to UNDP mine action policies, land mine clearance in Bank-financed projects must be carried out under the auspices of civilian authorities, an incentive for civilian-led national Mine Action Committees, setting policy for Mine Action Centers.

c. Implications for continuous Quality Assurance, not necessarily Quality Control, are significant. While Quality Control at the demining unit level is necessary and important, Quality Assurance, systemically managed by the general manager, is equally important. Assuring that training and safety systems are well designed, properly taught and rigorously enforced is a function of the general manager, not off-handedly delegated to subordinates. In addition, it is the responsibility of the general manager to establish Measures of Effectiveness for his Mine Action Center, which tell his boss or the Prime Minister how the mine action program is progressing. Donors will also need data for their own agendas, which the general manager must accommodate if he expects continuous donor support. Having established its own Measures of Effectiveness, the U.S. will assist general manager's in establishing data collection methods to meet their (and other donors') data needs. The point is that general managers need to realize the importance of regularly reporting mine action data to donors, helping ensure their long-term support.

As we suggest throughout this article, our research and experience indicates that worldwide mine action remains fragmented and uncoordinated. Holistic national approaches to their mine action problems would appear to help sustain secure and generous donor support. Regarding competition for demining resources, holistic approaches may tend to prioritize donor support to regions enduring the most human suffering, rather than those with the most political influence.

An Application of Strategic Management and Lessons Learned

In the June edition of *Journal of Mine Action* the authors will demonstrate their strategy and management model through a fictional nation that contains many of the mine action problems in existence today. They will also present an organizational model and several of the lessons they learned during their experience in Horn of Africa and Middle East mine affected countries.

**Biography**

Lieutenant Colonel Pete Owen, USA, is the Program Manager for U.S. Central Command's humanitarian demining program. He is responsible for all U.S. mine action operations in the Middle East and in African nations that comprise Central Command's area of responsibility. Much of this article is based on lessons he learned while establishing and managing the program.

Dr. Alan Childress, a management consultant for Boss-Allen & Hamilton, is currently engaged as U.S. Central Command's humanitarian demining Country Manager for Ethiopia, Eritrea and Djibouti. He specialized in international management while earning his business administration doctorate at Nova Southeastern University.

The authors acknowledge the contributions of John Johnson, the U.S. Central Command's humanitarian demining Country Manager for Jordan, Egypt, Afghanistan and Oman. His extensive mine action knowledge and his compassion for people affected by the worldwide landmine affliction are unparalleled.

**EUDEM:**

The European Union in Humanitarian Demining

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deuctive testing, signal/image processing, remote sensing, Geographic Information Systems and medical imaging.

**Existing vs. new technologies**

Several national demining campaign sponsors brought us less emphasis should be put on development of new technologies. The "improvement of existing technology will resolve the problem faster." Some point out imperfect technique whose limitations are well known as compared to a new technique that is not yet trusted. The need for complete solutions, taking into account all aspects was stressed by many NGOs — Mine Action is indeed not only about demining.

**(Global) R&D trends**

Much of the R&D effort for humanitarian demining has gone toward the detection of individual mines. Two approaches seem to be the most predominant: the use of a multi-sensor system, or the combination of a detection sensor. Some research is currently done on wide-area confirmation methods. Airborne mine field delineation or explosive vapor/trace detection to complete surveys or partially replace dogs, in order to save precious time by concentrating on areas which really need to be demined. Evolution should be governed by a set of keywords (NPR): "Safer, Faster and Cheaper."

**Sensor technology maturity**

Consider: we have to rely on indirect evidence due to the absence of well-established definitions of equipment performance: most of the results of independent performance tests are not publicly available; we have not conducted performance tests ourselves; and we do not share the practical experience of deminers working in the field. We nevertheless think that Table 2 is useful in fixing the large tendencies in technical maturity and equipment cost.

**Airborne mine field delineation/remote sensing**

The role of remote sensing vs. ground-based methods has not yet been fully identified. For airborne mine-field delineation on nautical surfaces (100-1000 km²), terabytes (1000 gigabytes) of digital data have to be analyzed. Setting-up a measurement campaign is a complex and expensive operation. Although for civilian applications on-board processing might not be a primary requirement, even off-line analysis requires huge computing facilities. The development of remote sensing systems has been primarily done in the military context and it is unlikely that these systems will be operational for civilian applications in the near future. Several platforms have been tested, like airships, aircrafts, drones and helicopters. The privileged sensors are the optical and the IR images; although UW-B/SAR seems to yield promising results for the future. On certain soil types and non-densely vegetated areas the airborne mine field delineation reports are reported to be successful (e.g. deserts).

**Testing and evaluation**

The implementation of specifications for testing protocols is again an international mission. The existence of several ad hoc protocols is a well-known fact after this survey, but they remain proprietary information, which is inaccessible for the research community. In order to test and compare new technologies that are in the development phase or have been developed, a possibility should exist to gain confidence by application in the field. The establishment of a joint working group, focusing on the development of testing methodologies and the design of standards for sensor and system assessment, is currently ongoing. On the European side, the existing Committee of Advisers: Detection of Mines based on Operational Standards (CADMOS) workgroup are promoted by JRC, acts as the core group.

EUDEM started in December 1998 and ended in July 1999. The survey was conducted by EPFL (Ecole Polytechnique Fédérale) and VUB (Vrije Universiteit Brussel). It was funded by EU; DG XIII.

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